

# Overlapping spaces: Planning for the “whole journey” in Swedish public transport

Linnea Eriksson <sup>a,\*</sup>, Ida Andersson <sup>b</sup>

<sup>a</sup> Swedish National Road and Transport Research Institute, K2 – Swedish Knowledge Centre for Collective Mobility, Linköping, Sweden

<sup>b</sup> HUMUS, Örebro University, Örebro, Sweden

## ARTICLE INFO

### Keywords:

Public transport  
Whole journey  
Sustainable mobility  
Policy and planning  
Sweden

## ABSTRACT

This paper explores how regional public transport authorities in Sweden interpret and apply the “whole-journey approach” in planning for sustainable mobility. The concept refers to the idea that public transport must be planned as a seamless chain of movements, integrating the entire journey, from departure to arrival, across different modes and environments. Drawing on planning documents and interviews from five non-metropolitan counties, the study shows that, while the whole-journey approach is a shared ambition, its implementation varies in both logic and practice. Two planning logics emerge: one focused on individual users and the seamlessness of their trips, and another oriented around collective service provision through high-capacity transit corridors.

Building on existing international models, the paper develops a spatial framework identifying four overlapping spaces throughout the journey: information, departure, public transport, and arrival. The analysis finds that public transport authorities have strong control over the information and public transport spaces, concentrating efforts on digital services and integration across operators. However, their influence is limited in the departure and arrival spaces, which depend on co-planning with municipalities and national authorities. This reveals a gap between ambition and institutional capacity.

The paper concludes that the whole-journey approach is best understood as a flexible planning ideal rather than a fixed method. While it offers a promising framework for linking public transport to land-use planning, its effectiveness depends on stronger coordination across planning levels and deeper engagement with the everyday mobility needs of individuals.

## 1. Introduction

Overcoming barriers to public transport (PT) and facilitating seamless, flexible, comfortable, and reliable travel that genuinely challenges travel by private car is in many ways the “Holy Grail” of sustainable mobility planning (Bannister, 2008). Over the years, various mobility planning concepts, such as *mobility management* (EPOMM, 2020), *first-and-last-mile planning* (Shaheen and Chan, 2016), *door-to-door mobility* (Geurs et al., 2016), *multi-modal travel* (Bannister, 2008), and *mobility as a service* (MaaS) (Jittrapirom et al., 2017), have been introduced to foster increased PT ridership, while reducing the use of private cars. Similarly, planning ideals targeting the built environment, such as the *15-min city* (Moreno et al., 2021), *walkable city* (Marquet and Miralles-Guasch, 2015), and *smart city* (Zubizarreta et al., 2015), have been presented as land-use planning strategies to reduce the need for private

cars in everyday life, while encouraging walking, biking, ridesharing, and PT use.

In Sweden, the “whole journey” (Swedish: *hela resan*) perspective is an umbrella concept embracing several of these planning ideals for sustainable mobilities and the built environment (Book et al., 2016; Trafikverket, 2023). According to the Swedish Transport Administration (STA), planning from the whole-journey perspective means that “more people will travel more sustainably if there are efficient, seamless ways to start and finish one’s journey and if transfer nodes are perceived as reliable, as both places and functions”<sup>1</sup> (Trafikverket, 2023:4). This statement illustrates how the relationship between mobility functions and the built environment is perceived in Swedish PT planning. Additionally, Book et al. (2016) highlighted how the experiences, wants, and needs of private persons as potential passengers also play a role in planning from a whole-journey perspective, and as an indicator of when

\* Corresponding author.

E-mail address: [linnea.eriksson@vti.se](mailto:linnea.eriksson@vti.se) (L. Eriksson).

<sup>1</sup> All quotations have been translated from Swedish to English by the authors.

PT does and does not “work.”

In the international literature, the whole-journey concept has predominately been discussed in relation to creating inclusive and accessible travel for vulnerable users, such as the elderly and people with disabilities and/or limited mobility (e.g., Currie and Delbosc, 2010; Lucas, 2012; Park and Chowdhury, 2022). In contrast, Swedish planning institutions apply the concept to all types of travel involving PT and all kinds of target groups, including vulnerable users (e.g., Berg and Levin, 2011; Book et al., 2016; Hallström and Larsvall, 2017; Trafikverket, 2023).

Since 2012, PT planning in Sweden has been the responsibility of 21 regional public transport authorities (PTAs), one for each county. Previously, PT planning was integrated in the land-use planning mandate of municipalities, meaning that the PTAs needed to form new planning structures and competences after their inauguration (cf. Andersson and Hermelin, 2024). Planning for the built environment is a responsibility shared between municipalities (managing land uses such as housing, streets, and bike lanes) and the national transport authorities (managing railroads and national roads) (Persson, 2020; Ringqvist, 2016). Together, this means that PT planning from a whole-journey perspective involves three planning levels operating at different geographical scales and the capacity and intention of private people to use different modes of transport (see Fig. 1). As such, no single planning actor has the power to plan for the whole journey within its own mandate, making multi-actor collaboration mandatory for implementing the whole-journey perspective.

Here, we investigate how PTAs in Sweden perceive their role and mandate in planning for PT from a whole-journey perspective (cf. Ringqvist, 2016). In this, we introduce a model (following Park and Chowdhury, 2022) illustrating how the whole journey comprises four overlapping spaces, and how managing this overlap is necessary for planning using the whole-journey approach. We concentrate on five PTAs with different geographical and demographic prerequisites, showing how PT planners strive to resolve sustainable-mobility challenges in both urban and rural geographies, using a whole-journey approach.

Following this introduction, we review the literature on planning for PT from a whole-journey perspective, to establish the main elements of the whole-journey chain. After this, we discuss our methods and materials, introducing the PT geographies of Sweden. We then present our analysis and findings using the whole-journey model. The paper ends with a concluding discussion and reflections on policy implications.

## 2. Planning for PT from a whole-journey perspective

Planning the whole journey by understanding how different forms of mobilities (e.g., walking, driving, biking, and riding) are combined with PT into whole trips is not a new approach. Similar concepts have been used in targeting various aspects of everyday mobility (e.g., speed, cost, information, comfort, distance, accessibility, and safety) hoping to overcome obstacles in the transport system and/or the built environment that discourage people from choosing PT over private cars (cf. Bannister, 2008; EPOMM, 2020; Geurs et al., 2016; Jittrapirom et al., 2017; Marquet and Miralles-Guasch, 2015; Moreno et al., 2021; Shaheen and Chan, 2016; Zubizarreta et al., 2015). For instance, the role of PT in the 15-min city highlights how people's need to travel farther than walking distances can be organized without individual access to cars, even in more suburban or rural settings (Porthuis and Zook, 2023).

In Sweden, the term “whole journey” has increasingly been mentioned in relation to planning in news media and research since the late 1990s (Digitala vetenskapliga arkivet, 2025; Svensk mediedatabas, 2025). It does not exclude any modes of transportation, but the use of PT is always involved. However, the use of private cars and fossil fuel-based transportation is commonly discouraged and is to be minimized (Book et al., 2016; Trafikverket, 2023). The concept is alternatively used to describe transport planning involving PT targeting the general population (e.g., Berglund-Snodgrass et al., 2024; Hallström and Larsvall, 2017) or as geared toward people with disabilities (Riksdagen, 2013/14: RFR5), the elderly (Berg and Levin, 2011), or planning for increased security when, for example, traveling at night (Book et al., 2016). Through the whole-journey perspective, administrative boundaries and spatial categorizations in the planning system are disregarded; instead, the planning focuses on finding the “weakest link” in the whole-journey chain “which decides the outcome of the trip” (Book et al., 2016:30). This involves interactions with both human and non-human entities (e.g., ticketing machines and apps) while traversing spaces differing in ground cover, lighting, noise, and infrastructure, for example, leading to the choice between parking one's bicycle or bringing it onboard (Berg and Levin, 2011; Berglund-Snodgrass et al., 2024; Book et al., 2016). Briefly, planning from a whole-journey perspective requires the amalgamation of transport planning involving PT and the planning of the built environment.

The “whole journey” has been predominately discussed in relation to creating inclusive and accessible trips for vulnerable users (e.g., Currie and Delbosc, 2010; Lucas, 2012; Park and Chowdhury, 2022). Park and

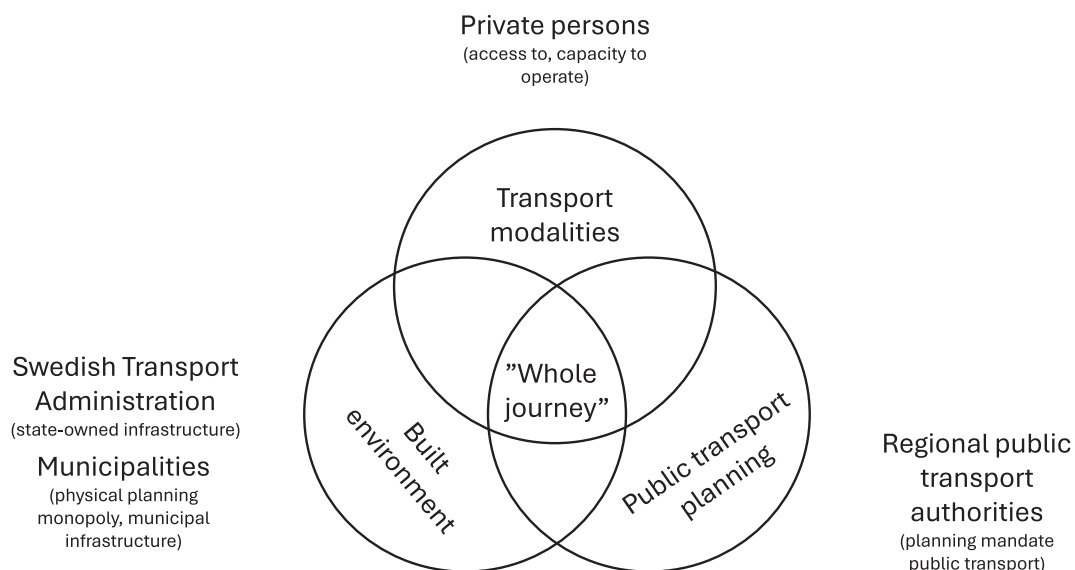


Fig. 1. The “whole journey” in Sweden (adapted from Park and Chowdhury, 2022).

Chowdhury (2022) recently illustrated how the “whole journey chain” using PT is created through nine elements. The first is access to sufficient information about the planned journey and what mobility options are available for the “first and last miles” of the trip. The second and third elements relate to conditions in the built environment at the trip origin, involving travel to the PT stop or station. Elements four to seven concern the PT experience in relation to waiting, boarding, time onboard, and alighting. Once arrived, the last two elements of the whole-journey chain—i.e., leaving the stop and continuing to the destination—become relevant to the conditions of the built environment at the destination.

In this paper, we argue that planning from a whole-journey perspective in Sweden can be understood as an intrinsically spatial process, linking different relational and physical elements across inter-related spaces. Building on Park and Chowdhury (2022), we propose a four-pronged model (A–D) targeting general ridership (see Fig. 2). In the information space (A) - which is constructed through a combination of physical infrastructures (e.g. physical devices, systems architecture) and relational dependencies (e.g. access to data, capacity to interpret) - reliable and updated information about the entire trip is crucial. This concerns information about routing, waiting times, cost, delay handling, etc., in the PT space and the conditions for available transport modes in the built environment in both the departure and arrival spaces. In the departure space (B), the built environment in terms of physical infrastructure for walking, biking, driving to the station area (alongside the availability and cost of parking and charging) is fundamental. Additionally, the station area's comfort, lighting, sense of security, accessibility, etc., are also woven into the departure space, constructed through a combination of physical and relational factors. The same goes for available transport options to access the station based on personal (i.e., physical, financial, and legal) capacities, which are important elements of the departure space.

In the PT space (C), the built environment encompasses physical aspects regarding accessibility, boarding, onboard comfort (e.g., seating, lighting, temperature, charging opportunities, and WiFi access), alighting, and the possibility of bringing bicycles, scooters, strollers, and walkers on board. Available transport features such as tickets, travel speed, routing, and transferring are also considered part of the physical PT space, while it is dependent on relational dimensions such as the traveler's needs and previous experiences. The arrival space (D) mirrors in many ways the departure space (B) in terms of the built environment and available transport options; however, the arrival space is more geared toward transitioning from PT to other available transport options, rather than toward waiting.

The whole-journey approach can be understood as both concept and practice. It illustrates the relational dynamics between the built environment and available transport options and how human and non-human interactions reproduce the abovementioned spaces throughout a journey. Collectively, the four spaces are understood as simultaneously fixed and fluid, as they involve informational, physical, and relational dimensions that overlap through people's everyday mobility (Massey, 2005; Stockholm, 2024; Warf, 2025). In the Swedish planning context, the PTAs have planning responsibility for most content in the information (A) and PT (C) spaces, while local governments and the STA share planning responsibility for content in the departure (B) and arrival (D) spaces. Thus, there is no sole actor with the mandate or capacity to plan for the whole journey, necessitating collaboration among different planning actors (cf. Andersson and Hermelin, 2024; Ringqvist, 2016).

Against this background, and to investigate how PTAs in Sweden perceive their role and mandate in planning from a whole-journey perspective, this paper addresses the following research questions: 1) How do Swedish PTAs understand the whole-journey approach to PT planning? 2) How are overlapping spaces addressed in planning for the whole journey? 3) What impact does the whole-journey approach have on sustainable mobility planning in Sweden?

### 3. Methods and material

The empirical material for this paper comprises two datasets, i.e., public planning documents and individual interviews with people working in five PTAs in Sweden, analyzed and coded using NVivo (see Table 1 for an overview). The codes were generated from the empirical material, drawing on the actors and spatial elements of the whole journey (as illustrated in Figs. 1 and 2). We have used codes highlighting urban or rural geographies, the built environment in relation to information, departure, on board and arrival, vehicle types and actors involved. As for the document analysis, we analyzed regional PT plans ratified between 2012 and 2022. Thus, three generations of plans for each region are considered here.

Individual semi-structured interviews were conducted in, with PTA public servants working with strategic PT planning. The participants were selected based on their professional roles: higher ranked representatives of the PTA knowing about its responsibilities in planning. All interviews were based on the same interview guide with questions focusing on possibilities and difficulties in PT planning. The interviews lasted 45–75 min, were conducted online via Teams, recorded, and transcribed.<sup>2</sup> The interview data were used to investigate nuances in how the PTAs understand the whole-journey approach, in contrast to the official positions presented in the planning documents.

#### 3.1. Limitations of study

In this paper, we examine five non-metropolitan PTAs to highlight the prerequisites for planning from a whole-journey perspective outside major urban centers. The paper presents a uniformly regional perspective, focusing exclusively on how PTAs understand their role in planning using a whole-journey approach. National and local planning actors are not included in the analysis. This means that there could be both overlapping and conflicting understandings of the whole-journey approach among the local, regional, and national scales, but the existence of such overlaps and conflicts is not investigated here. In addition, the paper presents an exclusively Swedish perspective, however we believe that the application of the theoretical framework is a valuable contribution to an international readership.

### 4. Results

#### 4.1. How do Swedish PTAs understand the whole journey approach? Two logics of the public transport space

Planning using a whole-journey approach is a shared ambition of all studied PTAs, coming across in both the ratified planning documents and the interviews. Overall, a generous interpretation of the concept is employed, encompassing all types of passengers and kinds of travel involving PT, and it is frequently emphasized that “the whole journey should work for everyone” (Dalarna, 2017:40). Vulnerable groups, such as the elderly and people with disabilities, are mentioned in relation to vehicle accessibility, access to station areas, and special mobility services, while other vulnerabilities such as feelings of insecurity in and around station areas are discussed more generally. Many PTAs described the primary driver of employing a whole-journey approach as related to improving the overall attractiveness of the PT system and to encouraging people to reduce their use of private cars, as “the whole system is designed to be attractive for drivers” (Interview, Örebro). Success in the whole-journey approach is commonly described in terms of both speed and environmental impact: “A user-oriented and traffic-overlapping

<sup>2</sup> According to Swedish law the research conducted did not have to have ethical approval. However, the interviews have been performed under informed approval by the participants, and all collected material have been managed according to rules established by the Swedish Research Council.

# ”Whole journey”

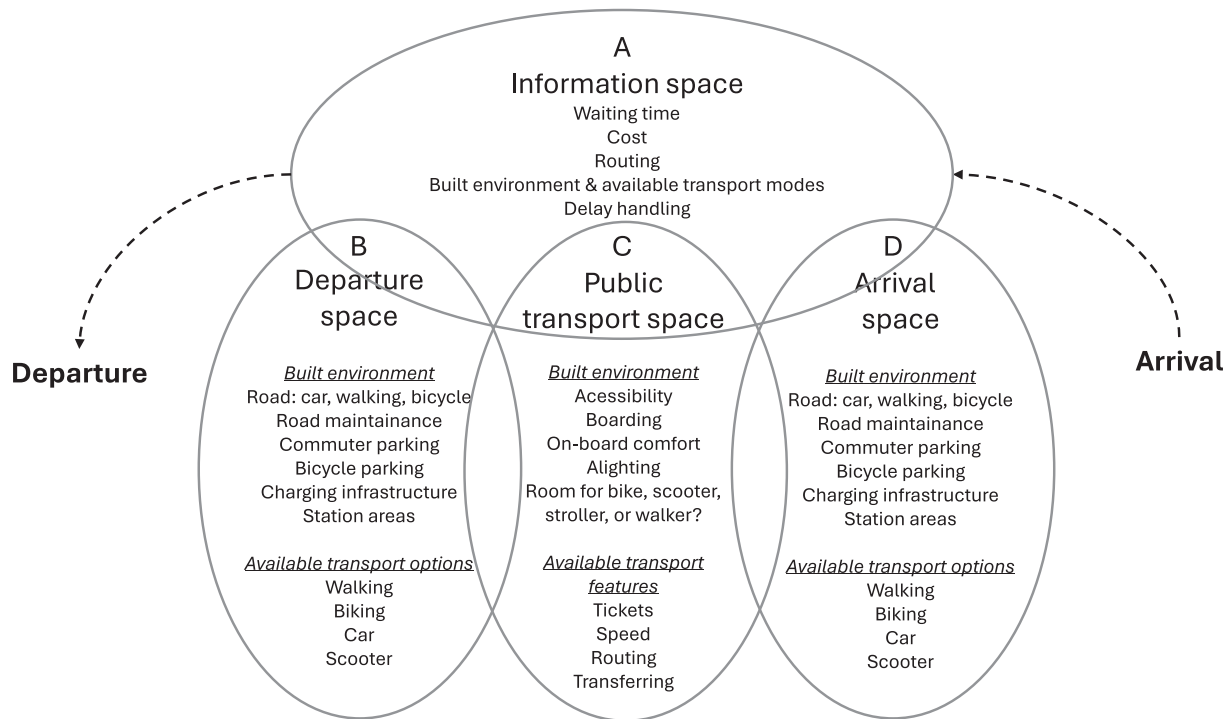


Fig. 2. The spatial elements of the whole-journey approach (adapted from Park and Chowdhury, 2022).

**Table 1**  
PTAs included in the study (Statistics Sweden, 2024; Trafikanalys, 2023).

Region	Population density Inhabitants/km <sup>2</sup> (2023)	Annual PT volume Trips/inhabitants (2022)	Date for interview
Halland	63.3	53	2023-10-12
Örebro	36.1	36	2023-03-02
Värmland	16.1	38	2023-04-13
Dalarna	10.2	28	2023-05-08
Jämtland- Härjedalen	2.7	44	2023-05-16

viewpoint builds off the idea that the whole journey can be as good as possible from both the efficiency and sustainability perspectives” (Dalarna, 2012:37).

Two logics characterize the whole-journey approach. The first concerns individuals, as the approach is repeatedly described as user centered, spanning different modes of transport. For instance, in Jämtland-Härjedalen it is argued that “for the traveler, the division between traffic modes and operators is theoretical—what is important is the whole journey” (2016:31). Similarly, in Värmland, the whole-journey approach is explained “from a ridership perspective [in which...] the entirety [of the trip] is crucial for attractiveness and usability,” emphasizing that convenient integration with other regional PT systems and other modes of transport is crucial for attractive PT travel: “How the whole journey functions from start to finish is decisive in the choice of transportation mode” (2016:27). Within the PT space, one key issue that most PTAs struggle with is using a single ticket even when crossing county boundaries, which requires traversing separate PT and ticket systems (Dalarna, 2012; Halland, 2016, 2021; Jämtland-Härjedalen, 2016; Värmland, 2014).

The second logic derives from a collective viewpoint, with the whole-journey approach emerging from the planning of transit corridors that

offer frequent service for much of the day. Transit corridors are mainly found in geographies where the largest ridership markets are located. Through transit corridors, PT is organized in high-capacity systems focusing on speed, directness, and connecting larger settlements, while bypassing less dense geographies (e.g., Porthuis and Zook, 2023). Transit corridors should contribute to “cutting travel time, making the whole journey flexible” (Örebro, 2016:18). In Värmland, whole-journey planning is enabled by “transit corridors combined with flexible solutions outside the transit corridors that provide good accessibility throughout the county and in the countryside” (2021:9). Similarly, in Halland, it is argued that transit corridors are central to PT planning using a whole-journey approach in both urban and rural settings: “if we have good conditions in these transit corridors, this will also provide opportunities to expand and continue good, smart collective [transport] solutions in the countryside” (Interview, Halland). The planning focus on transit corridors is arguably the background to the whole-journey approach, in which the “concentration of public transport in transit corridors makes commuting parking for bicycles and cars important if people are to switch to public transport” (Halland, 2013:23).

These two logics permeate the rationale of the whole-journey approach throughout our material. They are logics of the PT space, but they also overlap with other whole-journey spaces in certain respects. These overlaps direct attention to the problems and opportunities of the whole-journey approach, the PTAs’ ability to achieve their goals, and the gaps in our material.

## 4.2. How are overlapping spaces handled in planning for the whole journey in Sweden?

### 4.2.1. Information space overlaps

The information space distinctly overlaps the PT space from the PTA perspective. In Värmland, the whole journey is described as relying on “clear shared information and payment systems” among different traffic

operators, which is understood as “critical for travelers' predisposition to choose to go by public transport” (2014:18). Many PTAs also expressed ambitions to improve their information systems, both in terms of information quality, such as “real-time systems, websites, travel planners, and information on service disruptions” (Örebro, 2016:25), and in terms of individual adaptation, to “develop [...] information based on travelers' needs” (Jämtland-Härjedalen, 2021:16) and “meet travelers' increasing demand for personalized services and information” (Värmland, 2021:26).

Overall, information on pricing, tickets, payment options, routing, transferring, and timetables is repeatedly clustered under a shared umbrella of “information systems.” All PTAs stressed that all passenger groups should be able to access this information and purchase tickets valid for the whole journey, regardless of destination. Digitalization through apps is deemed essential and can provide service information in areas where “public transport does not have local offices or staff on location (for example, in the countryside)” (Värmland, 2021:30). The potential downsides of clustering digital information in apps and websites are also acknowledged, albeit briefly, by several PTAs: “[If] a customer does not have access to a mobile phone or a computer, there will be other ways of purchasing and going on one's journey,” Halland (2020:30) explained. However, how this non-digital information will be made available has yet to be specified by Halland and the other PTAs making similar statements.

Information related to the *departure* and *arrival spaces* incorporated in the information space is almost nonexistent, and when it is found, it is expressed rather haphazardly. Information on the “design of station areas” is important for the whole-journey chain, according to Dalarna (2017:42). Jämtland-Härjedalen (2016:18) claimed “not to be in the forefront regarding [...] information on which station areas are accessible”; simultaneously, they proposed to collect “information on curb-side height, tactile plates, etc. [...] to be displayed in the travel planner” (2016:30) in the future. Among the few examples of integration among information, arrival, and departure spaces can be found in Örebro (2016:37), which emphasized that “the possibility of parking bicycles and cars should be made clearer to potential travelers through clearer signs and website information.” In summary, the digitalization of the information space is central to the PTAs' whole-journey planning.

#### 4.2.2. *Departure and arrival space overlaps*

The focus on departure and arrival spaces as two separate parts of the whole journey directs attention to a gap in our material: the PTAs do not acknowledge the differences in the accessibility of other transport modes for the individual, depending on whether a departure or arrival space is involved. It is primarily the departure space that is considered, as the PTAs describe the whole journey as about “making it easier for travelers to get to the stops, regardless of whether they do so by car, bicycle, or on foot” (Värmland, 2021:29, our emphasis). How travelers travel *from* the stop when arriving is not considered, although it is unlikely that one has a bike or car waiting in the station area or can always rely on walking to one's destination.

The fact that it may be more complicated to find complementary modes of transport in the arrival space for the continuation of one's journey is not explicitly addressed by any PTA. However, Jämtland-Härjedalen described future transfer hubs incorporating “bike rental systems, carpools, taxi stands, and developed exchange facilities” as “examples of measures that would strengthen the whole-journey perspective” (2021:17). Similarly, in Örebro it is argued that “there is a greater need to establish infrastructure for parking, locking vehicles, or participating in free-floating mobility at points where customers are expected to spend time switching between different modes of transport” (2022:10). These sorts of mobility hubs constitute “transfer points with extended travel service primarily in rural areas” (Interview, Halland). Such hubs “will make it possible to combine modes of transport to a greater extent, requiring a broader definition of stations and stops” (Örebro, 2022:10). However, these statements are rather general, and it

is unclear whose responsibility it is to make hubs and other modes of transport available throughout the journey.

Another way of promoting the whole journey in the arrival space is to allow bikes onboard, linking to the departure, PT, and arrival spaces. In Halland it is noted that there is increasing demand to take bikes on trains. Although how this should be done is unspecified, it “is overall a good thing but could be a practical problem on trains” due to lack of space (2016:19). Similarly, in Värmland (2021:30) it is claimed that the PTA will need to “make it possible to bring bikes on trains and buses” as a way of facilitating the whole journey, over both shorter and longer distances. Similar future-looking statements are made by Värmland in all three generations of the documents reviewed here with no indication of actual implementation or progress in the matter, suggesting that they are in no rush to integrate bikes into their PT system.

While trying to discourage the use of private cars, the whole-journey approach also relies on them. In the departure space, the most frequent role of cars is for accessing PT. Commuter parking near station areas is understood to encourage people to drive shorter distances and continue their journey toward their destination using PT. In Halland, the slogan “use the car wisely—go by public transport” encourages this behavior among travelers (2016:31). In the departure space, taxis are generally considered part of the overall PT system. Emphasizing the role of cars through the whole-journey approach can also be understood as less confrontational and a way of legitimizing PT efforts to skeptics. The Värmland representative mused: “Smart travel means that the car is somehow also included in the overall picture. So, if you take the car for a short distance and take public transport for a longer distance, that is better than driving the whole way, so that it is kind of a more pragmatic approach”. Similar pragmatic reasoning regarding incorporating private cars in the whole journey instead of banning them as the only viable solution, the Dalarna interviewee argued: “It is utopia to have a car-free Dalarna”.

Simultaneously, when including private cars in the whole-journey approach, the PTAs also expressed concern for people without access to them, especially in rural areas. Overall, there are difficulties finding solutions for car-less people in the whole-journey approach, and different kinds of “local traffic” in terms of subsidized taxis, on-demand routes, and ridesharing have been discussed, especially regarding the departure space and how it can be integrated into the information space. Attempted ride-sharing solutions have been tested in Dalarna and Jämtland-Härjedalen, but with little success: “I wouldn't say there have been any lasting results [...] rideshare projects and such with apps [...] are usually run by someone locally driven and then they fade away” (Interview, Jämtland-Härjedalen). Another identified challenge with ridesharing concerns juridical and financial issues of booking and paying for trips organized through the PTA, while traveling in private vehicles.

In the overlaps among PT, departure space, and arrival space, reflections on the organization of planning and different formal mandates occur. As described, infrastructures for parking and switching between different transport modes are noted as central to the success of the whole-journey approach. This entails changing and developing the arrival and departure spaces, which is the mandate of the municipalities and STA, and requires coordination with the PTAs. “Co-planning of public transport with other urban and regional planning” (Örebro, 2016:19) is an ambition of all studied PTAs. However, co-planning is “very much a municipal issue—how one develops, how to say, the wider land use around a station area” (Interview, Halland) and is deemed the most important factor for succeeding with the whole-journey approach. “The municipalities' responsibility for streets and terminals affects the development opportunities of public transport. [...]. Collaboration between the region and the municipalities is important to create attractive public transport with a passenger focus. Collaboration is required both at a strategic level and in operational matters” (Jämtland-Härjedalen, 2016). This pertains to the accessibility of the actual station area, traffic prioritization, and “how the municipalities develop and densify in

transit corridors so that better conditions for sustainable travel are created” (Interview, Halland). Co-planning also involves the STA, albeit to a lesser degree. “The STA is of course important—they are keepers of infrastructure, in everything that does not belong to the municipality,” one interviewee explained (Interview, Värmland).

To handle the co-planning challenges and motivate the municipalities and STA to plan according to the whole-journey approach, a combination of sustainability arguments is employed. Installing charging stations for electrical vehicles in the departure space (Värmland, 2021), planning for extended service in areas around rural stops (Halland, 2020), and building priority lanes for buses (Interview, Värmland) are several items on the PTAs' “wish list” for the municipalities and STA for integrating arrival, departure, and PT spaces. Simultaneously, dependence on co-planning also makes planning from the whole-journey approach vulnerable and somewhat out of PTA control: “It is the classic mistake [municipalities make], either they don't care about public transport when they [plan and] build [something] new, or they [only] care about public transport at the beginning [of a project] and then they decide that it is better to put a flowerbed or something else [in that space], and so we [i.e., public transport] don't get access to the [newly developed] space in the end, anyway” (Interview, Jämtland-Härjedalen). The municipalities' rationale for not using the whole-journey approach in planning is not incomprehensible, as “the cost of the investment [lies] with the municipality, while the profit ends up with someone else,” the Värmland interviewee explained.

## 5. Concluding discussion

This paper has examined how Swedish PTAs understand, interpret, and apply the whole-journey approach in their planning, by examining five non-metropolitan regions. The analysis shows that the approach functions as both a conceptual lens and a practical framework for sustainable mobility. While PTAs have embraced the ambition that “the whole journey should work for everyone,” how this ambition is translated into planning logic differs. On one hand, the whole journey is understood as a user-centered, individualized approach, emphasizing seamlessness across modes and administrative boundaries to make PT more attractive. On the other hand, it is seen as a system-centered approach in which transit corridors form the structural backbone of regional mobility, complemented by flexible solutions in less dense geographies. These two logics coexist and sometimes compete, highlighting the tension between individualized travel needs and collective service provision. This tension also highlights conflicts within the concept of sustainability, between social aspects, on one hand, and the environment and economy, on the other hand.

Inspired by Park and Chowdhury's (2022) work on the whole-journey chain, we developed an analytical framework highlighting the overlapping spaces of the whole-journey approach (see Fig. 2). Using this model as a lens, our analysis illustrates that, while PTAs conduct advanced planning of the information and PT spaces (A and C), their ability to influence the departure and arrival spaces (B and D) is limited. Much attention is directed toward digital ticketing, real-time information, and service integration across operators, while the built environment is addressed in only general terms and with a focus on other organizations' responsibilities. Departure and arrival spaces are considered in the form of hubs, parking, and bike infrastructure. However, in both interviews and planning documents emphasis concerning the built environment is placed on departure rather than arrival spaces. The reasons for this imbalance we may only speculate on, but we see two potential explanations: 1) since the arrival space is more uncertain for the individual it is also more complex for the PTA to supply relevant transport possibilities, 2) the arrival space may be in another county, which makes it harder for the PTA to imagine the need and to collaborate with the municipality to address the space.

At the same time, hub facilities such as carpools, bike pools, and other transport modes are more generally mentioned in passing as

desirable for the whole-journey approach, without discussing any challenges or responsibilities related to implementing them. By emphasizing how PT and the built environment are interlinked through the overlapping spaces, we underline the interdependence of PT planning and built-environment planning. Since PTAs lack the mandate for land-use and infrastructure planning, these spaces require co-planning with municipalities and the STA. Here, the whole-journey approach exposes the institutional fragmentation of the Swedish planning system: while the approach rhetorically links geographical spaces, the governance structure keeps them administratively divided.

Additionally, our analysis shows that one of three main actor categories is missing from the PTAs' understanding of the whole-journey approach: the individual (see Fig. 1). Despite depictions of motorists seeking parking their cars, or of vulnerable passengers with special needs, other roles and responsibilities of the individual in the whole-journey approach are ignored. The PTAs have limited knowledge of individuals' needs throughout their journeys, and how they should plan accordingly. For instance, in the information space, the PTAs suggest providing very detailed digital information to benefit passengers, with little reflection on how to make the information understandable and accessible to different individuals. To improve their understanding of the individual's role in the whole-journey approach, we suggest that PTAs seek to engage with them.

Our third research question concerns how the whole-journey approach can affect sustainable mobility planning. This paper illustrates how the whole journey approach carries both promise and ambiguity. It clearly strengthens the discursive position of PT as central to regional development and sustainability transitions, allowing PTAs to advocate for investment and coordination with other planning actors. As such, it helps link scholarship on sustainable mobility planning (e.g., Bannister, 2008; Geuers et al., 2016; Shaheen and Chan, 2016) to research into the sustainable planning of the built environment (Marquet and Miralles-Guash, 2015; Moreno et al., 2021), demonstrating that this is possible not only in urban but also in rural places. In practice, the approach also underlines the importance of integrating PT with walking and cycling, supporting a shift toward more climate-friendly travel. Simultaneously, the approach normalizes a continued role for private cars as feeding PT hubs, reflecting a pragmatic stance toward continued automobility. This duality may be strategically useful in counties with strong car dependence, as it makes PT relevant regardless of the geographical conditions and the attitude toward car use. However, it also risks limiting the transformative potential of the whole-journey approach, for example, concerning the PTAs' ability to influence the municipalities and STA to focus more on biking infrastructure, making it an example of co-planning that limits innovation (Sörensen and Pettersson-Löfstedt, 2025).

In conclusion, the whole-journey approach should be understood less as a fixed planning model and more as a negotiated planning ideal. It gives PTAs a vocabulary for user-centered, multimodal, and sustainable mobility, yet without engaging with the users. Additionally, its implementation remains uneven and contingent on co-planning with municipalities and national authorities, promoting a high-speed and high-capacity systems approach. Policy implications follow from this: without stronger institutional mechanisms to integrate land-use and PT planning, the ambition to secure the “weakest link” in the whole-journey chain risks remaining rhetorical. To move beyond discourse, national policy could strengthen requirements for municipal alignment with regional PT planning, support cross-regional ticketing and information systems, and ensure that investments in cycling and station-area development are systematically linked to PT strategies. Only through such multi-level integration can the whole-journey approach realize its potential in the shift toward sustainable mobilities in both urban and rural Sweden. The realization and problematization of this is a matter for further research.

## CRedit authorship contribution statement

**Linnea Eriksson:** Writing – original draft, Validation, Methodology, Investigation, Conceptualization. **Ida Andersson:** Writing – original draft, Validation, Project administration, Methodology, Investigation, Conceptualization.

## Declaration of competing interest

None.

## Acknowledgements

We are grateful to everyone who participated in the interviews, and to the two anonymous reviewers who provided valuable comments which contributed to the development of the paper. We would also like to thank the research council Formas (grant ID 2021-00097) for funding the work and Kristina Larsson for participating in early empirical work. Thanks also to the other participating researchers in the project and the project's reference group for valuable comments on earlier presentations of the work.

## Data availability

Data will be made available on request.

## References

- Andersson, I., Hermelin, B., 2024. Rescaling public transport planning in Sweden: investigating the continued planning at the scale 'left behind'. *Eur. Plan. Stud.* 32 (7), 1445–1463.
- Bannister, D., 2008. The sustainable mobility paradigm. *Transp. Policy* 15 (2), 73–80. <https://doi.org/10.1016/j.tranpol.2007.10.005>.
- Berg, J., Levin, L., 2011. Äldres vardagliga resor – val av färdmedel och erfarenheter av kollektivtrafik. VTI rapport 734.
- Berglund-Snodgrass, Mukhtar-Landgren, D., Ringvall-Sundkvist, 2024. Institutionella förutsättningar för mobilitetshubbar. Från etablering till färdigt paket? K2 Working paper 2024:8.
- Book, K., Eskilsson, L., Lyckhage, J., 2016. Kollektivtrafikens roll i resenärens vardagsliv – en litteraturoversikt. k2 research Report, 2016:7.
- Currie, G., Delbosc, A., 2010. Exploring public transport usage trends in an ageing population. *Transportation* 37 (1), 151–164.
- Dalarna, 2012. Regionalt trafikförsljningsprogram för Dalarnas Län 2012–2016.
- Dalarna, 2017. Regionalt trafikförsljningsprogram för Dalarnas Län 2018–2020. Digitala vetenskapliga arkivet, 2025. Hela resan-perspektiv.
- EPOMM, 2020. Mobility Management: Definition and Factsheets. European Platform on Mobility Management.
- Geurs, K.T., Boon, W., Van Wee, B., 2016. Social impacts of transport: literature review and the state of the practice of transport appraisal in the Netherlands and the United Kingdom. *Transp. Rev.* 29 (1), 69–90. <https://doi.org/10.1080/01441640802130490>.
- Halland, 2013. Regionalt trafikförsljningsprogram 2013–2015.
- Halland, 2016. Kollektivtrafik för en hållbar regional utveckling Halland 2035.
- Halland, 2020. Trafikförsljningsprogram 2021–2025.
- Hallström, J., Larsvall, J., 2017. TransForm, design i kollektivtrafiken, TRV 2016/77213. Jämtland-Härjedalen, 2016. Regionalt trafikförsljningsprogram 2016–2020.
- Jämtland-Härjedalen, 2021. Regionalt trafikförsljningsprogram Jämtlands län 2021–2026.
- Jittrapirom, P., Caiati, V., Feneri, A.M., Ebrahimigharebaghi, S., Alonso-González, M.J., Narayan, J., 2017. Mobility as a service: a critical review of definitions, assessments of schemes, and key challenges. *Urban Plan.* 2 (2), 13–25. <https://doi.org/10.17645/up.v2i2.931>.
- Lucas, K., 2012. Transport and social exclusion: where are we now? *Transp. Policy* 20, 105–113.
- Marquet, O., Miralles-Guasch, C., 2015. The walkable city and the importance of the proximity environments for Barcelonas everyday mobility. *Cities* 42 (Part B), 258–266. <https://doi.org/10.1016/j.cities.2014.10.012>.
- Massey, D., 2005. *For Space*. Sage, London.
- Moreno, C., Allam, Z., Chabaud, D., Gall, C., Pralong, F., 2021. Introducing the “15-minute city”: sustainability, resilience and place identity in future post-pandemic cities. *Smart Cities* 4 (1), 93–111. <https://doi.org/10.3390/smartcities4010006>.
- Örebro, 2016. Regionalt trafikförsljningsprogram 2017–2021.
- Örebro, 2022. Regionalt trafikförsljningsprogram 2022–2026.
- Park, J., Chowdhury, S., 2022. Towards an enabled journey: barriers encountered by public transport riders with disabilities for the whole journey chain. *Transp. Rev.* 42 (2), 181–203. <https://doi.org/10.1080/01441647.2021.1955035>.
- Persson, C., 2020. Perform or conform? Looking for the strategic in municipal spatial planning in Sweden. *Eur. Plan. Stud.* 28 (6), 1183–1199.
- Porthuis, A., Zook, M., 2023. Moving the 15-minute city beyond the urban core: the role of accessibility and public transport in the Netherlands. *J. Transp. Geogr.* 110, 103629.
- Riksdagen, 2013. Hela resan hela året! - En uppföljning av transportsystemets tillgänglighet för personer med funktionsnedsättning. Riksdagens rapportserie.
- Ringqvist, S., 2016. Kollektivtrafikens styrning och organisering. Utveckling och erfarenheter av lokal och regional kollektivtrafik 1970–2015. K2 Outreach, 2016:11.
- Shaheen, S., Chan, N., 2016. Mobility and the sharing economy: potential to facilitate the first- and last-mile public transit connections. *Built Environ.* 42 (4), 573–588. <https://doi.org/10.2148/benv.42.4.573>.
- Sörensen, C.H., Pettersson-Löfstedt, F., 2025. Limits to collaboration in public transport: A typology. In: Perl, I.A., Ray, R., Singerman, Reardon, L. (Eds.), *Handbook of transportation and public policy*. Edward elgar publishing.
- Statistics Sweden, 2024. Folkmängden efter region, ålder och kön. 1 november 2023.
- Stockholm, 2024. Regionalt trafikförsljningsprogram för Stockholms län 2035.
- Svensk mediedatabas, 2025. Hela resan-perspektiv. Kungliga biblioteket. <https://smdb.kb.se>.
- Trafikanalys, 2023. Regional linjetrafik 2022.
- Trafikverket, 2023. Hela resan – en etnografisk studie för att skapa förståelse för komplexiteten av resenärens hela resa. Trafikverket, 2023:026.
- Värmland, 2014. Regionalt trafikförsljningsprogram 2014–2018.
- Värmland, 2021. Målbild för kollektivtrafiken i Värmland 2040 och Regionalt kollektivtrafikförsljningsprogram Värmland 2022–2026.
- Warf, B., 2025. Relational space. In: Warf, B. (Ed.), *The Encyclopedia of Human Geography*. Springer. [https://doi.org/10.1007/978-3-031-25900-5\\_306-1](https://doi.org/10.1007/978-3-031-25900-5_306-1).
- Zubizarreta, I., Seravalli, A., Arrizabalaga, S., 2015. Smart city concept: what it is and what it should be. *J. Urban Plan. Dev.* 142 (1), 04015005. [https://doi.org/10.1061/\(ASCE\)UP.1943-5444.0000282](https://doi.org/10.1061/(ASCE)UP.1943-5444.0000282).