



Between Progress and Barriers: Bologna's Sustainable Mobility Plan and the Disabled Experience – A Case Study

Master Thesis,
Master of Science in Urban Governance of Inclusive Sustainable Cities

Erasmus School of Social and Behavioural Sciences
Institute for Housing and Urban Development Studies

GIORGIO PALLADINO
560663

JUNE 29, 2025

Supervisor: Dr. Sofia Pagliarin
Second Reader: Dr.ir.Beitske Boonstra

Wordcount: 11,986
Pages: 65



Abstract

As European cities aim for ambitious sustainable targets, there are concerns about whose demands are prioritised in the process. This research investigated how daily mobility practices among wheelchair users in Bologna have been impacted by recently introduced sustainable mobility policies. While Bologna was among the first cities to implement the European Sustainable Mobility Plan (SUMP), this study emphasises the gap between inclusive rhetoric and lived experience. By combining document analysis with ten interviews, this study focuses on the impact of three important urban mobility policies on wheelchair users: the Sustainable Urban Mobility Plan (*Piano Urbano della Mobilità Sostenibile*, PUMS), the Plan for the Elimination of Architectural Barriers (*Piano per l'Eliminazione delle Barriere Architettoniche*, PEBA), and the General Urban Plan (*Piano Urbanistico Generale*, PUG).

The findings show that although the PEBA includes specific measures to address accessibility, the PUG and PUMS convey a rhetoric of inclusivity while lacking enforcement procedures. Wheelchair users therefore experienced fragmented policy outcomes, reporting physical and psychological barriers, constrained access to public space, and limited mobility options. Overall, these findings showcase a persistent gap between policy ambitions and lived accessibility.

Keywords: Sustainable Mobility; Wheelchair Accessibility; Urban Governance; Transport Justice; Lived Experience

Acknowledgements

Several people have been essential throughout the course of this research and deserve heartfelt recognition. I am especially grateful to the Italian National Association for Disabled and Invalid Civilians (ANMIC) for their time, dedication, and support in helping me connect with respondents. A special thank you goes to Roberto Rizzo and Mauro Pepa for their invaluable assistance. My sincere thanks also go to the Council on disability, La Skarrozzata, and the Association for Invalid Civilians (APICI) for their important contributions. I am deeply thankful to the people of Bologna: residents who generously shared their time, energy, and personal stories, as well as the municipal collaborators and contacts who pointed me toward relevant policies and offered valuable insights. Lastly, my heartfelt thanks go to my family, friends, and fellow students, whose companionship turned challenges into shared growth and joyful moments.

Ringraziamenti

Diverse persone sono state fondamentali nel corso di questa ricerca e meritano un sincero ringraziamento. Sono particolarmente grato all'Associazione Nazionale Mutilati e Invalidi Civili (ANMIC) per il tempo, la dedizione e il supporto offerti nel mettermi in contatto con i partecipanti. Un ringraziamento speciale va a Roberto Rizzo e Mauro Pepa per il loro supporto prezioso e insostituibile. Un sentito ringraziamento va anche alla Consulta sulla disabilità, La Skarrozzata, e all'Associazione per Invalidi Civili (APICI) per il loro contributo prezioso. Sono profondamente riconoscente alle persone di Bologna: ai residenti che hanno generosamente condiviso il loro tempo, la loro energia e le loro storie personali, così come ai collaboratori e referenti del Comune che mi hanno indirizzato verso politiche rilevanti e offerto spunti utili. Infine, un sentito ringraziamento va alla mia famiglia, ai miei amici, colleghi e colleghe, la cui compagnia ha trasformato le difficoltà in occasioni di crescita condivisa e momenti di gioia.

Table of Contents

Chapter 1. Introduction	1
Chapter 2. Theoretical Framework	5
2.1 Urban Governance and Sustainable Mobility Policies	5
2.2 Shaping Accessibility and Modal Choice	6
2.3 Justice, Accessibility, and the Experience of Mobility	7
2.4 Conceptual Model and Research Question	10
Chapter 3. Methodology.....	13
3.1 Document Analysis	13
3.2 Interviews.....	13
3.2 Operationalisation	15
3.3 Validity, Reliability, and Ethical Considerations	18
Chapter 4. Findings and Discussion.....	20
4.1 Equity and Accessibility in Urban Policies	20
4.2 Policy Impact on the Experience of Urban Mobility	22
4.3 Concluding Reflections.....	31
Chapter 5. Conclusion	32
5.1 Implications and Recommendations	34
Bibliography.....	36
Appendix.....	40
Appendix 1: Interview Guide	40
Appendix 2: Code Tree Interviews.....	43
Appendix 3: Code Tree Document Analysis	48
Appendix 4: Information Interviews	51
Appendix 5: Map of Bologna	52
Appendix 6: Privacy Checklist & Consent Form	53

Acronyms and Abbreviations

ANMIC	Associazione Nazionale Mutilati ed Invalidi Civili <i>(National Association of Mutilated and Invalid Civilians)</i>
APICI	Associazione Per gli Invalidi Civili <i>(Association for Invalid Civilians)</i>
PEBA	Piano di Eliminazione delle Barriere Architettoniche <i>(Plan for the Elimination of Architectural Barriers)</i>
PUG	Piano Urbano Generale <i>(General Urban Plan)</i>
PUMS	Piano Urbano della Mobilità Sostenibile <i>(Sustainable Urban Mobility Plan)</i>
SUMP	Sustainable Urban Mobility Plan

Chapter 1. Introduction

Despite the active efforts to make Europe more sustainable through investments in renewable resources and sustainable modes of transport, the number of citizens who still choose the car as primary transportation keeps increasing. Italy leads European countries in motorisation rates, with 684 passenger cars per 1,000 inhabitants (Eurostat, 2024). Within this national context, several Italian cities have introduced measures with the ambition of reversing the trend. Among them, Bologna stands out for its systematic implementation of the European Commission's Sustainable Urban Mobility Plan (SUMP) framework (European Commission, 2013).

More specifically, since 2019 the city has advanced a series of environmentally conscious projects and interventions aiming at reducing car dependency. Through the integration of the SUMP into local practices, the municipality has been bringing forward initiatives like a metropolitan cycling network (Bicipolitana), a shared bike system (Ridemovi), a new tram network currently under construction, and the 'Bologna Città 30' initiative (*Bologna City 30*), which introduced a 30 km/h speed limit across most streets of the city (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2025a; Tram Bologna, 2025). These initiatives are embedded in three major urban policy documents: the Sustainable Urban Mobility Plan (*Piano Urbano della Mobilità Sostenibile*) (Città Metropolitana di Bologna, 2019), the Plan for the Elimination of Architectural Barriers (*Piano per l'Eliminazione delle Barriere Architettoniche*) (Comune di Bologna, 2025b), and the General Urban Plan (*Piano Urbanistico Generale*) (Comune di Bologna, 2021b), from now on referred to as PUMS, PEBA, and PUG. Together, these policies capture Bologna's ambition to reduce car dependency, promote active mobility, and create an inclusive public space.

However, while these policies emphasise sustainability and equity, official evaluations have predominantly focused on environmental and traffic-related metrics. For instance, municipal reporting emphasises reduced accident rates and increased cycling, alongside a decline in air pollution (Comune di Bologna, 2025a). Thus, these evaluations overlook the effects on certain marginalised communities, such as residents with disabilities and limited mobility. Despite municipal claims that, in the context of the lowered speed limits, the initiative "improves the quality of public space, by providing safer streets and squares that are inclusive for children, the

elderly, people with visual and motor disabilities, and parents with strollers” (Comune di Bologna, 2025a), these claims often focus on general accessibility or leisure use, rather than addressing the practical mobility needs of individuals navigating the city for work, errands, or similar purposes.

Therefore, this study is concerned with precisely this gap. It focuses on wheelchair users, a group whose experiences of urban mobility are shaped by transport infrastructure, the accessibility of public space, street design, and policy implementation (Velho et al., 2016). The way the material and social changes generated by the PUMS, PEBA, and PUG affected accessibility and inclusivity in urban spaces and services thus guides the inquiry (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b).

The research integrates different theoretical perspectives. First, drawing from the social model of disability, disability is understood not as an individual condition, but as the outcome of inaccessible environments and exclusionary systems (Oliver, 2013; Haegele & Hodge, 2016). Second, transport justice theory emphasises that access to mobility is a central component of spatial justice, shaping individuals’ ability to participate in economic, social, and political life (Martens, 2012). More broadly, the thesis is framed by Lefebvre’s (1968) notion of the right to the city, which concerns the right to access, appropriate, and shape urban space.

Institutions often set rhetorical commitments to accessibility, although existing research shows that their inclusive intentions often fail to translate into practice. Gray et al. (2016) describe this as the ‘rhetoric: reality gap’, hence the disconnect between planning principles and delivery mechanisms. Da Cruz et al. (2022) point to weak institutional coordination as a key reason for fragmented outcomes, while Anthony Jnr (2023) highlights that inclusive mobility requires more than policy statements: it demands meaningful engagement with disabled users and enforceable standards.

To explore how Bologna’s sustainable mobility policies affected disabled residents in practice, this study adopts an experiential approach. Building on Stafford, Vanik, and Bates (2022), four dimensions of mobility experience are used to guide the analysis: physical accessibility, safety and comfort, autonomy and independence, and psychological well-being. These dimensions recognise that mobility can depend both on infrastructure availability, as well as on how infrastructure is encountered, used, and negotiated in daily life.

In addition, central to this study is the exploration of how sustainable mobility policies affect the ability of wheelchair users to choose between active and passive modes of transportation.

Drawing on Gant (1992), passive mobility is understood as the use of private vehicles, taxis, or public transportation. Particularly in the context of wheelchair users, it can often become a constrained necessity, shaped by availability, accessibility, affordability, and infrastructural reliability. In contrast, active mobility, including wheeling and pedestrian movement, is studied through Mehta's (2013) framework for inclusive public space, which identifies safety, comfort, inclusiveness, pleurability, and opportunities for meaningful activity as essential elements.

These literatures and perspectives are well aligned in their commitment to inclusion and equity, but remain rather fragmented. Therefore, this study aims at building on and connecting them to address a critical gap at their intersection: the lack of research on how sustainable mobility policies affect the everyday experience of disabled residents, particularly wheelchair users. The study is guided by the following research question:

How do sustainable mobility policies impact the experience and use of the public space among wheelchair users in Bologna?

Additionally, the following sub questions support this inquiry:

- 1. How do Bologna's sustainable mobility policies frame inclusivity and accessibility for wheelchair users?*
- 2. How do wheelchair users experience the everyday consequences of these policies in terms of accessibility, autonomy, safety, and psychological well-being in Bologna?*
- 3. In what ways do these changes affect the ability of wheelchair users to choose between active and passive modes of transport in Bologna?*

Therefore, this study proceeds with the following working expectations, which help understanding and exploring the impact of sustainable mobility policies on the lived realities of wheelchair users in Bologna:

1. Sustainable mobility policies that enhance accessibility, safety, autonomy, and psychological well-being are more likely to support active mobility among wheelchair users.
2. When these dimensions (accessibility, safety, autonomy, and psychological well-being) are inadequately addressed and therefore negatively affected by urban mobility policies, wheelchair users may have limited ability to choose between active and passive mobility

options, leading to a constrained reliance on certain modes out of necessity rather than out of preference.

By focusing on a specific group within a defined policy context, this research contributes to a growing body of work at the intersection of transport justice, disability studies, and urban governance. To do so, this thesis adopts a qualitative case study approach, focusing on the city of Bologna to examine how sustainable mobility policies affect the everyday experiences of wheelchair users. The following chapter outlines the theoretical framework, presenting key academic debates and conceptual relationships. This is followed by a detailed overview of the research design and methods used to collect and analyse the data, and subsequently, the findings, conclusions, and policy implications of the study.

Chapter 2. Theoretical Framework

The way sustainable mobility policies are designed and implemented can have a significant impact on who can benefit from them. For citizens with disabilities, and wheelchair users in particular, such policies can either increase opportunities for movement and autonomy or create new barriers (Oliver, 2013; Gray et al., 2016; Stafford, Vanik, & Bates, 2022). Although sustainability strategies often include commitments to accessibility and equity, the impact of these goals depends on how they are translated into infrastructure, services and regulations (Gray et al., 2016; Anthony Jnr, 2023). When strategic ambitions do not align with the delivery mechanisms, or prioritise efficiency over inclusiveness, people with limited mobility may become further excluded from the benefits of urban transformation (Martens, 2012; da Cruz et al., 2022). To analyse these interlinked dynamics, this chapter builds a multi-layered theoretical framework.

2.1 | Urban Governance and Sustainable Mobility Policies

Although sustainable mobility policies increasingly address inclusiveness, their implementation often fails to do so. This is referred to by Gray et al. (2016) as a ‘rhetoric: reality gap’, in which objectives are not accompanied by the necessary tools for implementation. Similarly, da Cruz et al. (2022) argue that inclusive ambitions are rarely put in practice through accountability or funding. Fragmented governance and weak enforcement frequently make inclusion an aspirational ideal. When inclusive goals are not backed by enforceable tools or institutional coordination, what Gray et al. (2016) call ‘weak institutional hardware’, policies often result in fragmented, inconsistent outcomes (da Cruz et al., 2023).

Furthermore, prevailing planning cultures often prioritise efficiency, innovation, and technology, at the expense of accounting for user diversity (Martens, 2012). In many sustainable mobility agendas, there is limited attention to how transport systems interface with physical impairments or dependency on support structures (Anthony Jnr, 2023). This discrepancy translates into the emergence of new or persistent barriers. For example, shared mobility projects may be implemented in ways that exclude people who depend on special vehicles or equipment, or public transportation systems may be expanded without guaranteeing independent access for wheelchair users (Oliver, 2013; Stafford et al., 2022).

These challenges show the necessity to consider not just what sustainable mobility policies aim to achieve, but also how they are implemented and, consequently, affect the urban mobility experience of the residents. Mobility systems often fail to meet the demands and needs of marginalised groups due to structural factors such as institutional fragmentation, unclear accountability, and a lack of inclusive design standards (Gray et al., 2016; da Cruz et al., 2022; Anthony Jnr, 2023). Aligning and complementing these conditions is essential to understand the outcomes of policies in practice and to identify how such systems can be reoriented toward greater accessibility and justice.

2.2 | Shaping Accessibility and Modal Choice

While the effectiveness of sustainable mobility policies depends on institutional coordination and inclusive planning processes, their actual impact on everyday life results in changes in the built environment and transport systems (da Cruz et al., 2022; Anthony Jnr, 2023). Policy implementation reshapes urban space: structuring where people go, how they get there, and what conditions they encounter along the way (Oliver, 2013). Gray et al. (2016) point out that even ambitious mobility strategies can result in fragmented or uneven outcomes when accessibility is not embedded in the implementation and delivery mechanisms. This disconnect can result in new infrastructure that overlooks the needs of disabled users, reproducing spatial inequalities with the excuse of innovation (Anthony Jnr, 2023).

Public space design has therefore concrete consequences for wheelchair users' daily mobility. Physical barriers, such as missing ramps, uneven pavements, or inaccessible transportation, can considerably limit autonomy, safety, and participation in urban life (Oliver, 2013; Stafford et al., 2022). Particularly, the experience of navigating urban space is shaped by how accessible, comfortable, and dignified the journey is (Stafford et al., 2022). Sustainable mobility policies and practices may therefore accidentally worsen exclusion if these considerations are not paid attention to, even if their goal is to improve overall transport performance.

Five dimensions of the public space provide a lens to understand public space inclusivity, which are essential to pay attention to when opting for what the author calls active mobility: *safety*, *meaningful activities*, *inclusiveness*, *comfort*, and *pleasurability* (Mehta, 2013). When these qualities are either considered only marginally, or are designed without consideration of bodily diversity, public space can become both physically and socially inaccessible (Mehta, 2013;

Stafford et al., 2022). Therefore, this is particularly important in the context of active mobility: navigating sidewalks or shared spaces often requires continuous negotiation with physical and social barriers for wheelchair users, making travel difficult or impossible (Stafford et al., 2022).

As a result, passive mobility alternatives such as cars, buses, taxis, or adapted vehicles are relied upon when active mobility is constrained or made less attractive. However, as outlined by Gant (1992), access to these modes can also be distributed unevenly. Factors like availability, accessibility, and affordability of vehicles are important predictors of whether passive transport options represent a free choice or a constrained necessity. In many cases, even public transport systems can be inadequate, with inconsistent accessibility standards, malfunctioning ramps, or route networks that fail to connect peripheral neighbourhoods to essential services (Gant, 1992).

Therefore, both the way public space is designed and transport is provided reflect the changes that policies bring, and whether these changes create enabling or disabling environments (Oliver, 2013; Stafford et al., 2022). A sustainable mobility policy that aims at incentivising active mobility by increasing cycling infrastructure or pedestrianisation may improve safety and environmental quality at a general level, but if it introduces new barriers that conflict with wheelchair use, it may deepen exclusion (Stafford et al., 2022). Additionally, transport systems that appear formally inclusive may still produce exclusion when accessibility is implemented inconsistently or fails to support autonomy and spontaneity (Velho et al., 2016; Stafford et al., 2022). Thus, an approach to spatial interventions must be taken both through an efficiency or environmental lens, as well as through their distributive and experiential impacts on marginalised urban populations (Martens, 2012; Mehta, 2013).

The next section aims at elaborating on the possible outcomes of sustainable mobility policies, drawing on theories of urban and transport justice to understand how fairly mobility opportunities are distributed, and for whom they are made accessible.

2.3 | Justice, Accessibility, and the Experience of Mobility

2.3.1 | Mobility as a Question of Transport and Urban Justice

Urban mobility systems distribute access to opportunities. These opportunities can entail access to work, services, and participation in public life. Because this access tends to follow patterns of privilege, it can often reinforce inequalities rather than correcting them (Martens, 2012; Gray et

al., 2022). Transportation's social role is therefore frequently overlooked by frameworks that treat it as a technical or efficiency tool (Martens, 2012). Accessibility, in this context, becomes a measure of how urban space is structured to include or exclude, and for whom (Oliver, 2013; Stafford et al., 2022). This approach views access as a prerequisite to participate in urban life, hence focusing on accessibility (the ability to reach destinations), rather than only mobility (movement through space) (Martens, 2012). This view on equality and justice is further enhanced by the notion of the right to use and inhabit urban space. Urban environments also represent arenas of inclusion and exclusion: when residents are unable to appropriate space by accessing it, their right to full urban citizenship is denied. This includes the ability to move autonomously, feel safe in public, and participate in social and civic life (Lefebvre, 1968; Bezmez, 2012).

2.3.2 | Disability as Socially Produced Exclusion

By focusing on the relationship between the residents and their urban environment, disability must be understood as a product of structural and environmental barriers, rather than an individual medical condition. This perspective complements the earlier notions on access to the urban environment, as exclusion arises when the design of space fails to accommodate bodily diversity, transforming impairments into disabilities (Oliver, 2013). This understanding reinforces the necessity to see accessibility as a societal obligation, and not merely an individual challenge. Policy procedures and design that privilege certain bodies over others are therefore the cause of the disabling effects of inaccessible infrastructure. Because it assumes abled bodies are the norm, infrastructure is designed according to their needs only. This privileging of certain bodies over others actively produces disability by embedding exclusion into the physical and social fabric of the city (Kitchin, 1998; Oliver, 2013; Stafford et al., 2022).

Moreover, there are tangible and intangible consequences to the social production of space. Inaccessible public space can result in symbolic forms of marginalisation, when disabled individuals are made to feel “out of place”. Design decisions carry implicit messages about who belongs in public space and who does not. Thus, city design and embedded social norms perpetuate exclusion (Kitchin, 1998).

2.3.3 | From Policy to Lived Experience: An Integrated Analytical Lens

While justice and accessibility provide normative guidance, the real-life consequences of sustainable mobility policies are made visible through lived experiences. To understand how these policies shape inclusion or exclusion, an experiential lens is required (Stafford et al., 2022). This approach is based on frameworks that focus on how people regularly engage with the urban environment, particularly when using a wheelchair to navigate space. This perspective reinforces the argument that disability is a product of environmental and institutional barriers, rather than an individual medical issue (Oliver, 2013).

Stafford et al. (2022) propose four interrelated dimensions which aim to create a full picture of the experience of urban mobility. These are four elements that an urban environment and the mobility options to navigate it should provide in order to ensure a positive experience: *physical accessibility*, *safety and comfort*, *autonomy and independence*, and *social and psychological well-being*. Firstly, *physical accessibility* refers to the ability to enter, use, and navigate a certain space. This concerns whether infrastructure exists and functions properly, the continuity of accessible routes, and the condition of sidewalks, intersections, and vehicles. Secondly, *safety and comfort* build on accessibility by focusing on whether conditions that allow for ease and dignity and protect users from harm are provided. For instance, poorly maintained pathways can be one cause of undermined safety. Thirdly, *autonomy and independence* emphasise the value of freedom in choosing when, how, and where to travel. These can be constrained when residents with disabilities have to rely on others, plan around limited services, or face unpredictable conditions. Infrequent or inaccessible transit or the need to pre-arrange assistance can restrict spontaneity and flexibility, eventually being detrimental for autonomy. Finally, *social and psychological well-being* focus on the wider and maybe less tangible impacts of mobility policies. Environments that stigmatise, isolate, or marginalise disabled users might worsen well-being and reinforce exclusion, even when technically accessible (Stafford et al., 2022). This sense of belonging and feeling of being “out of place” can be particularly hindered by inaccessible environments. The implicit message created which communicates that the presence of disabled residents was not taken into account adds to further marginalisation and proliferates exclusion (Kitchin, 1998).

These dimensions therefore emphasise how urban spaces and mobility are experienced. This aligns with transport accessibility research, which found that even when infrastructure is present, whether it is also usable is often dependent on less tangible factors. These can entail the

provision of real-time information, the functioning of ramps and lifts, or the capacity to complete journeys autonomously. These qualities have a direct impact on how people feel safe, independent, and included in the public space (Velho et al., 2016).

This user-centred perspective is consistent with Mehta's (2013) criteria for good public space. Both paradigms emphasise that design should enable movement while also supporting well-being and participation. The emphasis on inclusiveness and comfort aligns with Stafford et al.'s (2022) safety and psychological dimensions, while Mehta's (2013) perspective on meaningful activities adds to the goal of enhancing autonomy through spatial usability. On the other hand, passive mobility modes can also be impacted by external factors, leading to a constrained choice. These can entail one's socio-economic status, health, and availability of adapted vehicles or reliable public transportation (Gant, 1992). When public or private transportation is inaccessible, unaffordable, or not available, the choice between active and passive modes becomes limited. In such circumstances, reliance is a structural effect rather than a personal inadequacy (Gant, 1992).

When combined, these frameworks offer an essential tool to explore how sustainable mobility policies impact the everyday lives of wheelchair users. Therefore, the following section builds on this foundation by presenting an integrated conceptual model to guide the empirical investigation of this inquiry.

2.4 | Conceptual Model and Research Question

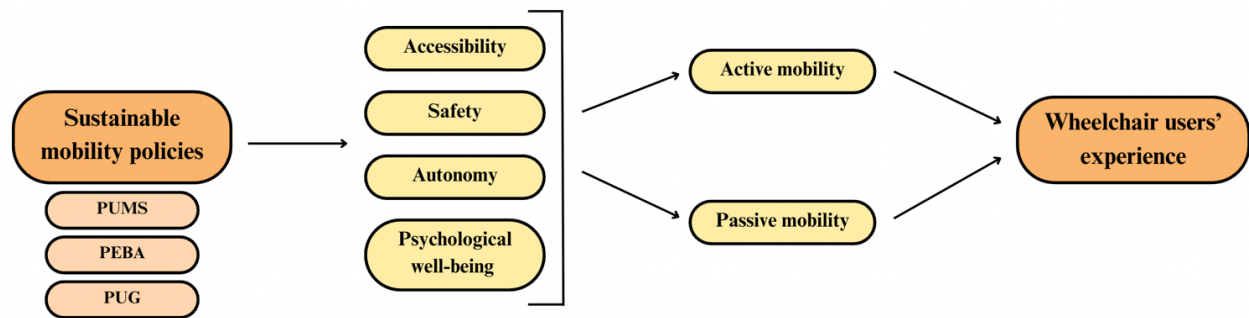
At the core of the model are sustainable mobility policies: Bologna's PUMS, PEBA, and PUG (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b). These interventions are not isolated from each other but concern a broader tendency in governance that defines which forms of mobility are supported, how space is designed, and who is considered in policy outcomes. Theories of urban and transport governance therefore help understand how these frameworks translate sustainability ambitions into spatial priorities and infrastructural decisions (Gray et al., 2016; da Cruz et al., 2022; Anthony Jnr, 2023).

These policies materialise through changes to the built environment and mobility systems, which structure two types of mobility: active mobility, such as walking and wheeling, and passive mobility, including car and public transport use, shaped by accessibility, affordability, and availability (Gant, 1992; Mehta, 2013). Their impact is explored through the four dimensions of

experience: accessibility, safety, autonomy, and social and psychological well-being (Stafford et al., 2022). Bringing these layers together, the conceptual model in Figure 1 supports the inquiry of whether Bologna’s initiatives for sustainable mobility advance accessibility and autonomy, or rather reproduce barriers in new forms.

Figure 1.

Conceptual Model



Building on the theoretical framework and the conceptual model presented above, this study links policy frameworks with lived experience, through the role of public space and transport infrastructure. Therefore, it is guided by the following research question:

How do sustainable mobility policies impact the experience and use of the public space among wheelchair users in Bologna?

Additionally, the following sub questions support this inquiry:

1. *How do Bologna’s sustainable mobility policies frame inclusivity and accessibility for wheelchair users?*
2. *How do wheelchair users experience the everyday consequences of these policies in terms of accessibility, autonomy, safety, and psychological well-being in Bologna?*
3. *In what ways do these changes affect the ability of wheelchair users to choose between active and passive modes of transport in Bologna?*

The research is therefore guided by two working expectations. These are not formal hypotheses, but analytical tools derived from the theoretical integration of literature on urban governance, justice, and user experience:

1. Sustainable mobility policies that enhance accessibility, safety, autonomy, and psychological well-being are more likely to support active mobility among wheelchair users.
2. When these dimensions (accessibility, safety, autonomy, and psychological well-being) are inadequately addressed and therefore negatively affected by urban mobility policies, wheelchair users may have limited ability to choose between active and passive mobility options, leading to a constrained reliance on certain modes out of necessity rather than out of preference.

Building on the theoretical framework and conceptual model, the following chapter elaborates on the research design and methodological approach adopted.

Chapter 3. Methodology

A case study approach was adopted to allow for a thorough investigation of the impact of sustainable mobility policies on the lived experiences, in a context-sensitive manner. Bologna serves as a relevant case due to its adoption of several integrated sustainable urban mobility and accessibility initiatives: the PUMS, PEBA, and PUG (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b). This approach allowed to conduct a focused analysis of how these measures affect the everyday urban mobility practices and decisions of wheelchair users. While the findings are not intended to be generalisable, the case study offers insights into how sustainable mobility goals are experienced at the local level (Creswell & Creswell, 2018).

To capture both how inclusion is framed and the practical experiences of disabled residents, two forms of data were collected: document analysis of the key sustainable mobility policies, and interviews with wheelchair users. This method allowed for documents to reveal how inclusion is articulated in planning terms, priorities, and actions, while for interviews to offer insight into how these are experienced.

3.1 | Document Analysis

The first methodological component consists of a qualitative document analysis of Bologna's three key policy frameworks: the PUMS, PEBA, and PUG (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b). These documents set the city's strategic direction on mobility, sustainability, and accessibility. They are interconnected and related, explaining the choice for the scope of this study. The document analysis process of these policies consisted of coding through Atlas.ti, with deductive codes formulated based on the theoretical foundations from Gray et al. (2016), da Cruz et al. (2022), and Anthony Jnr (2023) (Creswell & Creswell, 2018). The code tree is presented in Appendix 3.

3.2 | Interviews

In addition to the document analysis, a set of in-depth, semi-structured interviews was conducted with wheelchair users residing in Bologna to explore the experiences of urban mobility. This method consisted of a guided but adaptable form of interviews, by addressing open-ended

questions that ensured the coverage of key research themes (Knott et al., 2022). Hence, the interview guide was structured based on the experiential dimensions of mobility derived from Stafford, Vanik, and Bates (2022): physical accessibility, safety and comfort, autonomy and independence, and psychological well-being (English version provided in Appendix 1). In disability studies, where first-hand narratives are crucial to comprehending how space is experienced and negotiated, this approach is especially appropriate and suitable (Stafford et al., 2022; Oliver, 2013). The interviews were conducted in Italian, the respondents' native language. The transcripts were coded using Atlas.ti through a combination of deductive and inductive coding, followed by axial and selective coding (Creswell & Creswell, 2018). The code tree is presented in Appendix 2.

3.2.1 | Sampling strategy

Concerning the sampling strategy, elements of both criterion and snowball sampling were made use of (Creswell & Creswell, 2018). First, nine organisations that work with people with disabilities in Bologna were found through the website of the municipality (Comune di Bologna, 2021a), and they were contacted based on the following criteria: interviewees need to (1) make use of a wheelchair on a daily basis, (2) be above 18 years old, and (3) reside in Bologna.

Seven respondents were found through the help of the National Association of Mutilated and Invalid Civilians (ANMIC), while the others through the support of the Association for Invalid Civilians (APICI), La Skarozzata, and through the snowball sampling method. In Appendix 4 a table is provided outlining an overview of the ten interviews. The first five meetings were conducted in person in Bologna, while the following ones online through the use of Google Meet and Whatsapp.

Additionally, a contingency plan had been prepared in the eventuality of not conducting enough interviews. In order to reach saturation of discourse, the aspect of accessibility would have been explored by broadening the target group by including residents with mobility impairments more generally. This broader definition would have allowed to also interview users of crutches or similar service tools (Zeng, 2025).

3.2 | Operationalisation

To examine how recent sustainable mobility policies affected and impacted the everyday experiences of wheelchair users in Bologna, this research applies a structured analytical lens composed of three interrelated conceptual areas which are in accordance with the conceptual model and the research sub-questions: equity and accessibility in urban policy, the experience of urban mobility, and the active and passive modes of transport. This framework enables two perspectives: one that evaluates how inclusion is formally articulated in urban policies, and another that examines how such commitments are experienced by wheelchair users navigating the city.

The first concept – *equity and accessibility in urban policies* – assesses the degree to which planning frameworks, namely the PUMS, PEBA, and PUG, explicitly embed equitable and inclusive mobility goals. Drawing on Anthony Jnr (2023), Gray et al. (2016), and da Cruz et al. (2022), the analysis examines five core policy dimensions: the presence of policy references to *accessibility and inclusion commitments*, explored through the (1) references to disability, (2) to universal design, and (3) to inclusive infrastructure; the *institutional clarity*, explored through (1) definition of responsible actors and (2) cross-agency coordination; the *implementation instruments*, explored through references to (1) budget, (2) timelines, (3) monitoring tools for accessibility; *stakeholder engagement*, explored through possible evidence of consultation with disabled groups and user input; and lastly, *spatial and infrastructural outcomes* of the policies are explored through (1) planned interventions and (2) the alignment with Stafford et al.'s (2022) experiential dimensions.

The second conceptual area therefore focuses on the *experience of urban mobility*, structured around the four dimensions developed by Stafford et al. (2022): physical accessibility, safety and comfort, autonomy and independence, and psychological well-being. Each of these dimensions has been translated into specific, observable indicators. For *physical accessibility*, the focus is on the (1) navigability of the built environment (i.e., sidewalks and pavement quality), and on the (2) barriers present in the physical infrastructure; *safety and comfort* refer to environmental features that ensure physical security and sensory comfort, explored through the (1) perceived safety from physical and social threats, and (2) the overall comfort of the environment; *autonomy* is captured through the ability of travelling and making decisions independently; finally, *psychological well-being* of the experience of urban mobility is assessed through elements like (1)

the sense of dignity, (2) inclusion, and (3) confidence, highlighting how spatial arrangements can empower or marginalise users at a deeper experiential level (Stafford et al., 2022).

The third area distinguishes between active and passive mobility modes. Active mobility refers to modes of travel such as walking, biking, and wheeling, and is analysed through a selection of Healthy Streets Indicators (Mehta, 2013; Saunders, n.d.) adapted to the needs of wheelchair users. The dimensions include: *inclusive design*, which is explored through the respondent's feeling of welcomeness in the urban space; *feeling of safety*, explored through the extent to which people feel safe while moving through the environment; *environmental comfort*, explored through the feeling of relax in the urban space; the *navigability of public space*, which particularly explored the easiness of crossing the streets; lastly, *the active mobility attractiveness*, which is explored through whether respondents choose active mobility options (Mehta, 2013; Saunders, n.d.).

Finally, passive mobility includes both private transport (e.g., car, taxi) and public transport (e.g., bus, train), and is operationalised through an adapted version of Gant's (1992) framework. The key categories include: *availability of private transport*, which is delved into through the indicator on the availability of a private vehicle, either personal or in the household; *accessibility of private transport*, hence whether the user can access and operate such private vehicle; *availability of special vehicles*, hence whether the user has (1) access to a specially equipped private vehicle, or (2) has access to a service which provides specially equipped vehicles (i.e., on-demand taxis); *availability of public transport*, which is operationalised through several indicators, namely whether (1) the service is frequent, (2) geographically accessible, and (3) affordable; lastly, *accessibility of public transport*, which refers to the physical accessibility of public transport vehicles through i.e., ramps and space for wheelchair users.

Together, these indicators link the structural elements of policy and infrastructure with the lived experience of wheelchair users. They serve as the foundation for the empirical analysis presented in this thesis. Table 1, provided below, outlines the full operationalisation and shows how each concept is translated into measurable or observable indicators across both interviews and document analysis.

Table 1
Operationalisation

Research Question	Concept	Dimensions	Indicators	Data Source	Authors
Sub RQ 1 How do Bologna's sustainable mobility policies frame inclusivity accessibility for wheelchair users?	Equity & Accessibility in Urban Policies	Accessibility & Inclusion commitments	References to disability, universal design, inclusive infrastructure	Documents	Gray et al., 2016; Anthony Jnr, 2023 (adapted)
		Institutional clarity	Definition of responsible actors, cross-agency coordination	Documents	da Cruz et al., 2022 (adapted)
		Implementation instruments	Budget, timelines, monitoring tools for accessibility	Documents	Gray et al., 2016; Anthony Jnr, 2023 (adapted)
		Stakeholder engagement	Evidence of consultation with disabled groups / user input	Documents	da Cruz et al., 2022 (adapted)
		Spatial & Infrastructural outcomes	Planned interventions and alignment experiential dimensions	Documents	Gray et al., 2016; Stafford et al., 2022 (adapted)
Sub RQ 2 How do wheelchair users experience the everyday consequences of these policies in terms of accessibility, autonomy, safety, and psychological well-being?	Experience of Urban Mobility	Physical accessibility	Navigability of built environment	Interviews	Stafford et al., 2022
			Physical infrastructure barriers	Interviews	Stafford et al., 2022
		Safety & Comfort	Perceived safety from physical/social threats	Interviews	Stafford et al., 2022
			Comfort of environment	Interviews	Stafford et al., 2022
		Autonomy	Independent decision-making and travel	Interviews	Stafford et al., 2022
		Psychological well-being	Sense of dignity	Interviews	Stafford et al., 2022
			Sense of inclusion	Interviews	Stafford et al., 2022
			Sense of confidence	Interviews	Stafford et al., 2022
Sub RQ 3 In what ways do these changes affect the ability of wheelchair users to choose between active and passive modes of transport in Bologna?	Active mobility	Inclusive design	Everyone feels welcome	Interviews + Documents	Saunders, n.d. (adapted)
		Feeling safe	People feel safe while moving through the environment	Interviews + Documents	Saunders, n.d. (adapted)
		Environmental comfort	People feel relaxed	Interviews	Saunders, n.d. (adapted)
		Navigability of public space	Streets are easy to cross	Interviews + Documents	Saunders, n.d. (adapted)
		Active mobility attractiveness	People choose active mobility options	Interviews	Saunders, n.d. (adapted)

Passive mobility	Availability of private transport	Private vehicle (personal or household) is available	Interviews	Gant, 1992
	Accessibility of private transport	User can access and operate the private vehicle	Interviews	Gant, 1992
	Availability of special vehicles	Access to specially equipped private vehicle	Interviews	Gant, 1992
		Access to service which provides specially equipped vehicles	Interviews	Gant, 1992
	Availability of public transport	Service is frequent	Interviews	Gant, 1992
		Service is geographically accessible	Interviews	Gant, 1992
		Service is affordable	Interviews	Gant, 1992
	Accessibility of public transport	Physical accessibility (e.g., ramps, space for wheelchairs)	Interviews	Gant, 1992

3.3 | Validity, Reliability, and Ethical Considerations

3.3.1 | Validity and Reliability

The design of the research, including the interview guide (Appendix 1) and the analytical framework for document analysis, was developed based on the theoretical framework (see Chapter 2), and consequently operationalised in dimensions and indicators to enhance internal validity. The credibility of the findings was strengthened by triangulating the interviews with document analysis (Creswell & Creswell, 2018). By taking this approach, it was possible to improve internal validity by exploring the extent to which inclusion is framed in mobility policies, and how it is experienced in practice. Additionally, it must be clarified that due to the specificity of the case of Bologna and the small number of interviews, external validity may be constrained. Nevertheless, the study provides insights into the challenges and opportunities of implementing sustainable urban mobility policies, and how these are experienced at the ground level by the users, which can be transferred to other urban settings (Creswell & Creswell, 2018).

Lastly, reliability was taken into consideration by undertaking a transparent and replicable research design. Specifically, all interviews followed an in-depth, semi-structured guide which was formulated based on Stafford et al. (2022) experiential dimensions, ensuring that all participants were asked comparable questions while allowing for adaptation to personal stories and narratives (Knott et al., 2022).

3.3.2 | Ethical considerations

Through the use of a written informed consent, ethical integrity was ensured throughout the process of data collection. The informed consent outlined the study's objectives, the voluntary nature of participation, the right to withdraw at any time, and the handling of personal data in accordance with GDPR and Erasmus University guidelines, and was filled and signed by all respondents using a standard form (see Appendix 6). To ensure anonymity, all respondents are referred to through pseudonyms, which were chosen either randomly or by the participants themselves.

Additionally, reflexivity was essential due to the study's aspects of disability and marginalisation. As I live with a disability but am not a wheelchair user, and have not lived in Bologna for an extended period of time, these positionalities were acknowledged throughout the research process. Particularly, the relationship between researcher and respondent in disability studies must be treated with care to avoid reproducing hierarchies or assumptions (Kitchin, 2000). This was addressed by listening carefully to participants' own interpretations and paying specific attention to their narratives during the analysis (Oliver, 2013; Stafford et al., 2022).

Lastly, ethical considerations were also taken during the analysis of policy documents. While these are not protected by privacy regulations, their interpretation may be influenced by a possible bias. To mitigate this, documents were analysed using indicators informed by literature on governance of sustainable urban policies, as elaborated upon in Chapter 2 (Gray et al., 2016; da Cruz et al., 2022; Anthony Jnr, 2023).

Chapter 4. Findings and Discussion

This chapter presents the empirical findings of the study by integrating qualitative document analysis and in-depth semi-structured interviews, as outlined in Chapter 3. Specifically, three interrelated urban mobility policies were analysed, the PUMS, PUG, and PEBA (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b). Combining their analysis to interviews with ten wheelchair users residing in Bologna allowed to explore the research aim of this study.

The following chapter outlines the findings of the data collection and empirical analysis, by integrating document analysis with interview data, and discussing in relation to the theoretical foundations elaborated upon in Chapter 2. The structure follows the key analytical dimensions from the conceptual model, by presenting first the policy dimensions, followed by the impacts on experiences of mobility. Within each section on the experiences of mobility, the impact on the choice between active and passive mobility is also reported and discussed.

4.1 | Equity and Accessibility in Urban Policies

An essential understanding of inclusive mobility planning is that accessibility must be embedded systematically and committed to, rather than incorporating it just as a design requirement (Gray et al., 2016; da Cruz et al., 2022). While all three policy documents acknowledge the need to promote equitable access to mobility and urban space, their integration of disability concerns varies significantly.

The PUG (Comune di Bologna, 2021b), as Bologna's overarching urban development framework, sets out broad commitments to environmental sustainability, social equity, and spatial regeneration. It emphasises the importance of "sustainable accessibility", and presents accessibility as a guiding principle:

"From a qualitative perspective, the Plan [...] aims to build a network of high-quality, sustainably accessible public spaces (proximity services) throughout the territory. The design of these spaces must place people at the centre and create enabling and welcoming environments for all forms of motor, social, ethnic, age, and gender diversity, promoting autonomy in movement and rest for all users" (Comune di Bologna, 2021b, p. 83)

However, this commitment is not combined with binding implementation tools or mechanisms to ensure that accessibility is systematically prioritised in urban projects. As Gray et al. (2016) warn, such gaps between normative goals and delivery frameworks can result in inclusion that lacks enforceability or accountability.

The PUMS (Città Metropolitana di Bologna, 2019) – Bologna’s plan to achieve sustainable mobility by 2030 – contains several references to intermodality, soft mobility, and accessibility. It acknowledges that accessible, safe, and inclusive public space is critical for reducing car dependency (Città Metropolitana di Bologna, 2019). However, concrete attention to disability is marginal. Most measures address infrastructure broadly (e.g., pedestrian networks, transit hubs), but without specific indicators, targets, or fundings for disability-related access improvements. Therefore, the PUMS mirrors the “rhetoric: reality gap” of policies observed by Gray et al. (2016), often driven by a lack of institutional capacity or political will for truly transformative change, rather than a lack of awareness of the issues.

In contrast, the PEBA is the only policy document that focuses specifically on disability and accessibility. Designed and developed in the context of the tram line construction, it adopted a data-driven and participatory approach to identifying architectural barriers in the 200 metres around tram corridors (Comune di Bologna, 2025b). The PEBA provides a detailed inventory of interventions and allocates €9 million to their resolution, confirming concrete intentions to improve accessibility by allocating specific funds (Gray et al., 2016). Yet despite its precision, its scope remains limited to tram-adjacent areas. The policy does not extend to the rest of the city or coordinate with other planning tools.

Furthermore, all three policies were found to have a fragmented institutional logic. There is little evidence of strong cross-referencing or coordination across the PUG, PUMS, and PEBA, nor is there a unified system to track accessibility outcomes (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b). This institutional misalignment is in accordance with da Cruz et al.’s (2022) argument on the potential issues caused by poor coordination across governance departments and levels, resulting in limited effectiveness for marginalised populations.

Importantly, none of the policies provide concrete mechanisms for sustained user participation or feedback from disabled residents beyond the initial consultation phases. Five respondents from the interviews, as is elaborated upon in the following section, repeatedly noted

that accessibility issues are often addressed only *after* being reported by citizens, highlighting a reactive rather than proactive governance approach. As Anthony Jnr (2023) argues, genuine inclusion in mobility governance requires embedded feedback loops, transparency, and accountability structures.

Therefore, while Bologna's policy frameworks formally articulate commitments to accessibility and inclusion, the extent to which they materialise in outcomes which can be experienced in everyday urban life remains limited. Therefore, the following section explores how these policies are experienced by wheelchair users in practice, revealing both the enabling potential and persistent shortcomings of Bologna's sustainable mobility agenda.

4.2 | Policy Impact on the Experience of Urban Mobility

By drawing on both policy documents and interview data, this section aims to report and discuss whether Bologna's sustainable mobility policies have achieved their stated inclusivity goals or reproduced structural barriers. The analysis is organised around the four dimensions of urban mobility experience by Stafford et al. (2022): physical accessibility, safety and comfort, autonomy and independence, and psychological well-being. This allows for a critical reflection on whether policy ambitions are translated into enabling or disabling environments.

4.2.1 | Physical Accessibility

Within Bologna's sustainable mobility policies, physical accessibility is framed as a fundamental principle. All three documents explain the need to eliminate physical barriers to mobility and to ensure that infrastructure enables independent access across transport modes and public space. The PUMS addresses accessibility within broader sustainability goals, particularly by facilitating walkability and intermodality. That being said, it does so through general commitments to "universal design" rather than through detailed, enforceable criteria (Città Metropolitana di Bologna, 2019). In contrast, the PEBA provides a more focused and targeted plan by identifying specific necessary interventions to improve accessibility on pedestrian connections to tram lines and public services (Comune di Bologna, 2025b). The PUG, meanwhile, frames physical accessibility within its vision of "enabling spaces", which should support all users regardless of motor, sensory, social, or demographic differences (Comune di Bologna, 2021b, p. 83).

However, the reported experiences of wheelchair users reveal that the translation of these principles into practice remains limited and inconsistent. Interviewees widely acknowledged that actual implementation of accessibility standards is constrained. This is especially evident in the design and maintenance of sidewalk infrastructure. Respondents described frequent issues with ramps that are either too steep or obstructed, and with cobblestone paving, especially in the historic centre, which increases shaking, reduces comfort, and can even pose safety risks. A map showing the city centre and periphery of Bologna is reported in Appendix 5. Four interviewees noted that while many newer interventions reflect improved standards, these are not systematically applied across the city:

“So unfortunately, it really depends. As I was saying, in some places the construction works are done well, in others, even when it's done ex novo, it's unclear why there are problems, and it's not possible to systematise this, to make it part of a consistent approach to constantly improve.” (Maria)

The experience of Bologna's porticoes was more ambivalent. Eight respondents appreciated their role in facilitating mobility, particularly because they offer protection from rain and generally feature smoother surfaces:

“Partly because of the structural advantage of the city, which is the porticoes. The portico, for someone using an electric or manual wheelchair, is easy to travel on with wheels because, obviously, there are no cobblestones, no potholes like on the streets, it's smooth, so you can move along it very well. Bologna is almost entirely made up of porticoes.” (Pathik)

Yet, three users noted that the accessibility of porticoes is inconsistent. Some have steps at entry or exit points, forcing wheelchair users to change route unexpectedly. This unpredictability was described as significantly undermining spontaneity and planning, especially for those unfamiliar with the area. However, a simple solution was suggested:

“There should be signs at the beginning of the portico saying 'in 30 meters there are 5 steps,' so that a wheelchair user, a visually impaired person, an elderly person who can't manage steps, or a mother with a stroller and a child can make their own assessment and say, 'okay, I need to stop before that' or 'no, I can't go that way.' (Fabiana)

Therefore, basic signage could inform citizens about inaccessible segments in advance, allowing for more predictable navigation.

A striking example of misalignment between policy and implementation was shared by a respondent regarding recently built public restrooms, which were designed without sufficient space for wheelchair access. Despite Bologna's planning instruments aimed at improving accessibility, such as the PUG which explicitly references the "Design for All" (Comune di Bologna, 2021b, p. 106), the facilities are reportedly too narrow to accommodate mobility devices, effectively excluding those they were intended to serve. Such instances illustrate what Gray et al. (2016) call "rhetoric: reality gap", hence policies that set ambitious goals but fail to deliver genuine usability in practice through effective implementation:

"It's constant – if you sit down and look around, you could highlight everything, you'd want to report everything, every damn day you could send an email to the municipality to point out something that's not working. That's how I experience it—I really feel the conflict, I really feel the frustration of not being taken into account. Even when the municipality does something new, they might follow the rules to the letter, but then they'll make the path out of gravel." (Mirella)

This gap between stated goals and lived realities points to deeper institutional challenges. As da Cruz et al. (2022) argue, sustainable transport strategies often suffer from fragmented implementation and unclear accountability, particularly when inclusivity is treated partially rather than a fundamental principle. The PEBA is perhaps the most promising example of targeted intervention, but its scope remains limited to areas surrounding tram infrastructure (Comune di Bologna, 2025b). Respondents highlighted that enforcement of accessibility standards is inconsistent, and that improvements often occur only after advocacy or formal complaints – placing additional burdens on people with disabilities (Kitchin, 2000):

"The municipality doesn't care, they don't even think about it, and so every time we're there saying: 'we exist too, when you plan something you need to have someone who designs with disability in mind.' They've made so many mistakes—since 2019 they approved this new building regulation, which is the General Urban Plan of Bologna, where it is clearly stated that all planning, across the entire Municipality of Bologna and the surrounding metropolitan area, must be done according to the principle of design for all and in compliance with the UN Convention on the Rights of Persons with Disabilities. They explicitly wrote that. To give you an example, just behind here they rebuilt a local market—there was already a market with stalls, they demolished it and rebuilt it beautifully in wood... with a step. So we can't enter." (Roberto)

Finally, while Bologna's planning instruments formally recognise the importance of physical accessibility, their impact on wheelchair users' daily lives is uneven. As Stafford et al. (2022) emphasise, true accessibility must be measured not by policy rhetoric or isolated infrastructure upgrades, but by whether environments enable safe, independent, and spontaneous mobility.

4.2.2 | Safety and Comfort

Concerning safety and comfort, these are frequently referenced in Bologna's policy as essential goals of sustainable and inclusive mobility. The PUMS especially, promotes road safety as a driver of behavioural change, encouraging walking and cycling through infrastructure that reduces conflict between users (Città Metropolitana di Bologna, 2019). The PEBA similarly focuses on safety in pedestrian environments by planning structural interventions to remove physical barriers along key mobility corridors (Comune di Bologna, 2025b). The PUG further extends this vision by advocating for "enabling spaces" as part of its wider aim to foster urban well-being (Comune di Bologna, 2021b, p. 83). However, the PUMS and PUG policy ambitions rely on abstract commitments and lack detailed mechanisms to monitor or enforce comfort and safety for specific groups, including wheelchair users.

Concerning lived experiences, respondents expressed mixed opinions regarding safety and comfort in Bologna's public spaces and transport systems. While eight of them praised the protective role of the city's porticoes, others highlighted concerns related to unpredictable social dynamics. For example, three wheelchair users noted that recent increases in tourism have led to greater congestion in central areas, with distracted pedestrians often obstructing paths or moving unpredictably. While this may seem minor in a general context, it significantly heightens anxiety and physical vulnerability for those navigating with limited mobility, especially in crowded spaces.

One of the most discussed policy initiatives in this context was the "Bologna Città 30" policy, which lowered speed limits to 30 km/h across most of the urban area. Although this measure is promoted in the PUMS and PUG as a key intervention for improving safety and promoting active mobility, respondents offered divergent perspectives on its effects (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b). Four interviewees reported feeling somewhat safer while moving around the city, especially in residential zones. However, eight respondents expressed scepticism about its enforcement and actual impact on drivers' behaviour.

They argued that many drivers continue to speed and that without consistent monitoring or enforcement, the policy remains largely symbolic:

“But the problem is something else — for me, on many streets, they absolutely don’t respect it. On the street where I live, there’s no way they’re going at 30, I see them speeding just like before. At the beginning, everyone was scared, now not anymore. In many places, the 30 km/h limit is not respected.”
(Pathik)

The same was perceived by Roberto, who reported that “At first it was a thing, then nothing more was heard about it. It no longer exists. What is it? Here, at night, I hear motorcycles speeding at 160 [km/h].” This is an example of what Gray et al. (2016) refers to as “weak institutional hardware and capacity”, where the effectiveness of policy ‘software’ (plans and strategies) is limited by the robustness of the institutional ‘hardware’.

A similar duality was also found in relation to Bologna’s expanding cycling infrastructure. While the PUMS envisions cycling as a sustainable and inclusive mode of transport, the ‘Bicipolitana’, aiming to expand the network of bike lanes across the metropolitan area from 246km to 944km by 2030 (Città Metropolitana di Bologna, 2019), several respondents expressed scepticism about how this target is translated into practice. Nine participants acknowledged that bike lanes can offer smoother surfaces and safer routes for wheelchair users compared to traditional sidewalks. However, three of them also described these benefits as being hindered by poor planning and execution, with lanes inserted into unsuitable spaces or designed without sufficient attention to safety and comfort. This tension was summarised by Fabiana: “As a result, the attempt to put in so many bike lanes, trying to squeeze them in everywhere just to rack up kilometres on paper, came at the expense of doing things... sensibly.” These perspectives reveal how even well-intentioned policies like the PUMS can fail in practice when inclusivity is not meaningfully embedded in their design and delivery (Gray et al., 2016; Città Metropolitana di Bologna, 2019), leading to frustration and reduced confidence among those most affected by mobility barriers (Velho et al., 2016; Stafford et al., 2022). Bike lanes painted directly onto pedestrian paths were described as especially problematic:

"The manholes create those kinds of dips, potholes, basically, so with a wheelchair you can't pass through either the pedestrian section of the sidewalk or the bike lane. You have to slalom around, but if fast bikes come by at the same time, you risk getting hurt." (Maria)

These findings align with concerns in the literature that poorly designed shared spaces can create discomfort and danger for disabled users, even when intended to enhance inclusivity (Velho et al., 2016; Stafford et al., 2022).

Another recurrent issue involved pedestrianised areas and urban squares, which have been expanded in recent years as part of Bologna's sustainability agenda. This process is primarily backed by the PUMS (Città Metropolitana di Bologna, 2019), which outlines the promotion of walkability and the reallocation of urban space to pedestrians as key strategies for reducing car dependency and fostering active mobility. Complementing this, the PUG (Comune di Bologna, 2021b) integrates these goals within a broader urban development framework, aiming to regenerate public space to enhance environmental sustainability, accessibility, and habitability. That being said, the lived experiences of wheelchair users suggest that the practical implementation of pedestrianisation efforts often overlooks accessibility needs, particularly in terms of paving quality, predictability of terrain, and shared space conflicts. One interviewee who uses a manual wheelchair and has a fragile physical condition described how the lack of order in these environments makes it difficult to navigate safely:

"I don't really like them, especially... it's one thing if there's a bike lane next to the sidewalk, everyone has their own space, fine, you're on your side, we're on the other. [...] I find it worse in places like squares, in large pedestrian areas where anyone moves around in any direction, unpredictably – scooters, bicycles, everyone. [...] I think this is a major factor of inaccessibility for many different groups. [...] For example, due to my condition I have to be very careful about accidents and physical contact, as I mentioned earlier, so it's very important to me, it even causes me some anxiety. [...] So yes, I need a space dedicated to pedestrians, where there are only pedestrians." (Mirella)

Despite the explicit commitments in the policy documents to create safer and more comfortable environments, these examples reveal a persistent mismatch between design intentions and lived outcomes (Gray et al., 2016). When safety and comfort are not supported by specific, user-centred implementation strategies, the result is a reliance on individual adaptation and vigilance (Stafford et al., 2022).

4.2.3 | Autonomy and Independence

Autonomy and independence are frequently cited in Bologna's policy documents as central goals of inclusive mobility. The PEBA in particular emphasises autonomy as one of its core objectives, together with safety and comfort (Comune di Bologna, 2025b). Similarly, the PUG highlights the importance of "autonomy of movement" for all users (Comune di Bologna, 2021b, p. 83). These intentions are further reflected in the PUMS, which aims to reduce dependence on private vehicles by promoting multimodal and accessible transport systems (Città Metropolitana di Bologna, 2019). However, the extent to which these ambitions are implemented in ways that support real autonomy for wheelchair users remains limited.

From the interviews, a rather nuanced picture emerged. Particularly, the inconsistency of services was reported as heavily impacting the autonomy of users. Eight respondents shared that they generally move around the city independently when using active mobility modes. This was particularly the case for those residing in central areas with porticoes, accessible sidewalks, and sufficient proximity to daily services. Yet, even in these cases, their autonomy was not unconditional. Barriers like a single inaccessible curb or a small step could create a sense of uncertainty and dependence on others. For instance, Lorenza – who otherwise moves independently within the surroundings of her home – shared that although she lives near a pharmacy, its entrance is inaccessible. Consequently, she must rely on her partner to drive her to a more distant, accessible location. This example illustrates how the choice between active and passive mobility is not always a matter of personal preference, but often structurally constrained, aligning with Gant (1992).

Furthermore, public transport was a critical area where autonomy was repeatedly challenged. A specific example reported by two respondents concerns the shift from electric to manual ramps on city buses. Pathik, for instance reported that "in recent years they removed the electric ramps to install manual ones, since electric ramps require more maintenance. The maintenance often isn't done, it's expensive, and so you often risk finding them broken." This often results in wheelchair users having to ask for help, wait longer at stops, or risk being denied access if the driver is unwilling or does not know how to assist. Pathik therefore also noted that although the system may be formally accessible, it does not support independent use – and thus fails to deliver on the promise of autonomy made by the PUG, PUMS, and PEBA (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b).

These experiences reflect what Gray et al. (2016) describe as the institutional misalignment between strategic goals and operational delivery, where sustainability and accessibility ambitions are weakened by fragmented or inconsistent implementation practices. More broadly, this also reflects what Martens (2012) criticises as the dominant focus on efficiency in transport systems, which often leads to investments and operational decisions that overlook or deprioritise inclusivity. These accounts directly contrast with the goals articulated in the PUMS and PEBA, suggesting that without mechanisms to ensure consistency in service delivery, formal accessibility measures do not necessarily translate into independence (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2025b).

The experience with taxis further highlighted how formal availability does not always entail autonomy. Respondents reported persistent issues in booking them. Calls would often go unanswered, vehicles are limited, and waiting times can be prohibitive. For individuals with limited public transport options, these obstacles often make the car the only viable mode of transport. However, as Gant (1992) outlines, access to private vehicles is itself shaped by several structural conditions, including affordability, ownership, and whether the vehicle is suitably adapted. Not all respondents in this study owned, and six specifically could not drive, and therefore expressed frustrations at having to rely on relatives, friends, or personal assistants for mobility. This reinforces the idea that passive mobility is often constrained by external factors, rather than being the result of genuine preference (Gant, 1992).

These findings support Stafford et al.'s (2022) argument that real autonomy is not simply about access in a technical sense, but about consistent, reliable conditions that allow individuals to act independently without needing to navigate around systemic gaps. Mehta (2013) similarly emphasises the role of autonomy in creating inclusive streets and public spaces; infrastructure and services should not just be present, but should support freedom of movement and decision-making.

Bologna's policy frameworks clearly articulate autonomy as a guiding principle for inclusive urban mobility (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b). However, the everyday experiences of wheelchair users indicate that this principle often remains aspirational. Without enforcement mechanisms, user-centred implementation, and sustained maintenance of infrastructure and services, autonomy is structurally undermined.

4.2.4 | Psychological Well-being

Finally, the psychological dimension of mobility, covering aspects such as predictability, spontaneity, confidence, and emotional well-being, is a central component of urban accessibility. The PEBA refers to comfort and ease of use as qualities that must characterise the pedestrian experience (Comune di Bologna, 2025b). Similarly, the PUMS aims to create spaces where all users, regardless of ability, can feel safe and included (Città Metropolitana di Bologna, 2019). However, as Stafford et al. (2022) argue, inclusive infrastructure must enable users to move through the city with confidence, without needing to plan excessively or anticipate obstacles.

Interview findings suggest that for many wheelchair users in Bologna, the city often fails to meet this standard. The lack of predictability was reported as an important source of stress, as previously touched upon through other experiential dimensions. Even in areas that are generally perceived as accessible, unexpected barriers can appear, undermining the sense of control over their journey. This aligns with Kitchin's (1998) notion of 'out of place': when spaces are designed to convey to disabled people that they were not considered or taken into account.

Spontaneity, closely tied to autonomy, emerged as another critical limitation. Several respondents shared that spontaneous travel is nearly impossible. Even when visiting familiar locations, they often call ahead to ensure access, whether to a restaurant, shop, or bathroom:

"Okay, definitely also the unpredictability. In the sense that very often I find myself in situations where, if I don't call ahead—and already, just imagine how stressful it is to have to call before visiting any place. If you don't, you might find that the supermarket is inaccessible. So you risk ending up in front of a step." (Lorenza)

Also, services that could enable spontaneity, such as taxis or public transport assistance, typically require advance booking or are unreliable. The PUMS, PEBA, and PUG mention "proximity services" and "flexible mobility options", but do not address the need for infrastructure and systems that enable unplanned, autonomous movement for users with disabilities (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b).

Additionally, the inconsistent application of accessibility standards across Bologna contributes to a broader psychological toll on wheelchair users. Six respondents expressed frustration and exhaustion with having to repeatedly advocate for their right to access spaces, often feeling that inclusion is treated as an afterthought rather than a foundational principle. Roberto

remarked, “We report things, we keep an eye on things, communication is always tough. But we, as associations and individuals, are very present—we’re very active in pushing and demanding space.” He also noted a clear deterioration in participatory governance under the current administration: “Before, they used to call us, now they just go their own way, without the right expertise, making so many mistakes”. These experiences resonate with Anthony Jnr’s (2023) stress on the importance of incorporating marginalised voices into policy design to promote legitimacy and to ensure the policies themselves are functional and equitable.

This exclusion is particularly evident when policies are framed around sustainability goals but overlook the specific needs of people with disabilities. As Mirella put it, “For me, this idea of sustainability doesn’t include thinking about us. Sometimes I get really annoyed with the rhetoric against cars, as if there weren’t people like us in them – and the truth is, sometimes we need them.” Such statements underscore what Stafford et al. (2022) refer to as the social and psychological consequences of marginalisation in public space. When accessibility is inconsistently delivered, and inclusive planning is not structurally embedded, autonomy can become physically constrained and mentally draining.

4.3 | Concluding Reflections

The findings presented in this chapter reported how Bologna’s sustainable mobility policies, namely the PUMS, PUG, and PEBA (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b), impacted the experience of urban mobility among wheelchair users. While the document analysis found that these policies set progressive objectives related to sustainability, accessibility, and inclusion, their translation into everyday mobility practices was limited and inconsistent. Based on the combination of interviews and document analysis, this chapter also highlighted the importance of embedding principles on accessibility and inclusivity of disabled residents, and properly translating these into delivery mechanisms and implementation. The next chapter provides concluding remarks, by critically reflecting on the implications of these findings, assessing their relevance to the broader literature, and outlining suggestions for future research based on the limitation of this study.

Chapter 5. Conclusion

This research studied the impact of sustainable mobility policies on the experience of urban mobility and public space among wheelchair users in Bologna. Through a combination of interviews and document analysis, the study aimed to go beyond the policy ambitions and explore their practical consequences. To do so, the following research question guided the inquiry: “*How do sustainable mobility policies impact the experience and use of the public space among wheelchair users in Bologna?*”. To answer this, the study addressed three sub-questions:

1. *How do Bologna’s sustainable mobility policies frame inclusivity and accessibility for wheelchair users?*
2. *How do wheelchair users experience the everyday consequences of these policies in terms of accessibility, autonomy, safety, and psychological well-being in Bologna?*
3. *In what ways do these changes affect the ability of wheelchair users to choose between active and passive modes of transport in Bologna?*

Additionally, two working expectations guided the research process. First, that sustainable mobility policies that enhance accessibility, safety, autonomy, and psychological well-being are more likely to enable and support active mobility among wheelchair users. Second, that underperformance in these experiential dimensions – due to negative impact by sustainable mobility policies – would limit wheelchair users to choose between active and passive mobility. constrain modal choice and lead to reliance on passive transport options.

The document analysis focused on Bologna’s PUMS, PEBA, and PUG (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b; Comune di Bologna, 2025b), combined with in-depth, semi-structured interviews with ten wheelchair users residing in the city (Knott et al., 2022).

To answer the first sub-question, the document analysis found that the PUMS and PUG use inclusive language extensively, but in generic terms, with little to no explanation of delivery mechanisms and implementation strategies. They both refer to accessibility as a desirable outcome, while failing to provide enforceable targets and budget commitments (Città Metropolitana di Bologna, 2019; Comune di Bologna, 2021b). On the other hand, the PEBA focuses specifically on physical accessibility of the public space, in the area surrounding the construction of the new tram

lines. Therefore, it has a concrete approach, with clear interventions, budget, and implementation timeline. That being said, it is currently solely applied to the tram project, and its spatial scope remains limited (Comune di Bologna, 2025b). Consequently, in Bologna's sustainable mobility policies, inclusivity and accessibility are framed in abstract terms but lack institutional capacity and accountability. By failing to ensure effectiveness, these policies fall into the critique of "rhetoric: reality gap", claiming to be inclusive but with constrained concrete action (Gray et al., 2016; da Cruz et al., 2022). This partially confirms the first working expectation. The policies formally address experiential dimensions, but their limited enforceability weakens their potential to fully support active mobility.

Concerning the second research question, it was primarily addressed through interview data, by taking an experiential approach on the effects of the concerned policies. While participants acknowledged some recent improvements, such as the introduction of a bike lane network, they perceived a lack of systemic action, causing large frustration. Hence, the dimensions of psychological well-being and autonomy were particularly negative, with feelings of exclusion or "out of place" (Kitchin, 1998; Stafford et al., 2022). Overall, there were not large negative impacts caused by the introduction of the policies, but there were mostly no positive changes, but augmented the sense of burden and irritation. Particularly, these insights only partially confirm the first expectation, showing that limited improvements in experiential dimensions do not consistently translate into conditions that support active mobility.

The third sub-question addressed specifically the impact of the policies on the preference between active and passive modes of transport, and the extent to which the choice is made out of necessity. The findings reported that wheelchair users' ability to opt for active mobility such as wheeling, was often limited due to elements like unpredictability, discomfort, or poor quality of the urban space. These aspects lead many users to rely on passive mobility options. Among these, both taxis and public buses were described as unreliable and often inaccessible services, which resulted in opting for a private vehicle due to necessity. This reflects Gant's (1992) observation, arguing that passive mobility is often imposed when alternatives are less attractive or difficult to use. It also confirms Mehta's (2013) criteria for inclusive public space, finding that when comfort, safety, inclusiveness, pleasurability, and opportunities for meaningful activities are not enabled, making use of the public space for mobility purposes becomes impossible for wheelchair users. Specifically, this confirms the second working expectation, as underperformance in experiential

dimensions clearly constrained users' ability to choose and often left passive modes as the main considerable option.

Taken together, these findings help answering the main research question. Although Bologna's mobility policies aspire to advance sustainability and inclusion, the outcomes so far show a lack of equitable mobility for *all* residents. Drawing from the urban governance scholars (Gray et al., 2016; Anthony Jnr, 2023, da Cruz et al., 2022), the social model of disability (Oliver, 2013; Haegele & Hodge, 2016), transport justice theory (Martens, 2012), and experiential mobility dimensions (Stafford et al., 2022), the theoretical foundation and framework of the study successfully captured both governance and user-level dynamics. That being said, it was also encountered the need to further research and expand the existing theories in order to better represent informal advocacy and psychological burden among disabled residents.

Concerning the methods undertaken throughout the study, the combination of document analysis and interview data enabled the triangulation of governance and formal discourse with user experience (Creswell & Creswell, 2018). Although the sample size was limited, and the case study was geographically specific, the depth of the findings provided a meaningful understanding of how sustainable policies affected a marginalised group. Additionally, the research focused specifically on wheelchair users with limited intersectional perspectives, which may have resulted in overlooking broader dynamics of systemic exclusion. Lastly, given its scope, the study focused on a limited amount of mobility policies and initiatives, which have been introduced in recent years, therefore their impact was not always clear among respondents. Thus, the following section provides elaborates on the implications of these findings, as well as recommendations for future policy makers and researchers.

5.1 | Implications and Recommendations

This study advances understanding of sustainable mobility by integrating governance-level policy analysis with the lived experiences of wheelchair users, highlighting the gap between policy rhetoric and practical realities. By emphasising the experiential and psychological aspects of mobility, an area often overlooked in existing research, it extends transport justice and disability theories. Additionally, the study identifies the need for more intersectional and emotional-exclusion focused research, opening pathways for future scholarship on mobility justice.

Therefore, given the findings and conclusions based on the data collection, it is now possible to provide recommendations to policy makers. Firstly, embedding binding accessibility requirements into all urban mobility and planning documents is particularly necessary. To ensure that sustainable mobility frameworks are truly inclusive and promote equitable mobility, accessibility must be treated as a foundational element of planning rather than a specialised or peripheral issue. These should include measurable indicators, enforcement mechanisms, and budget allocations in a systemic manner, across all relevant planning documents and processes.

Additionally, as seen particularly in the PUMS, active mobility modes are presented as universally beneficial, at the expense of passive mobility which is marginalised or discouraged (Città Metropolitana di Bologna, 2019). However, as reported in the findings, choosing among the two is often lead by necessity among wheelchair users. Policy makers should therefore ensure elements of accessibility, autonomy, safety, and psychological well-being across all modes of transport, both active and passive, as well as adopting a more flexible and inclusive understanding of mobility, in order to validate and support diversity of transport needs. To do so, it is necessary to implement binding accessibility standards, co-design infrastructure with users, and integrate psychological and experiential indicators into planning evaluations.

Finally, based on the limitations of the study, several avenues for further research can be outlined. Through a comparative approach, it could be examined how similar policy frameworks work in different governance and cultural contexts. In this sense, intersectional approaches would also enable exploring how disability interacts with other aspects of one's identity, such as gender, age, race, and socio-economic status, and whether and how these can shape mobility experiences. Lastly, incorporating a stronger focus on psychological exclusion could enrich literature on mobility justice, particularly by exploring the emotional burden of navigating inaccessibility, and the formal and informal practices of resistance that disabled people employ daily.

In conclusion, fighting climate change and introducing sustainable mobility initiatives is needed, but should be done while ensuring equitable outcomes that avoid negatively impacting marginalised groups. Meaningful mobility justice can't be achieved solely through accessible infrastructure, but requires governance structures, cultures, and discursive frameworks that prioritise dignity, autonomy, and accessibility in urban life.

Bibliography

- Anthony Jnr, B. (2023). Sustainable mobility governance in smart cities for urban policy development – a scoping review and conceptual model. *Smart and Sustainable Built Environment*. <https://doi.org/10.1108/sasbe-05-2023-0109>
- Bezmez, D. (2012). Urban citizenship, the right to the city and politics of disability in Istanbul. *International Journal of Urban and Regional Research*, 37(1), 93–114.
<https://doi.org/10.1111/j.1468-2427.2012.01190.x>
- Città Metropolitana di Bologna. (2019). *SUMP - Sustainable Urban Mobility Plan of Metropolitan Bologna*.
https://pumsbologna.it/Sfoggia_la_sintesi/SUMP_Sustainable_Urban_Mobility_Plan_of_metropolitan_Bologna
- Comune di Bologna. (2021a). *Associazioni che si occupano di disabilità*. Iperbole.
<https://www.comune.bologna.it/informazioni/associazioni-disabilita>
- Comune di Bologna. (2021b). *Piano Urbanistico Generale (PUG)*. Iperbole.
<https://www.comune.bologna.it/amministrazione/documenti-e-dati/documento-tecnico-supperto/piano-urbanistico-generale-pug>
- Comune di Bologna. (2025a). *Bologna 30 - Nuova mobilità*. Iperbole.
<https://www.comune.bologna.it/dati/bologna-trenta-nuova-mobilita>
- Comune di Bologna. (2025b). *Relazione Generale PEBA*.
https://i2.res.24o.it/pdf2010/S24/Documenti/2025/03/13/AllegatiPDF/PEBA_RELAZIONE.pdf
- Creswell, D., & Creswell, J. W. (2018). *Research design: qualitative, quantitative, and mixed* (5th ed.). SAGE Publications.

Da Cruz, N. F., Rode, P., McQuarrie, M., Badstuber, N., & Robin, E. (2022). Networked Urban Governance: A Socio-Structural analysis of transport strategies in London and New York. *Urban Affairs Review*, 59(6), 1908–1949.

<https://doi.org/10.1177/10780874221117463>

European Commission. (2013). Together towards competitive and resource-efficient urban mobility. In *European Commission*. Retrieved March 18, 2025, from https://eur-lex.europa.eu/resource.html?uri=cellar:82155e82-67ca-11e3-a7e4-01aa75ed71a1.0011.02/DOC_3&format=PDF

Eurostat. (2024, January 17). Passenger cars per 1 000 inhabitants reached 560 in 2022. *Eurostat*. <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240117-1>

Gant, R. (1992). Transport for the disabled. *Geography*, 77(1), 88–91.

<https://www.jstor.org/stable/40572151>

Gray, D., Laing, R., & Docherty, I. (2016). Delivering lower carbon urban transport choices: European ambition meets the reality of institutional (mis)alignment. *Environment and Planning a Economy and Space*, 49(1), 226–242.

<https://doi.org/10.1177/0308518x16662272>

Haegele, J. A., & Hodge, S. (2016). Disability Discourse: Overview and critiques of the medical and social models. *Quest*, 68(2), 193–206.

<https://doi.org/10.1080/00336297.2016.1143849>

Kitchin, R. (1998). “Out of Place”, “Knowing One’s Place”: Space, power and the exclusion of disabled people. *Disability & Society*, 13(3), 343–356.

<https://doi.org/10.1080/09687599826678>

- Kitchin, R. (2000). The Researched Opinions on Research: Disabled people and disability research. *Disability & Society*, 15(1), 25–47. <https://doi.org/10.1080/09687590025757>
- Knott, E., Rao, A. H., Summers, K., & Teegeer, C. (2022). Interviews in the social sciences. *Nature Reviews Methods Primers*, 2(1). <https://doi.org/10.1038/s43586-022-00150-6>
- Lefebvre, H. (1968). *The right to the city*. The Anarchist Library.
<https://theanarchistlibrary.org/library/henri-lefebvre-right-to-the-city>
- Martens, K. (2012). Justice in transport as justice in accessibility: applying Walzer’s ‘Spheres of Justice’ to the transport sector. *Transportation*, 39(6), 1035–1053.
<https://doi.org/10.1007/s11116-012-9388-7>
- Mehta, V. (2013). Evaluating public space. *Journal of Urban Design*, 19(1), 53–88.
<https://doi.org/10.1080/13574809.2013.854698>
- Oliver, M. (2013). The social model of disability: thirty years on. *Disability & Society*, 28(7), 1024–1026. <https://doi.org/10.1080/09687599.2013.818773>
- Saunders, L. (n.d.). *Healthy Streets: Making streets healthy places for everyone*. Healthy Streets.
Retrieved March 15, 2025, from <https://www.healthystreets.com/>
- Stafford, L., Vanik, L., & Bates, L. K. (2022). Disability Justice and Urban Planning. *Planning Theory & Practice*, 23(1), 101–142. <https://doi.org/10.1080/14649357.2022.2035545>
- Tram Bologna. (2025). *Tram Bologna*. <https://www.trambologna.it/cantieri/>
- Velho, R., Holloway, C., Symonds, A., & Balmer, B. (2016). The Effect of transport accessibility on the social inclusion of wheelchair users: a mixed method analysis. *Social Inclusion*, 4(3), 24–35. <https://doi.org/10.17645/si.v4i3.484>

Zeng, Z. (2025). The crossroads of Real-World contingency in Qualitative Research: challenges, lessons and resilience. *International Journal of Qualitative Methods*, 24.
<https://doi.org/10.1177/16094069251336270>

Appendix

Appendix 1: Interview Guide

Introduction

Welcome, and thank you for agreeing to participate in this interview.

The goal is to understand how people who use a wheelchair experience getting around the city and using public spaces in Bologna.

Before we begin, a few practical notes:

- Everything shared will be treated confidentially. We will use pseudonyms and store data securely.
- With your consent, the interview will be recorded so it can be accurately transcribed. Do you agree?
- The interview will last about one hour.
- You are free not to answer any question or to take breaks at any time.

Experience of mobility in the city

Getting around and infrastructure

- Could you tell me what a typical day looks like for you in terms of getting around? Where do you go, how often, and how do you get there?
- Which means of transport do you use most frequently?
- To someone who doesn't use a wheelchair, how would you describe your experience moving around Bologna in a wheelchair?
- Can you tell me about a specific episode that you consider significant in terms of accessibility?
 - And what about your experience with sidewalks?
 - And with roads?
 - And with public spaces?
 - And with pedestrian paths?

Public transportation

- Can you tell me about your experience with public transport, such as buses, taxis, or other services?

- How do you find accessibility during your travels?
- And what about ramps?

Shared spaces

- Have you ever used bike lanes or other shared spaces?
- Are there any services or routes that you find particularly useful or problematic?

Safety and comfort

- Can you tell me what your experience is like in terms of safety when moving around the city? Particularly when using a wheelchair.
- Based on your mobility experience, are there places that you find particularly easy or difficult to cross? Please try to give concrete examples and specific episodes.
- What helps you feel comfortable in public spaces?

Autonomy and independence

- What contributes to making you feel autonomous during your movements?
- Do you rely on tools, services, or people?
- Are there obstacles that limit your freedom of movement?

Social and emotional aspects

- How does the city's layout affect your daily well-being?
- Have there been moments when you felt particularly welcomed or, conversely, excluded?
- Do your movements around the city affect your mood, stress level, or social life?

Reflections on possible changes

Now that we've talked about your general experience, I'd like to ask if you've noticed any changes over time. Let's revisit some of the topics we already touched on:

Getting around and infrastructure

- Have you noticed recent changes in how easy or difficult it is to move between sidewalks, streets, or public spaces?
- Are there areas of the city that you now find more accessible or, on the contrary, more difficult to cross?

Public transportation and shared spaces

- Has your experience with buses, taxis, or other means of transport changed over time?
- Have new services or routes been introduced that have changed how you get around?

Safety and comfort

- Has your perception of safety changed in recent months or years?
- Are there places you now find more or less comfortable?

Autonomy and independence

- Do you feel more or less autonomous than in the past?
- Have some changes in the city affected the extent to which you rely on tools, services, or people?

Social and emotional aspects

- Have you noticed changes in how the city makes you feel, both emotionally and socially?
- Do you feel more included or excluded compared to the past?

Overall

- What are, in your opinion, one or two changes that have had the greatest impact on your mobility experience?

Final questions

- I have finished my questions, are there any topics you consider relevant that we haven't covered, or haven't addressed enough?
- Is there anything else you'd like to add about your experience of getting around Bologna?
- To conclude, may I ask you to confirm:
 - Your age
 - Your current occupation
 - How long you've lived in Bologna?

Thank you for your time and for sharing your experience.

Appendix 2: Code Tree Interviews

Selective Code	Axial Code	Open code
Accessibility of Urban Mobility Systems	Public Bus Accessibility	Uses public busses
		Public busses mostly accessible
		Public bus not accessible
		Does not use public bus
		Waited two hours for an accessible bus
		Impossible to access busses independently
		Electric ramps replaced with manual ramps on busses
		Negative experience with bus driver
		Sometimes buttons for disabled people are turned off
		Bus service as positive
		Bus drivers not trained
	Train and Intercity Travel	Uses trains to leave the city
	Bike Lane and Bike Sharing Accessibility	Train service accessible
		Used to be forbidden for wheelchair users to go on the bike lane
		Bikelanes positive for wheelchair users
		Bikelanes negative for wheelchair users
		Bikelanes inaccessible due to poor design
		Bike sharing as new barrier
		Bologna good for biking
	Street and Sidewalk Infrastructure	Bikelane network has improved
		Potholes, sharp turns, abrupt brakes as problematic for wheelchair users on busses
		Pavement in historic centre is problematic
		Manual wheelchairs as more vulnerable to rough pavement
		Ramps are important for sidewalks
		Scooters and bikes on sidewalk as a barrier
		Restaurant terraces as barrier

		Side steepness of sidewalks as important factor
		Smoothness of pavement as important factor
		Width of sidewalks as important factor
		Porticoes good for accessibility
		Priority parking as important factor
		Difficult to find priority parking
	Toilets and Sanitary Facilities	Some available public accessible bathrooms
		Public toilets not accessible
		May need someone in case of necessity of a toilet
	Neighbourhood-Specific Accessibility	Residency in Bolognina
		Lives in periphery
		Lives in city centre
		Bolognina good accessibility
		Bolognina urban rigeneration
		Santo Stefano accessible
		Santo Stefano inaccessible
		Via Riva Reno inaccessible
		Via Rizzoli accessible
		Strada Maggiore inaccessible
		Via del Pratello inaccessible
		No strong difference between centre and periphery
		Periphery less accessible
		Periphery more accessible
	Wheelchair Type and Device-Related Factors	Advantage of electric wheelchair
		Electric wheelchair
		Manual wheelchair increases autonomy
		Type of wheelchair as important factor
		Hybrid wheelchair
		Manual wheelchairs as more vulnerable to rough pavement
Autonomy and Mobility Choice	Taxi Use and Limitations	Uses taxis
		Used to use taxis

Policy Impact and Structural Conditions	Autonomy and Independence	Uses private taxi
		Taxi as a difficult service
		Taxi as important service for wheelchair users
		Impossible to reserve a taxi
		Taxi unavailable for electric wheelchairs
		Moves in autonomy
		May need someone in case of necessity of a toilet
		Does not feel independent/autonomous
		Impossible to be spontaneous
		Predictability as important factor
	Tram and Construction Works	Chooses already known routes
		Has personal assistant
		Does not have personal assistant
		Dependence on others
		Car with special features
		Can drive
		Can't drive
		Autonomy as important factor
		Tram as important positive change
		Tram will improve autonomy
	Policy Perception and Systemic Frustration	Tram construction works as barrier
		Redesigned area, made inaccessible
		Sceptical about accessibility of tram
		Tram tracks as new barrier
		Construction of tram line combined with elimination of barriers
		New construction works not always bring improvements to accessibility
		New construction works generally bring improvements to accessibility
		Lower speed limit positive for active mobility
		Lower speed limit not respected

Social Inclusion and Behavioural Environment		No change perceived with lower speed limits
		Lower speed limit changed behaviour
		Lower speed limit had a negative impact on passive mobility
		Not enough checks for speed limits
		Frustrated due to constant battles for accessibility
		Frustration due to lack of consideration
		Changes with last administration
		New stores don't always take accessibility into account
		Lack of training for technicians
		Compared to other cities, Bologna is accessible
	Comparisons with Other Places	Can compare with other cities
		Can't compare with other cities
	Social Interaction and Public Perception	People's behaviour as important factor
		Presence of people has negative impact
		Bologna as inclusive and accepting of diversity
		Bologna people have become more inclusive
		Discrimination faced as wheelchair user
	Safety and Security	Feels safe
		Does not feel safe at night
		Criminality has increased
		Wheelchair user more exposed to criminality
		Got hit by a car
		Wheelchair users less visible by cars
		His wallet got stolen from the wheelchair
Life Circumstances and Structural Inequality	Biographical and Life Context	Smart working
		Lives with family
		Occupation: Diversity manager (Municipality)
		Occupation: University professor

	Was not born in Bologna
	Does not have public transport subscription
	Discount available for people with disability for bus subscription
	Difficult to renew subscription
	Occupation: University
	Was born in Bologna
	Can't compare with other cities
	Always lived in Bologna
	Works at the office
	Occupation: Public administration
	Occupation: PhD Disability Studies
	Lives in city centre
	Occupation: Surveyor
	Not fully autonomous
	Housing crisis effect on vulnerable categories
	Occupation: Volunteering (Disability Pension)
	Occupation: Volunteering
	Occupation: Graphic designer
	Occupation: IT

Appendix 3: Code Tree Document Analysis

Selective Code	Axial Code	Open Code
Rhetoric: Reality Gap	Policy Language on Inclusion	Explicit reference to disability inclusion
		Mention of universal design principles
		Spatial equity or territorial justice
		Intersections of disability with age, gender, or SES
		Recognition of bodily diversity
		Long-term vision for inclusive mobility
		Framing of autonomy or independent mobility
		References to physical and mental well-being
	Normative Framing of Accessibility	Inclusion of safety and comfort in design logic
		Emphasis on dignity or user-centred mobility
		References to community/social inclusion in mobility
		Framing of accessibility as a rights-based issue
		Accessibility as compliance (not inclusion)
		Involvement of disabled people in planning
		Accessibility framed as a public good
		Accessibility reduced to technical compliance only
		Use of vague/inclusive language without follow-up

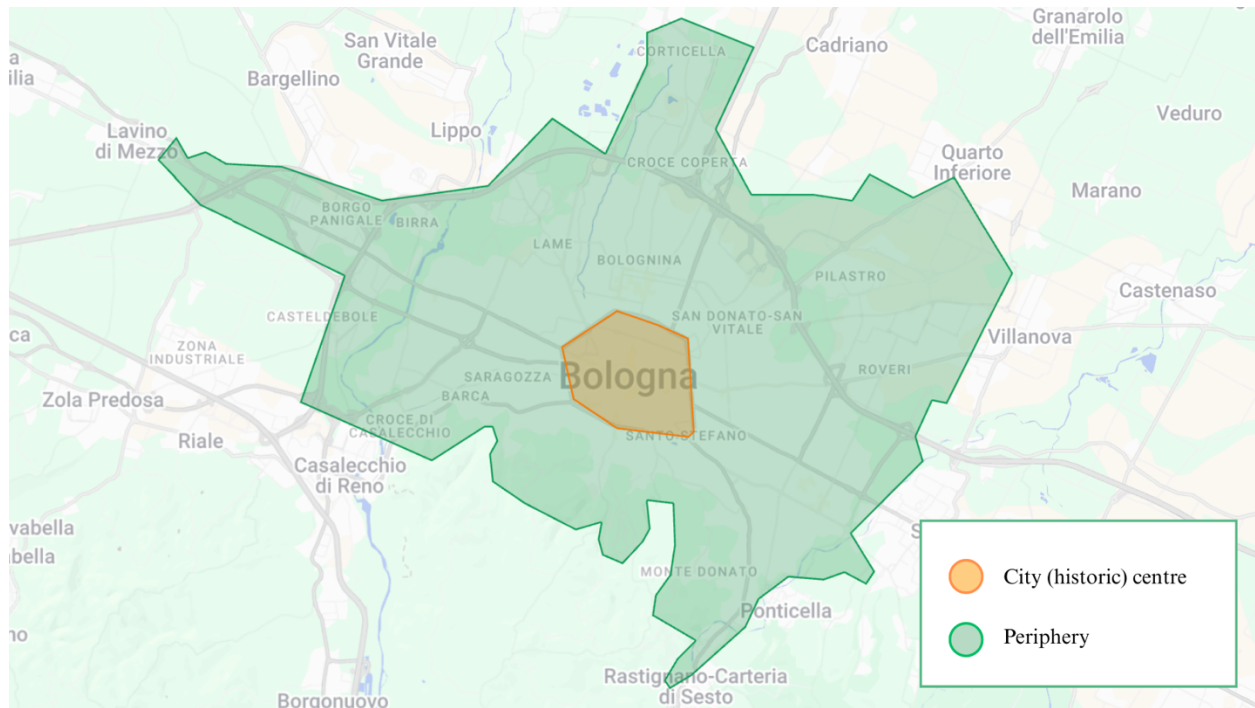
Governance & Implementation	Institutional Accountability	Integration with other local/regional plans
		Institutional roles/responsibilities clearly assigned
		Interdepartmental coordination mechanisms
	Monitoring and Evaluation	Explicit equity or accessibility objectives
		Accessibility targets or benchmarks
		Monitoring and evaluation of inclusion targets
		Timeline clarity and deliverability
		Conflict or trade-off acknowledged between goals
		Maintenance/repair standards for accessibility tech
Spatial and Modal Impacts	Modal Priorities	Reference to accessible public transport vehicles
		Availability of paratransit or accessible taxis
		Integration of special vehicle fleets (e.g. with lifts)
		Measures for affordability or discounted access
	Targeted Accessibility Measures	Support for spontaneous/unplanned travel
		Budget allocation for accessibility measures
		Inclusive sidewalk design (width, surface, ramps)
		Inclusion of tactile paving or signage
		Protection from obstacles (bikes, scooters, terraces)
		Safe crossing design or calming infrastructure

	Public space design for diverse users
	Shade, rest areas, benches
	Lighting for night-time safety
	Design guidelines for shared spaces
	Walkability/“Happy Streets” references adapted
	Human-scale or sensory-inclusive environments
	Spatial reach of accessible routes or services
	Accessibility of transport nodes or hubs
	Mention of training for transport staff on inclusion

Appendix 4: Information Interviews

	Pseudonym	Age range	Residency	Length interview
1	Roberto	40-49	Periphery	49'
2	Maria	40-49	Periphery	32'
3	Melissa	30-39	City centre	44'
4	Mirella	30-39	Periphery	41'
5	Pathik	50-59	Periphery	46'
6	Adriano	70-79	Periphery	48'
7	Fabiana	60-69	City centre	45'
8	Lorenza	30-39	City centre	44'
9	Gabriele	40-49	City centre	41'
10	Edoardo	30-39	City centre	51'

Appendix 5: Map of Bologna



Source: Author.

Appendix 6: Privacy Checklist & Consent Form

CHECKLIST PRIVACY RELATED ASPECTS IN RESEARCH

INSTRUCTION

This checklist must be completed for every research carried out by researchers (staff and students) from the Department of Public Administration and Sociology (DPAS). This checklist must be completed before starting to collect data or approach participants. Students can get help from their supervising teacher when completing this checklist.

This checklist is a mandatory part of the thesis and must be uploaded to Canvas before data processing is started. Consult the Frequently Asked Questions (FAQ) when completing the checklist. This can be consulted on Canvas. The FAQ contains guidelines that guarantee privacy.

If you have any doubts about specific aspects of your research, discuss this with your EUR thesis supervisor in order to together find a solution.

PART I: GENERAL INFORMATION

Title of the project: Between Progress and Barriers: Bologna's Urban Mobility Plan and the Disabled Experience

Name and email address of student: Giorgio Palladino, 560663gp@eur.nl / gio.palladino2002@gmail.com

Name and e-mail address of thesis supervisor: Sofia Pagliarin, sofiapagiarin@ihs.nl

Start date and duration: January until submission (June 29th)

Is the research being conducted within DPAS? YES - NO

If NOT: at or for which institution or organization will the study be conducted?
(for example, an internship organization)

PART II: TYPE OF RESEARCH STUDY

Indicate what type of research your study involves by circling the correct answers:

1. Are natural persons involved in the research? **YES – NO**
 - If YES, go to Part II
 - If NO, go to PART IV

2. Is personal data processed as part of the research? Personal data relates to identified or identifiable natural persons. This includes both direct and indirect data. Interpret indirect personal data in the broadest sense of the word. Indirect personal data can be any data that can be indirectly traced to a person. **YES – NO**

If YES, justify below for what purpose the personal data is processed

In order to answer the research question (Currently: *How do urban mobility policies impact the experience and use of the public space among wheelchair users in Bologna?*) it is necessary to collect some sort of information about the place of residence of the respondents. The extent to which this information will be detailed will be up to the respondent, but it is relevant to explore the areas and routes that respondents have been in, to reach theoretical saturation. Additionally, to explore their experience as wheelchair users, personal and medical information may be shared by the respondents to reach a full understanding of their mobility practices and dynamics. Nevertheless, no harm will be done to respondents, it will be a safe space in which they share only if they want to, in a voluntary manner, and with the possibility of changing question, as stated in the signed consent form.

3. Are special personal data processed as part of the research? Special personal data: **YES – NO**
 - Race or ethnic origin;
 - Political views;
 - Religious or philosophical beliefs;
 - Trade union membership;
 - Genetic data;
 - Biometric data for the unique identification of a person, for example fingerprints or facial images;
 - Information about mental or physical health; and/or
 - Information regarding a person's sexual behavior or sexual orientation.

If YES, justify the purpose of the processing for each personal data

Information about their physical health is needed to explore their experience as wheelchair users, in order to answer the research question.

-
4. Are minors (<16 years old) involved in the study, or other vulnerable groups who cannot give consent? For vulnerable groups, the residents of a women's refuge, refugees, and people with intellectual disabilities should be considered. YES – **NO**

If YES, justify your answer below

5. Will you pseudonymize any collected (special) personal data?
With pseudonymization, identifying data is separated from non-identifying data and replaced by artificial identifiers.

YES –
NO

Consider, for example, replacing the name and address data of each respondent with a unique respondent number. As a result, it is not visible to outsiders who the person to which these personal data belong is. Only the person who can make the link between the respondent number and the name and address details is able to link the personal data. Sufficient measures must be taken to make it impossible for unauthorized persons to link these files.

If YES, explain how you pseudonymize the personal data

Through online platforms that provide random names, pseudonyms will be provided to replace the respondents' names.

PART II – PERMISSION

Use the following table to assess whether a consent form should be prepared.

Type of data set	Informed consent form?
Collection of data set with personal data	Yes, a consent form must be prepared for all respondents.
Collection of data set with special personal data	Yes, a consent form must be prepared for all respondents. Important! Explicit consent is required for the processing of special personal data.
Collection of data set with personal data of vulnerable groups	Yes, a consent form must be prepared for all respondents. Important! If minors are involved in a study, the following rules apply: • Under 16 years of age: permission from respondent (if possible) and parent/guardian • Older than 16 years and younger than 18 years: permission from respondent.
Research with field observations without manipulations for which participants do not have to be identified	No, no consent form is required.
Data files in which no personal data is processed	No, no consent form is required.
Reuse of existing data set with the permission for reuse in future research in the same research area	No, there is no consent form in the following cases: 1. With initial research, the respondents gave permission for the data set to be reused for future research in the same field. 2. The owner of the initial research has publicly informed that the dataset is being reused for future research in the same field.
Reuse of existing data set without the permission for reuse in future research in the same research area	Yes, a consent form must be prepared for all respondents. Important! Do you not have the contact details? Then ensure that the data owner informs the public about the reuse of the dataset for future research. For example, by means of a Privacy Statement.

* Add your information and consent form in Appendix I (if applicable).

PART IV: DATA COLLECTION

7. From whom/what do you collect your data?

Note: indicate this per individual data source (interviews, questionnaire research, observations, etc.)

Interviews: with residents of Bologna who are above 18 years old, and make use of a wheelchair on a daily basis for mobility purposes.

8. How will you collect your data?

Note: indicate this per individual data source (interviews, questionnaire research, observations, etc.)

Through in-depth semi-structured interviews. These will be conducted primarily in person, although an online alternative is provided to accommodate the respondents' needs.

9. What is the (expected) sample size?

10 to 15.

10. What is the size of the population from which you draw a sample?

It is difficult to estimate. According to open access data from the municipality of Bologna, in 2018 there were 21.200 residents with a disability, and such number was expected to grow up to 21,800 by 2023. While I focus specifically on wheelchair users, this can provide an approximate size of the population.

PART V – DATA STORAGE AND COPIES

11. Where do you store the data obtained in the short term?

Note: Indicate this per individual data source, for example for test data on paper and for digital data files.

The recordings and transcripts of the interviews will be stored on OneDrive.

12. How long will you keep the data?

Note: Indicate this per individual data source, for example for test data on paper and for digital data files.

For a maximum of 10 years.

13. Who is responsible for the direct daily management, storage, and backup of the data related to your research?

Myself (Giorgio Palladino).

- 14. Who has access to your research and underlying data set and with whom is it shared?**
Please note - ensure that only authorized persons have access to your research and underlying data set. For example, access to certain documents that are stored on your computer.

Myself (Giorgio Palladino), and possibly my supervisor (Sofia Pagliarin).

- 15. How (often) will you make backup copies of your research data for short-term security?**

As often as possible, through the automatic backup of OneDrive.

PART VI: SIGNATURE

Please note that it is your responsibility to follow the privacy guidelines whilst conducting your research. Erasmus University Rotterdam recommends that you use the FAQs to ensure that the data is authentic, of high quality, and processed correctly. This also means that you inform participants about the research and that you guarantee its confidentiality when storing and using personal data.

Deviating from the proposed advice from Erasmus University Rotterdam, as included in the FAQs, falls under your responsibility.

I hereby declare that the study will be conducted in accordance with the privacy guidelines of the Department of Public Administration and Sociology of the Erasmus University Rotterdam. I have answered all questions truthfully.

Name student:
Giorgio Palladino



Name EUR supervisor: dr. Sofia Pagliarin



Date:
07/04/2025

Date: 10/04/2025

Information sheet for thesis research "Between Progress and Barriers: Bologna's Urban Mobility Plan and the Disabled Experience"

Under the supervision of Sofia Pagliarin, Giorgio Palladino is examining the impact of recent urban transport policies in Bologna on the experience of urban mobility among wheelchair users. This research can be realized with the help of your participation. Giorgio is curious about your opinion on your personal experience of urban mobility in Bologna. There are no right or wrong answers.

Why this research?	The research explores the experience of wheelchair users in Bologna, and particularly the impact of recent urban transport policies on their mobility practices. This research is being conducted from the Erasmus University Rotterdam.
Process	You will participate in a study in which we will gather information through: - Interviewing you and recording your answers via audio. A transcript of the interview will be produced
Confidentiality	We will do everything we can to protect your privacy as well as possible. In addition to the student, only the thesis supervisor and second reader will have access to all information you provide. No confidential information or personal data from or about you will be released so that someone will be able to identify you. In the research you are referred to by a made-up name (pseudonym), unless you have given permission to use your name for quotes.
Voluntary participation	You do not have to answer any questions that you do not want to answer. Your participation is voluntary and you can stop whenever you want. If, during the research, you decide to terminate your participation, the information that you have already provided will be used until the moment that consent is withdrawn. Do you want to stop participating in this research? Then contact Giorgio Palladino via 560663gp@eur.nl / gio.palladino2002@gmail.com or +32485153928.
Data storage	Anonymous data or pseudonyms will be used in the thesis. The audio recordings, forms and/or other documents that are created or collected in the context of this thesis will be stored securely. The research data is stored for a period of ten years. Data will be deleted or made anonymous so that they can no longer be traced to a person at the end of this period, at the latest.
Submitting a question or complaint	If you have specific questions about how your personal data is handled, you can direct your question to Giorgio Palladino via 560663gp@eur.nl / gio.palladino2002@gmail.com or +32485153928. You can also submit a complaint to the Dutch Data Protection Authority if you suspect that your data has been processed incorrectly.

By signing this consent form I acknowledge the following:

	Yes	No
1 I am sufficiently informed about the research. I have read the information sheet and have had the opportunity to ask questions. These questions have been answered sufficiently and I have had sufficient time to decide on my participation.	☐	☐
2 I volunteer to participate in this study. It is clear to me that I can terminate participation in the study at any time, without providing a reason. I don't have to answer a question if I do not want to.	☐	☐
In order to participate in the study, it is also necessary that you give specific permission for various elements. Note that if you are younger than eighteen, a parent/guardian must also sign this form.		
3 I give permission to process the data collected about me during this research as explained in the attached information sheet. This permission also relates to the processing of data about my health.	☐	☐
4 I give permission for audio and/or video recordings to be made during discussions and a transcript of my answers to be produced.	☐	☐
5 I give permission for use my answers as quotes in the student's thesis.	☐	☐
7 I give permission to state my real name in the quotes referred to above.	☐	☐
6 I give permission to store the data collected from me and to use it in a pseudonymized form for all further research where it can be used at a later date.	☐	☐

Name participant:

Name student:

Signature:

Signature:

Date:

Date: