PROSPERITAS

18 57 BUEB

BUDAPEST UNIVERSITY OF ECONOMICS AND BUSINESS

Research Paper

Active ageing, social inclusion, and public transportation: A policy analysis and narrative review

Elisabetta Venezia

University of Bari Aldo Moro, Department of Economics and Finance, Largo Abbazia Santa Scolastica, Bari, Italy.

Correspondence: elisabetta.venezia@uniba.it

Abstract: The need for urban, health, and transportation services is evolving as the population ages. It is becoming more widely acknowledged that mobility is necessary for later-life autonomy, health, and social engagement. In order to analyse senior mobility within a framework for sustainable mobility, this narrative study synthesizes data from recent research as well as Italian reforms and European initiatives. Digital exclusion, affordability, service coverage and dependability, and micro-access are the four recurring obstacles that have been found. This current study offers further insights into the importance of safety perceptions, psychological variables, and the necessity of hybrid digital/analogue information systems. Although the long-term viability and equity of these options remain uncertain, the evidence points to companionship-oriented services as a viable complement to traditional public transportation. Data show that user-centric integrated mobility packages—those that weave together inclusion, affordability, reliable service, solid infrastructure and psychosocial support—outperform fragmented initiatives. While Italian and broader European policy frameworks are increasingly acknowledging these concerns, systematic intersectional evaluation is still needed to guarantee both effectiveness and equity. When mobility is seen as both a right and a competency, it generally takes its place as an element of inclusive sustainable ageing. Holistic, cross-cutting approaches that go beyond single-issue remedies can produce improvements in health, strengthen social cohesion and enhance independence.

Keywords: Active ageing, elderly, public transport, sustainable mobility, accessibility, equity, universal design.

Citation:
Venezia, E. (in press). Active ageing, social inclusion, and public transportation: A policy analysis and narrative review. *Prosperitas*. Budapest University of Economics and Business. https://doi.org/10.31570/prosp_2026_0174

History:

Received:	26 Sep 2025
Revised:	24 Oct 2025
	30 Dec 2025
Accepted:	19 Jan 2026
Published:	13 Feb 2026

1. Introduction

Mobility in later life is more than just being able to move around; it is a skill that makes it possible to access goods, services, social interactions, and civic life. Numerous studies have shown that limited mobility is linked to poorer health, loneliness, and a lower quality of life, while regular public transportation use promotes independence, unplanned exercise, and ongoing social interaction (Metz, 2000; Musselwhite & Haddad, 2010; Nordbakke & Schwanen, 2014; Stanley et al., 2011). By demonstrating that mobility is connected to psychological well-being and perceptions of security in public spaces (in addition to physical functionality), recent research supports this conceptualization (Marešová et al., 2023; Dilian et al., 2025).

Besides implications for individuals, mobility in later life is a significant public policy issue. Mobility serves as a crucial factor that enables older persons to efficiently access healthcare, social services, civic engagement, and active ageing programs. As mobility diminishes, these interventions may become officially available yet practically unattainable, thus compromising their efficacy. In the context of budgetary, spatial, and service-capacity limitations, diminished mobility produces systemic effects by redirecting demand towards more intensive and expensive downstream solutions, including medical care, social assistance, and informal caregiving. Characterizing mobility as a type of social infrastructure underscores its significance in fostering equitable, preventive, and effective public policy results in ageing populations.

Current evidence suggests that a range of factors shape how older adults decide on their transport modes(e.g. Dilian et al., 2025; Nilsson et al., 2025). Affordable fares, reliable

and frequent off-peak services, pedestrian areas that are both accessible and safe, and encouraging social circles that promote traveling together all serve as facilitators. Conversely, the lack of benches or shelter lighting, digital isolation, perceived vulnerability and inflexible timetables act as barriers. These impacts are largely filtered through literacy and confidence in information tools, underscoring why hybrid information systems, mixing both digital and non-digital routes, are essential. In aggregate, these factors shape adults' sense of comfort, autonomy and social involvement as well as their preferences, for particular communication modes (Metz, 2000; Musselwhite & Haddad, 2010; Nordbakke & Schwanen, 2014).

The travel habits of older persons deviate greatly from commute-centred models. Multipurpose and off-peak travel like getting healthcare, seeing friends and family, shopping, and taking part in cultural or caring activities are what define them. In addition to regular and dependable connections, these patterns call for accessible information systems, comfortable waiting areas, and short, secure access distances. Unmet needs are frequently associated with limited services on weekends and evenings, infrequent services in suburban and rural areas, and worries about walking to and waiting at stops, according to studies (Curl et al., 2014, Luiu et al., 2017, Ravensbergen et al., 2022). Such gaps continue to exist, highlighting the shortcomings of supply-side planning models that continue to emphasize a car-oriented infrastructure and peak-hour travel (Church et al., 2000; Lucas, 2012).

One concept that has arisen to address these issues is sustainable mobility. It places more emphasis on accessibility, equity, and health than throughput. According to this viewpoint, transportation planning is evaluated more on the options it allows people to access than on the quantity of vehicles moved. Design considerations are reframed to include universally inclusive information and payment systems, dependable and frequent off-peak services, and age-friendly first- and last-meter surroundings (Páezet al., 2012). Although affordability is generally accepted to be significant, its impact is lessened in the absence of simultaneous expenditures in micro-access and service quality (Luiu et al., 2017; Siren & Haustein, 2015).

To get a picture of how transport systems can encourage social participation and active ageing within a sustainable mobility framework, this study pulls together recent research and the existing Italian and European policy landscape. Its primary aim is to isolate the factors that influence older adults' travel behaviour and to outline governance measures that enhance access, equity and overall, well-being. Considering the prevailing policy environment and the existing literature, four working hypotheses are proposed. The first hypothesis concerns social networks: adults, who are part of robust social circles, feel a strong sense of community and have regular companionship opportunities, tend to walk and take other non-motorized trips more often. The second hypothesis centres on digital enablement: when seniors are tech-savvy, using aids such as journey-planner apps or live-status services, it generally nudges them towards greater public-transport use; yet, the greatest boost, in overall happiness and sense of inclusion comes from a hybrid of digital and analogue provisions. The third hypothesis is concerned with service quality and dependability: riders are more likely to respond strongly to safe first- and last-meter conditions and consistently reliable, off-peak services than they do to fee discounts alone. Finally, the fourth hypothesis examines innovative and community-rooted services: when woven into the existing public-transport fabric, demand-responsive and companionship-driven mobility options can chip away at the isolation that plagues low-density or underserved locales.

These theories provide the groundwork for exploring empirical data, policy architectures and governance ramifications, while also acting as a compass for narrative appraisal. Therefore, the study, while focused on the analysis of individual and contextual factors affecting mobility, also incorporates a governance perspective by investigating how the interplay of various policy instruments collectively impact mobility outcomes in later life. This review is guided by two research questions. RQ1 asks which factors most strongly shape older adults' mobility behaviour within sustainable transport systems, while RQ2 examines how current European and Italian policy frameworks address these determinants. The four working hypotheses are explicitly aligned with these questions. Hypotheses H1 (social networks) and H2 (digital enablement) primarily address RQ1 by focusing on behavioural and informational drivers of mobility. Hypotheses H3 (service quality and reliability) and H4 (innovative and community-rooted services) bridge RQ1 and RQ2 by linking empirical determinants of mobility to governance mechanisms and policy design. This alignment provides a coherent analytical structure connecting empirical evidence with policy analysis.

2. Literature review

This study is informed by two complementary theoretical frameworks that conceptualize mobility in later life as an issue of both individual capacity and structural integration. The capability-based approach defines mobility as a facilitating condition that enables individuals to transform existing resources and services into significant engagement in social, economic, and civic activities. From this viewpoint, obstacles such as unreliable services, inadequate micro-access, and digital exclusion hinder not only mobility but also the efficient implementation of public interventions. The study of transport-related social exclusion emphasizes how geographical, service, and institutional configurations can systematically disadvantage specific populations, such as older adults, by restricting access to important opportunities. In these frameworks, accessibility and universal design serve as operational principles, highlighting the alignment of infrastructure, services, and information systems with varied functional and cognitive requirements (Shergold & Parkhurst, 2012).

Studies repeatedly demonstrate that transportation has an impact on well-being for senior citizens. Access to public transportation promotes independence and active ageing, but limited mobility is associated with worse health and lower life satisfaction (Metz, 2000; Musselwhite & Haddad, 2010; Stanley et al., 2011). Accordingly, mobility serves as a capability, giving senior citizens the actual flexibility to engage in society and supporting more comprehensive capability-based strategies for social inclusion (Lucas, 2012).

The literature continues to focus on persistent impediments. Mobility is hampered by a combination of environmental restrictions such as uneven sidewalks, dim lighting, and dangerous crossings, as well as service limits, especially during off-peak hours (Curl et al., 2014; Luiu et al., 2017). Given that older individuals' brief, multi-purpose journeys are more sensitive to waiting periods, service dependability and headways are equally important (Banister & Bowling, 2004; Hine & Mitchell, 2001). Recent works emphasize that these obstacles have psychosocial components, in addition to structural and physical ones. Marešová et al. (2023) demonstrate that psychological and cognitive aspects, such as self-assurance in utilizing technology and settings, have an equal impact on older persons' decision to travel as do physical considerations. Similarly, Dilian et al. (2025) demonstrate that older people's perceptions of safety, which might vary from concerns about harassment or violence to fear of infection, have a significant impact on their inclination to use public transportation. These notions frequently emerge, irrespective of the calibre of the services.

The digital overhaul of public-transport payment and information systems has been a game-changer. The benefits have not reached everyone equally. With the introduction of contact-less tickets, live-data feeds and handy mobile apps, this progress can sideline older commuters who lack the necessary gadgets, digital know-how or confidence, in the technology (Schwanen et al., 2012). A recent study by Nilsson et al. (2025) found that many elderly people still prefer paper schedules and physical signage, despite the availability of digital information. The presence of hybrid systems often leads to higher satisfaction levels with public transit, indicating that expectations and preferences, in addition to technology accessibility, play a role in digital exclusion.

There has also traditionally been an emphasis on affordability. The research constantly demonstrates that pricing alone cannot overcome poor service quality or lack of physical access, even though concessionary tickets and free passes have been demonstrated to improve travel among low-income groups and pensioners (Stanley et al., 2011; Luiu et al., 2017). Assessments of the UK bus pass and Italy's Carta Argento show that to attain greater social inclusion, cost-effectiveness, dependable service, and age-appropriate infrastructure must be integrated (Stanley et al., 2011; Luiu et al., 2017; Lucas, 2012; Ministero delle Infrastrutture e dei Trasporti, 2022; Venezia, 2026).

Recent research shows that not all mobility needs can be satisfied by traditional fixed-route public transportation. Senior-specific demand-responsive transport programs, as highlighted by Burlando (2025), can close coverage gaps in low-density areas and offer more flexibility; however, thorough ex-post evaluation is required to guarantee efficiency and equity. In their analysis of chauffeuring and companionship services as substitutes for traditional modes of transportation, Latiff et al. (2023) demonstrate how they enhance wellbeing in situations where public transportation is unavailable or mistrusted. These advancements raise concerns about long-term cost and inclusion while demonstrating the variety of mobility options available in ageing cultures.

Recent research indicates that social networks and the sense of community cohesion significantly shape adults' mobility choices underscoring that these decisions are not purely personal (e.g., Marešová et al., 2023; Dilian et al., 2025). Regular contact with friends, neighbours or local organisations provides both assistance and emotional encouragement nudging people toward non-motorized modes of travel, particularly walking. The comfort of seeing faces and feeling socially safe in public spaces also bolsters confidence and consistency, in everyday mobility. Moreover, taking part in volunteer or community initiatives, whether it is handling neighbourhood errands or joining a walking club, has been linked to levels of physical activity and lasting independence. Since social connectivity influences both mobility and overall health and well-being these results indicate that policies designed to improve urban accessibility should also foster social participation and strengthen community infrastructure (Metz, 2000; Banister & Bowling, 2004; Musselwhite & Haddad, 2010; Stanley et al., 2011; Lucas, 2012; Nordbakke & Schwanen, 2014).

Current data reveal that digital tools and blended information platforms are shaping citizens' travel habits more than ever (Nilsson et al., 2025; Llopis et al., 2025). When these technologies—such as ticketing, live service alerts and trip-planning apps—are perceived as trustworthy and easy to use they can bolster older adults' independence and self-confidence (Schwanen et al., 2012). Solutions that exist solely in digital form risk sidelining individuals with limited literacy or insufficient access to technology. Blending interfaces with traditional human-assisted services—help desks, printed timetables or call centres—turns out to be the most acceptable and satisfying approach according to Llopis et al. (2025). These hybrid solutions dovetail with the aim of universal design in transportation information systems, allowing older users to enjoy efficiency gains while still benefiting from inclusive and reliable support.

3. Methodology

3.1 Study Design and Analytical Approach

This study employs a narrative literature review alongside policy analysis to investigate the mobility of older individuals within a sustainable mobility framework. The analytical approach aims to integrate interdisciplinary evidence from transport studies, public health, urban planning, and social policy, while contextualizing empirical findings within European and Italian governance frameworks. The review adheres to a systematic and well-documented methodology that includes literature search, screening and selection, thematic synthesis, and quality assessment to guarantee transparency and analytical rigor.

3.2 Literature Search Strategy

A transparent and explicitly documented search strategy was employed, including defined inclusion and exclusion criteria, thematic coding procedures, and a structured screening process (see later, Table 1 and Figure 1). European Union and Italian policy documents were reviewed to situate empirical findings within existing governance frameworks (European Parliament & Council, 2019; European Commission, 2021; Ministero delle Infrastrutture e dei Trasporti, 2022; World Health Oorganization, 2018;). To fortify rigor the narrative review leveraged a systematic openly recorded search regimen. Five databases were probed for English-language research appearing between 2000 and June 2025: Scopus, Web of Science Core Collection, PubMed/MEDLINE, TRID and Google Scholar. I employed operators to fuse population and mobility concepts into our search strings, such, as ('older adult*' OR senior* OR ageing OR aging) AND ('public transport*' OR bus OR tram OR metro OR 'active travel' OR walk*) AND ('access*' OR affordableb* OR reliab* OR 'social inclusion' OR equity).

3.3 Screening and Eligibility Criteria

Investigations that tackled accessibility, affordability, reliability, safety perceptions, digitalisation and the psychosocial aspects of mobility, or that evaluated transportation or

policy measures, for people aged 60 and older, satisfied the inclusion criteria. Work that focused on non-human populations, freight or private-vehicle use was excluded due to the exclusion criteria (see Table 1). Titles and abstracts were studied to pull together theme clusters in micro-access, digital inclusion, affordability, service reliability and safety. Then, the full texts were qualitatively coded that met the criteria. By utilizing the Scale for the Assessment of Narrative Review Articles (SANRA) checklist, the objectives remained clear, the literature coverage thorough and the conclusions well-backed, all in the name of transparency. Through targeted keyword queries across EU and Italian portals, policy and regulatory sources were examined in tandem allowing a triangulation of governance frameworks, against the empirical data. The identification, screening and inclusion stages are presented in a simplified PRISMA-style flow chart (see Figure 1). This chart follows Table 1, which outlines the key elements of the search strategy.

Table 1: Search strategy and eligibility criteria. Source: *author's own*

Element	Description
Databases searched	Scopus; Web of Science Core Collection; PubMed/MEDLINE; TRID (Transport Research International Documentation); Google Scholar (for grey literature and policy reports).
Search period	January 2000 – June 2025
Search string (example)	('older adult*' OR senior* OR ageing OR aging) AND ('public transport*' OR bus OR tram OR metro OR 'active travel' OR walk*) AND ('access*' OR affordab* OR reliab* OR 'social inclusion' OR equity)
Language	English and Italian
Inclusion criteria	Empirical or review studies examining mobility, accessibility, affordability, reliability, safety, digital inclusion, or psychosocial determinants among adults ≥ 60 years; and policy documents addressing sustainable mobility for older adults.
Exclusion criteria	Studies focusing exclusively on private car use, freight, or non-human subjects; publications not addressing ageing or accessibility.
Screening procedure	Two-step manual screening (title/abstract and full-text levels) performed independently by two reviewers. Disagreements resolved through discussion to ensure consistency and reduce selection bias.
Data extraction	Descriptive summary (country, method, population, key results) and thematic coding (affordability, reliability, safety, digital inclusion, policy alignment).
Quality appraisal	SANRA (Scale for the Assessment of Narrative Review Articles) checklist used to ensure clarity, justification, and literature coverage.

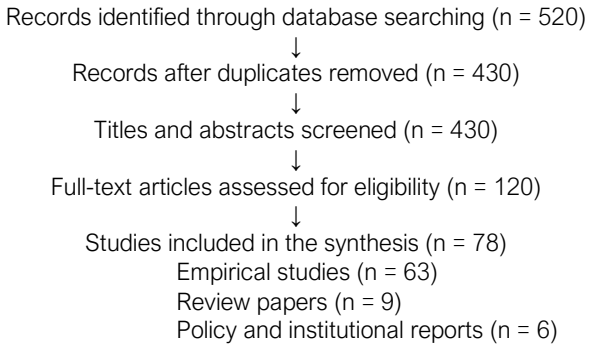

Figure 1. Narrative review flow diagram. Source: *author's own*

This study uses a narrative review and policy analysis to capture the intricate relationships between social inclusion, mobility, and ageing in the context of sustainable mobility. The narrative review unfolded in four phases: (1) scouring databases with selected keywords to harvest relevant studies; (2) pruning the hits and cherry-picking papers that deal with ageing, mobility and accessibility; (3) clustering the amassed evidence into thematic strands—affordability, reliability, digital inclusion and psychosocial factors; and (4) weaving the empirical findings into the policy frameworks of Italy and across Europe. The analytical focus on Italy is justified by its rapidly ageing population, long-standing concessionary fare schemes, and recent investments in age-friendly mobility initiatives. Italy therefore represents a relevant and policy-salient case for examining how demographic change intersects with transport governance. The inclusion of European Union frameworks enables comparison and situates the Italian case within a broader supranational regulatory and strategic context (European Parliament & Council, 2019; European Commission, 2021; Venezia, 2026).

Drawing on studies published between January 2000 and June 2025, the review manages to capture both sweeping, long-term policy shifts and the fresh mobility patterns that have emerged in this era. Because the topic straddles a mosaic of disciplines (health, urban planning, gerontology and transportation research) each with its methodological playbook and metrics, a meta-analysis would be untenable. Consequently, a narrative review has been employed, rather than a systematic one. This approach leans into an interpretive synthesis illuminating the conceptual connections, the nuanced context-driven insights and the ensuing policy implications.

3.4 Analytical Synthesis and Thematic Coding

Given the multifaceted character of mobility, which includes aspects such as physical infrastructure, service design, psychological aspects, affordability, and governance contexts, synthesis was especially appropriate for this investigation. In addition to listing factual findings, the study specifically addressed normative issues, such as the acknowledgment that mobility is a right as well as a capability, placing transportation not just as a technological problem but also as a social justice issue. Important European Union frameworks, including the Accessibility Act, the Urban Mobility Package, and related cohesion policy tools, as well as Italian national reforms and metropolitan mobility plans were incorporated into the analysis to provide a strong institutional lens and guarantee that the results maintained direct policy relevance (European Parliament & Council, 2019; European Commission, 2021; European Commission, 2020; Ministero delle Infrastrutture e dei Trasporti, 2022).

The temporal scope, which ran until 2025, was chosen to strike a balance between more recent contributions that address digitalization, safety perceptions, psychosocial determinants, and innovative service models like demand-responsive and companionship-based schemes, as well as groundbreaking works that established the connection between transportation and quality of life in later age. While the inclusion criteria prioritized works that addressed accessibility, affordability, service reliability, psychosocial or cognitive determinants of travel, or evaluation of transport solutions, the exclusion criteria eliminated studies that were limited to private vehicle use, freight transportation, or unrelated populations in order to maintain thematic coherence.

To tease out the stumbling blocks, such as digital exclusion, tight budgets, patchy service provision and precarious micro-access environments, an iterative thematic-coding

routine was applied. The same framework then served to spotlight emerging opportunities, ranging from hybrid digital-analogue information ecosystems and concessionary pricing married to quality upgrades to new service-model configurations.

3.5 Policy Analysis

To map how institutional frameworks either acknowledge, enact or sideline these issues, policy papers were examined in tandem. Given that mobility barriers are unevenly distributed, an explicit intersectional lens was woven throughout the analysis. People with disabilities, older women, residents of suburban areas and those with limited financial means encounter extra layers of disadvantage that generic "elderly-friendly" policies often overlook. Consequently, the methodological design served a purpose: it pulled together and critically examined the scholarly literature then anchored that insight within governance discussions clarifying the most urgent and actionable research and policy fronts. The review identifies priority action domains that could shape integrated equity-sensitive mobility solutions, such as hybrid information provision, reliable, off-peak services cost structures tied to quality and micro-access enhancements, by weaving findings into a governance-aware analysis. In the analysis, this line of inquiry treats mobility as a basic right that demands inclusive, forward-looking governance in societies with ageing populations while also offering a nuanced picture of mobility as a catalyst for health, independence and social engagement. Beyond reinforcing the conclusions, debates and policy recommendations that follow, this integrative perspective aligns with the journal's aim to close the divide between understanding and practical guidance, for stakeholders, practitioners and policymakers striving to craft inclusive, sustainable futures.

3.6 Quality Appraisal and Transparency

To improve methodological transparency and rigor, the Scale for the Assessment of Narrative Review Articles (SANRA) checklist guaranteed clarity of aims, justification of the storytelling methodology, sufficiency of literature coverage, and coherence between evidence and conclusions. The narrative review design does not seek statistical generalization; nonetheless, the application of defined search criteria, documented screening processes, and structured thematic synthesis enhances the reliability and interpretability of the results. Empirical findings derived from the literature review are presented descriptively in the Findings section. Interpretive synthesis, normative assessment, and policy evaluation are confined to the Discussion and Policy Implications sections, in order to maintain analytical clarity.

4. Findings

The collection of data reveals several connections between well-being and mobility. While frequent use of public transportation promotes physical activity, social interaction, and autonomy, limited mobility is consistently linked to increased risks of loneliness, depression, and mortality (Metz, 2000; Musselwhite & Haddad, 2010; Nordbakke & Schwanen, 2014). These results validate the indirect health intervention role of transportation provision.

Public transportation availability and quality also have a significant moderating effect on social participation. According to research, stopping driving does not always result in isolation if there are trustworthy alternatives; nonetheless, social withdrawal is exacerbated in situations where services are unavailable or untrustworthy (Siren & Haustein, 2015; Stanley et al., 2011). This link is supported by more recent research, which also notes that participation decisions are increasingly influenced by psychosocial comfort and safety perceptions (Marešová et al., 2023; Dilian et al., 2025).

The built environment continues to play a crucial role. In addition to network coverage, accessibility is also influenced by the immediate pedestrian environment's design, with safe crossings, benches, and shelters frequently serving as binding constraints (Ravensbergen et al., 2022). Additional factors include service dependability and off-peak frequency, particularly for short, multi-purpose journeys taken by older people (Curl et al., 2014).

Opportunities and exclusions have been brought about by the proliferation of digital instruments. Many older people still favour analogue systems even when real-time information makes things more convenient. This suggests that inclusive design necessitates the coexistence of digital and non-digital channels (Nilsson et al., 2025). Affordability is still a prerequisite, but not enough. The success of concessionary rates, which boost riding among individuals with fixed incomes, is contingent upon concurrent improvements in service accessibility and reliability (Luiu et al., 2017; Stanley et al., 2011).

In conclusion, the past three years have witnessed the rise of novel mobility solutions. In low-density locations, demand-responsive services, like those studied by Burlando (2025) and alternate chauffeuring and companionship arrangements like those outlined by Latiff et al. (2023), offer solutions for service gaps. Collectively, these studies broaden the definition of what is deemed pertinent to senior mobility beyond the realm of traditional public transportation.

Sorting the 78 studies by theme revealed five standout domains: affordability (n = 16) reliability and service frequency (n = 14) micro-access and built-environment quality (n = 12) digital inclusion and information accessibility (n = 11) and psychosocial or safety perceptions (n = 10). Fifteen more studies probed the governance and policy strands that bind these variables. When the evidence is pooled, it becomes clear that no single factor can ensure mobility inclusion. What truly drives outcomes is the mesh of interdependencies, such as the link between price and reliability or the interplay of access and psychosocial comfort. Gaps remain evident at urban levels: cities in Western Europe generally achieve a higher degree of integration across multiple domains than those, in Southern regions. The momentum behind establishing evaluation metrics finds its justification in the glaring paucity of quantitative data all while research activity, in Italy presses onward with unabated growth. Table 2 summarises the distribution of reviewed studies by thematic focus, illustrating the multidimensional nature of mobility determinants in later life.

Table 2. Distribution of reviewed studies by thematic focus (n = 78). Source: *author's own*

Thematic domain	Number of studies
Affordability	16
Reliability and service frequency	14
Micro-access and built environment	12
Digital inclusion and information accessibility	11
Psychosocial and safety perceptions	10
Governance and policy alignment	15

Fifteen of the reviewed studies explicitly addressed governance or policy dimensions of mobility, focusing on regulatory frameworks, planning practices, pricing schemes, information provision, and the coordination of innovative services. While heterogeneous in design, these studies collectively examine how institutional arrangements shape the accessibility, reliability, and inclusiveness of transport systems for older adults (Table 3).

Table 3. Overview of governance- and policy-oriented studies (n = 15). Source: *author's own*

Focus area	Number of studies	Main analytical emphasis
Accessibility regulation and universal design	4	Compliance with accessibility standards; interface and infrastructure requirements
Planning and service coordination	4	Integration of off-peak services, multimodal planning, institutional alignment
Pricing and concessionary schemes	3	Equity impacts of fare reductions and subsidies
Digitalisation and information governance	2	Hybrid digital–analogue systems; inclusion risks
Innovative and demand-responsive services	2	Governance conditions for equity and sustainability

Even though implementation gaps persist, a review of EU and Italian studies indicates that the empirical findings line up closely with the policy measures. At the EU level, the 2021 Urban Mobility Package advocates for planning, sets off-peak reliability targets and pushes multimodal inclusion, while the 2019 Accessibility Act requires transport interfaces, information and ticketing systems to be fully accessible (European Commission, 2021;

European Parliament & Council, 2019; Páez et al., 2012; Lucas, 2012; Ravensbergen et al., 2022).

While the tools they provide amount to more than a cursory after-the-fact review and their on-the-ground rollout is patchy, Italy's national reforms, namely the National Sustainable Mobility Strategy and the Carta Argento fare-reduction scheme, signal a budding awareness of ageing needs (Ministero delle Infrastrutture e dei Trasporti, 2022; Stanley et al., 2011; Luiu et al., 2017; Venezia, 2026). Though the metropolitan mobility plans for Milan, Bologna and Turin lack monitoring indicators, they still cite age-friendly design and adopt a hybrid information-supply approach. In sum, the mechanisms for evaluation and data sharing remain inadequate, even as the legislative framework theoretically combines design and social inclusion.

This highlights the pressing need for institutions to coordinate and devise performance benchmarks that link mobility results to social participation and public-health metrics (Stanley et al., 2011; Lucas, 2012; Metz, 2000; Musselwhite & Haddad, 2010; European Commission, 2021). Embedding such an approach into resilience strategies and the European Semester would weave transport equity into the policy fabric, turning lofty objectives into concrete measurable progress (European Commission, 2021; Páez et al., 2012; Venezia, 2026).

5. Discussion

This review's findings demonstrate that mobility in later life is influenced by the interplay of service reliability, micro-access conditions, affordability, information accessibility, and psychosocial issues, rather than by a singular determinant. Throughout the literature, these aspects constantly appear as mutually reinforcing, elucidating why isolated or single-issue interventions frequently provide limited or inconsistent results. The data indicates that these drivers are integrated within wider policy and governance frameworks, connecting individual mobility experiences to systemic design decisions and institutional behaviours. To support interpretation and clarify the analytical structure of the discussion, the main barriers to inclusive mobility in later life identified across the reviewed studies are summarised below.

Regarding micro-access and built-environment barriers, deficiencies in the immediate pedestrian environment, such as uneven sidewalks, missing or unsafe crossings, lack of benches and shelters, poor lighting, and long walking distances to stops, often constitute constraints on mobility, regardless of network availability. Concerning service reliability and temporal availability, infrequent, irregular, or poorly coordinated services, particularly during off-peak hours, evenings, and weekends, disproportionately affect older adults whose travel patterns are non-commute-oriented and time-sensitive. It is found for affordability constraints that fixed or limited incomes make transport costs salient, yet evidence shows that pricing barriers interact strongly with service quality and accessibility; fare reductions alone are insufficient when reliability or physical access is weak. The increasing reliance on digital-only ticketing and real-time information systems can exclude users with limited access, skills, or confidence, especially where analogue alternatives or human-assisted channels are withdrawn. It is found for psychosocial and safety-related barriers that perceived vulnerability, fear of crime, harassment, accidents, or infection, as well as low confidence in navigating transport systems, significantly shape mobility choices independently of objective service quality. On the topic of service coverage gaps and spatial inequality, peripheral, suburban, and rural areas often face structural under-provision of public transport, resulting in heightened dependence on informal, demand-responsive, or alternative mobility services. Finally, the findings concerning institutional and governance fragmentation indicate a weak coordination between transport planning, urban design, social services, and health policy can lead to fragmented interventions that fail to address the cumulative nature of mobility barriers over the life course.

Reliability and accessibility moderate the effects of affordability, while digitalisation increases efficiency but risks exclusion in the absence of analogue alternatives. This interaction among determinants helps explain why single-issue interventions often produce limited or uneven outcomes. The results demonstrate how infrastructure, services, economics, technology, and psychosocial variables interact to influence mobility in later life. Reliability and accessibility also moderate affordability, in the sense that lowers cost barriers, digitalization increases efficiency but increases the risk of exclusion in the absence of analogue

options. Advancements in micro-access are just as important as network architecture. More attention should be paid to safety perceptions as separate factors influencing travel behaviour, as they have lately been emphasized in the literature. When considered together, the evidence points to a mesh of interdependencies between price, service reliability, micro-access conditions, and psychosocial comfort. Although policy frameworks increasingly acknowledge these relationships, implementation gaps persist, particularly in relation to monitoring and evaluation. This has contributed to the growing momentum behind the development of shared benchmarks and performance indicators that link mobility outcomes to social participation and public-health goals.

These ideas are becoming increasingly reflected in European planning and policy frameworks. Universal design concepts are incorporated into the EU Accessibility Act and the Urban transportation Package (European Parliament & Council, 2019; European Commission, 2021; Páez et al., 2012; Venezia, 2026), and demand-responsive services, concessionary tariffs, and accessibility improvements are all part of Italian metropolitan transportation plans. However, assessments like SilverBus (Burlando, 2025) serve as a reminder that innovations need to be systematically evaluated to guarantee efficiency and equity. Given the compounding disadvantages faced by women, rural residents, low-income groups, and individuals with disabilities, intersectional inequalities continue to be important (Church et al., 2000; Lucas, 2012).

While there are certain gaps, the conversation also emphasizes how research and policy are convergent. There are still many innovative services that are not completely incorporated into frameworks for sustainable mobility, such demand-responsive transport (DRT) and chauffeuring. Given their limited resources and growing demand, further research is necessary to determine their equity and long-term viability.

This review of the evidence shows that each of the four working hypotheses gets some support, some only partially, others fully. Regarding the first hypothesis (linked to social networks), a steady stream of studies backs the claim that social networks make walking and public-transport use easier for adults thanks to peer support and cohesive neighbourhoods (Stanley et al., 2011; Marešová et al., 2023). By raising motivation and easing fear, engagement functions as a psychological safety net for non-motorized travel. For the second hypothesis (linked to digital enablement), digital technologies lift productivity for those who are digitally literate, yet they often deepen exclusion for individuals lacking access or confidence, signalling that digital enablement is still inadequately supported. Research, including Nilsson et al. (2025), shows that hybrid digital/analogue information systems tend to achieve the highest levels of user satisfaction. Concerning the third hypothesis (related to service reliability), the findings reinforce the importance of service quality and reliability, and it turns out that off-peak frequency ride comfort and micro-access considerations usually outshine price alone when it comes to forecasting how much people actually use the service. Finally addressing the fourth hypothesis (linked to community-based innovation), innovative services are novel and context-specific: they bridge coverage gaps through collaborative demand-responsive schemes, yet they need to be woven into mainstream networks to keep inequality at bay (Burlando, 2025; Latiff et al., 2023). Taken as a whole, the findings reveal that mobility inclusion isn't driven by a single factor; it relies on a synergistic blend of social, psychological and service supports.

The findings of this current study agree with a wave of scholarship that draws attention to how affordability and reliability are inextricably linked (Luiu et al., 2017) while also flagging safety perceptions as a pivotal focal point (Dilian et al., 2025). What the review highlights is that micro-access, those tiny chances to nip somewhere, and the psychological comfort we feel, can end up outweighing purely economic variables in shaping mobility choices. A modest divergence emerges in how robust digital effects found in research from Northern Europe point to a rapid uptake, while Southern settings, such as Italy, still contend with stubborn digital exclusion that dulls technology's promised gains (Schwanen et al., 2012; Nilsson et al., 2025; Luiu et al., 2017; Venezia, 2026). This contrast signals a need for digital policy designs rather than one-size-fits-all solutions. There is still a dearth of data on mobility that hinges on companionship, so a deeper evaluation is clearly called for.

The findings of this analysis indicate that mobility in later life is affected by the interaction of service reliability, micro-access conditions, affordability, information accessibility, and psycho-social factors, rather than by a single variable. In the literature, these components often emerge as mutually reinforcing, explaining why isolated or single-issue interventions

often provide limited or inconsistent outcomes. The data reveals that these determinants are embedded into broader policy and governance frameworks, linking individual mobility experiences to systemic design choices and institutional actions.

Echoing findings in public-health communication literature (Faus et al., 2025) awareness and education initiatives are essential for encouraging adults to adopt active sustainable travel. Programs that blend messages with community ambassadors have been shown to ease anxiety and boost participation, in non-motorized modes. As emerging technologies, ranging from health trackers to voice-assisted route guidance and co-design applications, continue to proliferate, they carve out fresh avenues for inclusive mobility - provided design stays anchored in user-centric thinking and privacy safeguards. To sum up, the discussion essentially validates the hypotheses and highlights key policy issues: hybrid digital systems, off-peak reliability metrics and mobility programs that are woven into the social fabric.

6. Policy Implications

Building on the interpretive synthesis presented above, the policy implications focus on how governance instruments operationalise the empirical determinants identified in the review. Table 4 collates the policy and regulatory frameworks that underpin sustainable mobility and inclusion for older adults. It complements the preceding discussion by mapping the European, national and local instruments that operationalize the principles identified in this review. Specifically, the discussion underscores how each framework maps onto a dimension of the study's hypotheses, social networks (1), digital enablement (2), service reliability (3) and community-based innovation (4), thereby illustrating the multilevel governance needed to nurture equitable age-friendly mobility systems.

Table 4 - Policy and regulatory frameworks. Source: *author's own*

Policy / Regulation	Level	Core Focus	Key Measures for Older Adults	Relevance to Study Themes (H1–H4)
European Accessibility Act (2019)	EU	Universal accessibility for transport and digital services	Requires accessible interfaces, ticketing, and information systems	H2 – Hybrid digital systems: Improves usability and trust
EU Urban Mobility Package (2021)	EU	Integrated sustainable urban mobility planning	Promotes multimodal networks and off-peak reliability	H3 – Service reliability: Links planning with comfort and frequency
National Sustainable Mobility Strategy (Italy, 2022)	National	Equitable, low-emission, age-friendly transport	Introduces Carta Argento fare reductions, accessibility pilots, awareness campaigns	H1 – Social networks; H4 – Community innovation
Regional Urban Mobility Plans (Milan, Bologna, Turin)	Regional / Local	Inclusive design and monitoring frameworks	Add barrier-free paths, benches, hybrid info points, cross-sector metrics	H2 + H3 – Combine digital inclusion with micro-access reliability
WHO Age-Friendly Cities Framework (2018)	Global Guideline	Mobility as a component of active ageing	Encourages co-design and participatory governance	H1 + H4 – Promotes social cohesion and innovation

These policy considerations rest squarely on the analytical dimensions validated in the discussion section. The four determinants, networks (1), digital enablement (2), service reliability (3), and community-based innovation (4), function here as the operational pillars for policy design. Tying empirical findings to policy priorities ensures a smooth shift from interpretation to practical application. The ongoing thread backs up the study's point that the same forces steering adults' mobility choices also shape the mechanisms intended to promote inclusion. When these connections are woven throughout, the narrative stays thematically cohesive. The link between empirical evidence, governance frameworks and concrete interventions becomes stronger.

The findings point to a pattern: when it comes to bolstering mobility for senior citizens, all-encompassing, coordinated strategies consistently outshine disjointed one-off measures. Initiatives that zero in on a single element, be it infrastructure upgrades, digital rollout or price reductions, while ignoring the interplay among them, run the risk of yielding only modest or inequitable results. Consequently, mobility schemes ought to be framed as bundles that accommodate the diverse travel routines of older adults. The first conclusion points to giving priority to upgrades, safe crossings, benches, shelters, barrier-free sidewalks and adequate lighting. Even when the broader network is in place, these modest improvements tackle the "first-and-last-meter" hurdle that often determines whether seniors can truly make use of transport. Policy focus should also cover off-peak frequency and overall service reliability. Finally, any shift toward solutions must be pursued cautiously and inclusively. Although many users say that mobile apps and real-time data boost productivity, individuals who lack tech skills, digital literacy or confidence in these tools can feel sidelined. Research shows that keeping options, paper schedules, staffed counters and physical signage available raises satisfaction and ensures fair access for all. Consequently, beyond complying with legal requirements, universal design should be shaped to reflect users' preferences and expectations. Concessionary fares and other affordability measures remain indispensable. Their real impact hinges on simultaneous strides in both accessibility and service quality. This highlights the need for an integrated policy approach, one that couples investments ensuring usability, comfort and safety with efforts to trim costs.

Recent research stresses that policy frameworks must explicitly incorporate users' safety perceptions. In low-density or underserved areas emerging options, such as companionship-based mobility solutions and demand-responsive transport (DRT), appear poised to bridge existing gaps. Their impact hinges on review mechanisms that keep waste in check and uphold fairness. Expanding these services demands stewardship of funding and pricing and connections with mainstream networks. Otherwise, parallel systems arise that favour some groups while leaving others out. Ultimately, policy must acknowledge the nature of mobility inequities. Confronting the compounded disadvantages faced by women, rural residents, people with disabilities and those with limited financial resources requires focused targeted initiatives. A pivot is needed away from blanket measures toward tailored strategies that acknowledge the diversity among older adults. The crux of the policy issue lies in dropping single-topic fixes in favour of holistic user-oriented frameworks. By coordinating infrastructure, services, affordability, digital inclusion and psychosocial support mobility policies can serve not as transportation tools but also as broader instruments for social inclusion, public health and equity in societies, with ageing populations (Santos & Delgado, 2025).

The results show that the best policies for boosting older people's mobility are comprehensive ones rather than fragmented ones. Safety crossings, shelters, and sidewalks are examples of micro-access settings that must be improved to guarantee effective use of services (Ravensbergen et al., 2022). Because older adults tend to travel for many purposes and during off-peak hours, service reliability outside of peak hours is equally important (Banister & Bowling, 2004; Hine & Mitchell, 2001). Maintaining analogue choices while making the digital move responsibly is crucial. When digital apps are used in conjunction with printed timetables and physical signage, older people are happier, according to research by Nilsson et al. (2025). This suggests that universal design needs to meet expectations and preferences in addition to compliance.

According to Stanley et al. (2011) and Luiu et al. (2017), affordability metrics are still important, but their efficacy hinges on how well they are integrated with service and access enhancements. More recent evidence suggests that perceptions of safety should be a policy domain. Improvements in lighting, cleanliness, and the presence of staff at stops and vehicles can significantly affect people's willingness to travel, as claimed by Dilian et al. (2025). Emerging service innovations have an impact on policy as well. Demand-responsive tactics can fill the gaps in low-density areas, but they need to be carefully considered to prevent inefficiencies (Burlando, 2025). Other driving and companionship services can sometimes supply additional information, yet it's essential to examine their costs and policy constraints (Latiff et al., 2023). By expanding access to jobs, education and other services, sustainable mobility programs nurture inclusion and stimulate economic growth at both regional and local levels. In the end, these policies broaden labour-market participation for an array of groups, strengthening economic resilience boosting competitiveness and raising productivity in ageing societies.

Putting the research into practice calls for policies that unite all domains, rather than pulling them apart. An effective framework must boost micro-access keep costs within reach, ensure services run reliably and broaden digital inclusion, all through an intersectional equity perspective. This holistic blend repositions mobility from a sectoral concern to a central pillar of social infrastructure. The following priorities are set out for rollout. First, elevate upgrades, crossings, sufficient illumination, seating benches and fully barrier-free routes to the top of the agenda since they underpin the very usability of the service. Connect price-relief initiatives to unambiguous service-quality yardsticks, ensuring the subsidies genuinely metamorphose into expanded accessibility and a perceptible uplift in comfort. Establish digital information stations that chip away at digital exclusion, while cultivating trust among older users. Build a habit of tracking and assessing how transport outputs ripple into health and social-participation outcomes. Integrate goals, spanning gender, rurality, disability and income within mobility schemes to chip away at stacked disadvantages. Help the transport, health and social sectors work together on co-funded mobility projects and test them through pilot evaluations. By taking on these measures, the approach would line up with the European Accessibility Act and the Urban Mobility Package turning the law's ambitions into inclusive results.

The discussion made it clear that the effective tactics are the ones that directly tie service design to the determinants identified earlier (1- 4). In practice, policy must act as a mirror to the tier-by-tier choreography linking social networks (1), digital tools (2), the reliability of services (3), and pioneering business models (4). Treating mobility as a good diffuses the mantle of responsibility throughout ministries and across the multiple strata of governance. By weaving together insights from EU and Italian policy frameworks with urban mobility plans, decision-makers can lean on solid evidence and start closing the regional gaps. In the long run establishing a shared terminology and institutionalising regular data-collection cycles will make it possible to track progress toward equity and accessibility goals over time.

7. Conclusions, Limitations and Future Research

This study tackles the issue of guaranteeing inclusive and sustainable mobility in later life, a concern that transcends individual well-being and impacts the efficacy of health, social inclusion, and active ageing policies in ageing societies.

The following figure (Figure 2) presents a map that links the four drivers of older adults' sustainable mobility -social networks (H1), digital enablement (H2), service reliability (H3), and community-based innovation (H4) to a set of multi-level policy levers.

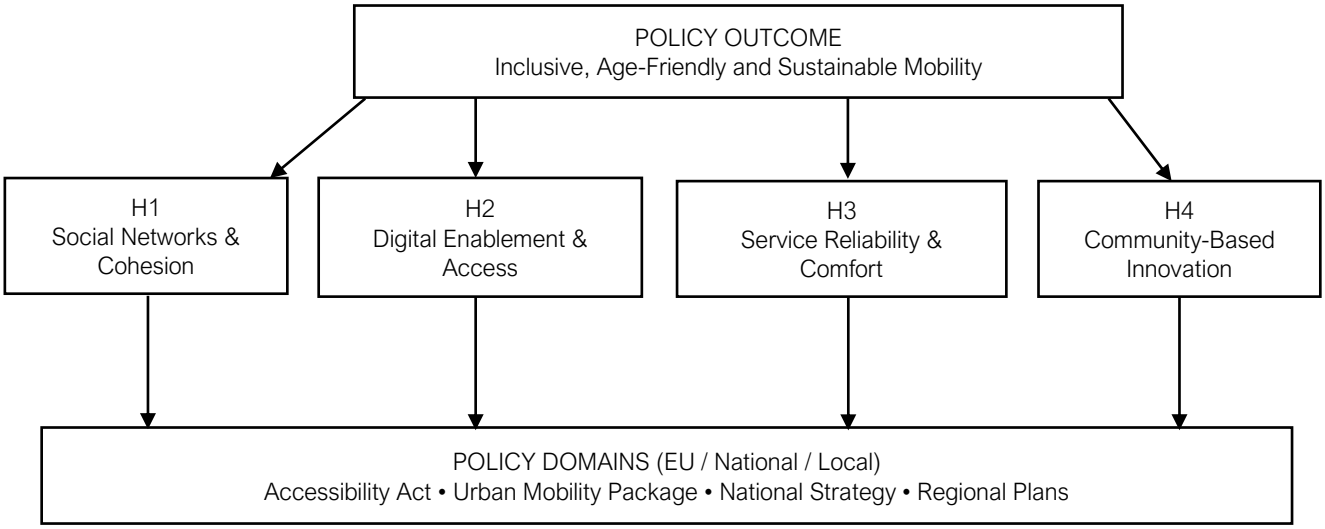

Figure 2. Conceptual model linking mobility determinants and policy actions. Source: *author's own*

The diagram captures how interpersonal ties, digital tools, infrastructure reliability and governance mechanisms intersect to mobility that is both inclusive and age-friendly. By juxtaposing the determinants with the policy architecture, the synthesis in Figure 2

underscores a systemic alignment between research findings and actionable policy frameworks. When the four hypotheses (H1–H4) are aligned with the tiers of multilevel governance, the model clarifies how the research outcomes can be translated into concrete strategic moves. This alignment underscores that advancing mobility for older adults demands more than just infrastructural upgrades; it also calls for robust social participation, widespread digital inclusion and a harmonised policy landscape. In this way the framework reinforces the study's finding that truly inclusive mobility surfaces when technical, social and institutional dimensions operate in concert across the different dimensions of governance.

In conclusion, the body of evidence aligns with all four proposed hypotheses. Hypotheses 1 and 3 in particular emerge as corroborated by a steady series of empirical findings that spotlight the crucial role of social networks, micro-access and dependable services, in fostering mobility. Hypothesis 2 receives partial validation: digital enablement certainly lifts efficiency but without a hybrid design it can also widen the very gaps it seeks to bridge. In contrast, hypothesis 4 looks encouraging yet remains tightly bound to its context with forward-looking, companionship-centric solutions showing promise when they are integrated into the mainstream transport framework. Taken together, the results show clearly that mobility is not just a right; it is a capacity that makes autonomy, social involvement and overall well-being possible in life. When that principle is threaded through every layer of city and transport planning, equity and inclusion cease to be an after-thought and instead become the key goals of policy. Overall, the evidence reviewed shows that mobility outcomes in later life are shaped by the interaction of service reliability, micro-access conditions, affordability, information accessibility, and psycho-social factors, and that integrated, user-centred approaches consistently outperform fragmented interventions.

The bolstered harmony between the results, the discussion, and the policy implications lays the foundation for integrated mobility packages interlaced with service design (H3), inclusion (H2) and social support (H1), all the while coaxing policy innovation (H4). Treating mobility as a public good dovetails with the governance priorities of both the EU and Italy, nudging the evaluation process toward an evidence-driven footing. By interlacing insights with policy commitments, the study constructs a conceptual scaffolding for future research on the social and health dividends of inclusive mobility frameworks.

This review finds that mobility sits at the core of ageing, tightly bound to autonomy, health and the ability to engage socially. Across the body of evidence, a recurring set of obstacles, gaps, missing off-peak services, cost barriers, digital exclusion and safety perceptions, emerges as decisive in shaping older adults' mobility outcomes. Far from being unrelated, these issues are woven together: affordability's impact wanes when services are erratic; digital tools can boost productivity. However, digital tools may also entrench exclusion, if no analogue alternatives exist; and expanding network coverage alone will not help if the immediate first- and last-meter surroundings feel unsafe or uncomfortable. Recent additions enhance the analysis by highlighting the equally important role of cognitive and psychological factors as service and infrastructure design, such as safety perceptions, technology trust, and self-assurance in navigating urban environments. In addition to technological availability, inclusive solutions must consider cultural contexts, expectations, and habits as evidence of hybrid preferences for digital and non-digital systems keeps growing. Thus, the rise of demand-responsive transportation and alternative mobility services point to the possibility of filling in low-density gaps, as well as the dangers of fragmentation, unfairness, and short-term sustainability, if not sufficiently included into larger frameworks.

The findings indicate improvement in terms of their compatibility with European and Italian policy orientations, particularly universal design, accessibility rules, and urban mobility initiatives. Nonetheless, they stress the necessity of monitoring coupled with exhaustive post-implementation evaluation. Without those safeguards, innovative services risk staying locked into test phases, never maturing into lasting pillars of sustainable mobility. The analysis also underscores that intersectional gaps continue to shape mobility outcomes: bespoke interventions beyond one-size-fits-all policies are required for women, low-income households, rural inhabitants and people with disabilities, whose overlapping disadvantages amplify the barriers they confront. The study argues that dumping a slew of projects on the table is not as fruitful as rolling them into a single user-centric transport package. Such a package would knit together upgrades (sidewalks, shelters, crossings), psychosocial boosters (safety, confidence, inclusion) and a service blueprint that ensures reliability, frequency and accessibility. By considering mobility as both a right and a lever, this approach can morph

policy aspirations into real-world improvements, in independence, social ties and health. This means integrating mobility as a key component of social infrastructure in ageing societies, which is essential for transportation planning and for broader goals like sustainability, equality, and cohesion.

This paper argues that because mobility promotes autonomy, social interaction, and health, it is crucial to active ageing. A range of obstacles, including as micro-access, service reliability, cost, digital exclusion, and safety concerns, affect older people's capacity to participate in society. New insights on psychological factors, hybrid information preferences, and innovative service models are provided by evidence from the last three years, which also emphasizes the themes' continued importance. There is increasing agreement with these ideas in European and Italian policies; nonetheless, more comprehensive evaluation is required to ensure effectiveness. By seeing mobility as both a right and a capability, it is made clear how important it is for inclusive and sustainable ageing. The most promising way to turn theoretical promises into measurable advantages for older adults is to provide them with comprehensive, user-centred mobility packages that consider their technological, psychological, economic, environmental, and service needs. In addition to their benefits for society and the environment, sustainable mobility initiatives have important economic implications. The evidence indicates that mobility outcomes in later life are influenced by the interplay of service reliability, micro-access conditions, affordability, information accessibility, and psychosocial factors, with integrated, user-centred approaches consistently surpassing fragmented interventions. According to recent statistics, by expanding employment options and reducing mobility barriers, such strategies might boost labour market participation and bolster the economic resilience of ageing metropolitan areas (Metz, 2000; Stanley et al., 2011; Lucas, 2012; Musselwhite & Haddad, 2010; European Commission, 2021).

Even though the narrative-review approach yields a synthesis, its interpretive nature curtails reproducibility and weakens inferential strength. Future research should turn to mixed-methods or longitudinal designs that can examine relationships among service attributes, psychosocial factors and mobility outcomes. Comparative cross-country analyses could illuminate context-specific mechanisms while embedding the work within policy-evaluation frameworks might sharpen the conversion of findings, into concrete performance indicators. Triangulating data, melding survey insights with live sensor feeds and official administrative records, yields a picture that's both sturdier and clearer.

Future work could holistically consider digital-literacy scores, well-being and accessibility gauges or social-network metrics harvested from open-data troves. By combining those indicators with regional transport statistics, a more granular model of the levers guiding older adults' mobility decisions could emerge. A partnership, among transport scholars, urban planners and public-health professionals will be vital in turning these variables into elements of upcoming evaluation frameworks.

The body of evidence is still small in several ways. A lot of research uses qualitative studies or cross-sectional surveys, which are less effective at identifying causal relationships. To determine the long-term effects of initiatives like demand-responsive services, digital information systems, and low-floor retrofits, longitudinal and quasi-experimental designs are required. There are still disparities in geography. Fewer analyses are from Southern locations, such as Italy, where the population is ageing quickly, whereas most recent research is from Northern and Western Europe. Future research should expand the body of data to encompass a range of urban and rural environments. Particularly in post-pandemic settings, more study is required on new subjects including safety perceptions and psychological restrictions. To ascertain their long-term affordability, equity, and sustainability, demand-responsive and alternative transportation services also need additional in-depth investigations. Linking transportation data to social and health factors while protecting privacy could yield significant evidence of the broader benefits of mobility initiatives.

Acknowledgement

This study was carried out within AGE-IT – Ageing well in an ageing society and received funding from Next Generation EU, in the context of the National Recovery and Resilience Plan, Investment PE8 – Project Age-It: "Ageing Well in an Ageing Society" [DM

1557 11.10.2022]. This manuscript reflects only the author' views and opinions, neither the European Union nor the European Commission can be considered responsible for them.

References

1. Banister, D., & Bowling, A. (2004). Quality of life for the elderly and transport. *European Journal of Transport and Infrastructure esearch, 4*(2), 53–72.
2. Burlando, C. (2025). SilverBus: Enhancing mobility for seniors through demand-responsive transport. *Transportation Research Part A: Policy and Practice*. Advance online publication. https://doi.org/10.1007/s11116-025-10675-w
3. Church, A., Frost, M., & Sullivan, K. (2000). Transport and social exclusion in London. *Transport Policy, 7*(3), 195–205. https://doi.org/10.1016/S0967-070X(00)00024-X
4. Comune di Milano. (2019). *Piano urbano della mobilità sostenibile (PUMS).* Comune di Milano. https://www.comune.milano.it/argomenti/mobilita/piano-urbano-della-mobilit
5. Comune di Bologna. (2020). *Piano urbano della mobilità sostenibile (PUMS).* Comune di Bologna. https://pumsbologna.it/
6. Città Metropolitana di Torino. (2021). *Piano urbano della mobilità sostenibile (PUMS).* Città Metropolitana di Torino. https://www.cittametropolitana.torino.it/mobilita-sostenibile/governance-della-mobilita/piano-urbano-della-mobilita-sostenibile-pums
7. Curl, A., Stokes, G., & Nelson, J. D. (2014). The availability of public transport and social need in Scotland. *Journal of Transport Geography, 41*, 544–556. https://doi.org/10.1016/j.jtrangeo.2014.05.032
8. Dilian, O., Davidovitch, N., & Martens, K. (2025). "I love public transport, but now I'm too afraid to use it": A qualitative study of public transport use cessation among older adults. *The Gerontologist, 65*(8), gnaf153. https://doi.org/10.1093/geront/gnaf153
9. European Commission. (2021). The new EU urban mobility framework (COM(2021) 811 final). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. https://transport.ec.europa.eu/system/files/2021-12/com_2021_811_the-new-eu-urban-mobility.pdf
10. European Parliament & Council. (2019). *Directive (EU) 2019/882 on the accessibility requirements for products and services (European Accessibility Act). Official Journal of the European Union*, L151/70. https://eur-lex.europa.eu/eli/dir/2019/882/oj
11. Faus, M., Alonso Plá, F. M., Fernández, C., & Esteban Martínez, C. (2025). Use of big data, artificial intelligence and other emerging technologies in public health communication campaigns: A systematic review. *Review of Clinical Research, 13*(3). https://doi.org/10.52152/RCR.V13.3
12. Hine, J., & Mitchell, F. (2001). Better for everyone? Travel experiences of the visually impaired. *Transport Policy, 8*(3), 239–248. https://doi.org/10.1016/S0967-070X(01)00011-7
13. Latiff, A. R. A., & Mohd, S. (2023). Transport, mobility and the wellbeing of older adults: An exploration of private chauffeuring and companionship services in Malaysia. *International Journal of Environmental Research and Public Health, 20*(3), Article 2720. https://doi.org/10.3390/ijerph20032720
14. Llopis, P., Oviedo-Trespalacios, O., Alonso, F., Faus, M., & Useche, S. A. (2025). Walking apps for active aging? A literature and multi-source review of their impact on older adult users' mobility and wellbeing. *Sustainable Futures, 10*, 100982. https://doi.org/10.1016/j.sftr.2025.100982
15. Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transport Policy, 20*, 105–113. https://doi.org/10.1016/j.tranpol.2012.01.013
16. Luiu, C., Tight, M. R., & Burrow, M. (2017). The unmet travel needs of the older population: A review of the literature. *Transport Reviews, 37*(4), 488–506. https://doi.org/10.1080/01441647.2016.1252447
17. Marešová, P., Krejčar, O., Maskuriy, R., Abu Bakar, N. A., Selamat, A., Truhlarová, Z., Horák, J., Joukl, M., & Vítková, L. (2023). Challenges and opportunity in mobility among older adults: Key determinant identification. *BMC Geriatrics, 23*, 447. https://doi.org/10.1186/s12877-023-04106-7
18. Metz, D. H. (2000). Mobility of older people and their quality of life. *Transport Policy, 7*(2), 149–152. https://doi.org/10.1016/S0967-070X(00)00004-4
19. Ministero delle Infrastrutture e dei Trasporti. (2022). *Strategia nazionale per la mobilità sostenibile e inclusiva*. MIT.
20. Musselwhite, C. B. A., & Haddad, H. (2010). Mobility, accessibility and quality of later life. *Journal of Transport Geography, 18*(5), 789–796. https://doi.org/10.1016/j.jtrangeo.2010.04.005
21. Nilsson, J., Jansson, J., Nicholas, K., & Zhao, C. (2025). Examining senior citizens' experiences in public transport: The role of digitalization, environmental concern, and traveler satisfaction. *Travel Behaviour and Society, 38*, Article 100924. https://doi.org/10.1016/j.tbs.2024.100924
22. Nordbakke, S., & Schwanen, T. (2014). Well-being, unmet travel needs, and mobility in later life. *Journal of Transport Geography, 41*, 126–136. https://doi.org/10.1016/j.jtrangeo.2014.08.025
23. Páez, A., Scott, D. M., & Morency, C. (2012). Measuring accessibility: Positive and normative implementations. *Journal of Transport Geography, 25*, 141–153. https://doi.org/10.1016/j.jtrangeo.2012.03.016
24. Ravensbergen, L., Van Liefferinge, M., Isabella, J., Merrina, Z., & El-Geneidy, A. (2022). Accessibility by public transport for older adults: A systematic review. *Journal of Transport Geography, 101*, 103349. https://doi.org/10.1016/j.jtrangeo.2022.103349
25. Schwanen, T., Banister, D., & Anable, J. (2012). Rethinking habits and their role in behaviour change in transport. *Journal of Transport Geography, 24*, 522–532. https://doi.org/10.1016/j.jtrangeo.2012.06.003
26. Shergold, I., & Parkhurst, G. (2012). Transport-related social exclusion among older people in rural Southwest England. *Journal of Rural Studies, 28*(4), 412–421. https://doi.org/10.1016/j.jrurstud.2012.01.010
27. Siren, A., & Haustein, S. (2015). What are the impacts of giving up the car? *Transport Reviews, 35*(3), 364–380. https://doi.org/10.1017/S0144686X14000610
28. Santos, M., & Delgado, R. (2025). Communication campaigns and public health mobility policies for older populations. *Review of Clinical Research, 13*(3). https://doi.org/10.52152/RCR.V13.3

29. Stanley, J., Stanley, J., Vella-Brodrick, D. A., & Hensher, D. A. (2011). Mobility, social exclusion and well-being: Exploring the links. *Transport Policy, 18*(1), 23–32. https://doi.org/10.1016/j.tra.2011.06.007
30. Venezia, E. (2026). *La mobilità sostenibile delle persone anziane: Una questione di giustizia sociale* [Sustainable mobility of older adults: A question of social justice]. FrancoAngeli. ISBN Open Access 978-88-351-8891-9.
31. World Health Organization. (2018). *The Global Network for Age-friendly Cities and Communities: Looking back over the last decade, looking forward to the next.* Geneva: World Health Organization.