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# Strategic Planning for High-speed Rail Investments – A Comparative Study of Four Intermediate Stations in Sweden

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## ABSTRACT

This paper departs from research illustrating that the development effects of high-speed rail (HSR) vary between cities being locations for stations and assumes that strategic planning and geographical contexts matter. It gives an overview of general planning through local authorities for a coming HSR and its station locations in four Swedish cities and settlements. The results show that, although Sweden represents a planning system with strong mandates for local authorities, strategic planning takes form through multi-level governance. The paper discusses how this condition the integration of visions for growth and environmental issues for the general planning on the local level.

## KEYWORDS

High speed rail; sustainable development; strategic planning; multi-level governance; Sweden

## Introduction

Transportation is a fundamental function for societies and social development, but it is also a primary source of greenhouse emissions. This motivates political interventions to develop infrastructure for transport systems offering high efficiency (Di Cataldo & Rodríguez-Pose, 2017), combined with a reduction of harmful effects on the environment (EESI, 2018). High hopes that high-speed rail (HSR) could deliver such combined values of efficiency and reduced emissions has motivated large investments into such systems. By far, the most extensive system for HSR is located in China, followed by Japan, Spain, France and Germany. Many HSR lines are currently under construction in EU member states, and even more are being planned (European Commission, n. d.; UIC, 2018). Motivations for investments into HSR through the EU are described to be embedded within ideals of ecological modernization, representing development strategies that assume combined economic and environmental achievements (Jensen & Richardson, 2003) and that value speed and connectivity (Banister, 2011). This is explained to be a vision of ‘Europe of Flows’ (Hajer, 2000), an ideal to achieve frictionless mobility between cities (García Mejuto, 2017; Jensen & Richardson, 2004). HSR is assumed to be an important means to achieve cohesion, economic growth, global competitiveness and sustainable development (Marshall, 2014).

There are, however, also critical reflections on such assumptions about the combined positive effects on efficiency and the environment through large-scale transport infrastructure. This is considered to represent a too narrow ‘efficiency-oriented approach to

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the environment' (Hajer, 1997 [2003]), a too strong belief in what technology can achieve when it comes to improved environmental performance (Fisher & Freudenburg, 2001) and to endorse strategies for business as usual (Welford, 1998).

Although there are results that confirm development effects and positive environmental effects through HSR investments, more detailed investigations illustrate variations for different geographical environments (European Court of Auditors, 2018; Di Cataldo & Rodríguez-Pose, 2017). In addition, variations in focus for effect variables across studies make it difficult to compare results. Such variables could, for example, focus on accessibility, connectivity and regeneration (European Court of Auditors, 2018), population growth (Mohino *et al.*, 2019), and firm creation and development (Beckerich *et al.*, 2019; Matas *et al.*, 2020). In general, this research debate seems to mainly pay attention to economic and growth effects and less on environmental concerns. Moreover, there are several methodological challenges for such studies relating to inherent difficulties to discriminate the effects of high-speed rail from other factors with impacts on development (Facchinetti-Mannone, 2019). In addition, the time aspect adds complexity with respect to considering short- and long-time effects (Beckerich *et al.*, 2017; Blaquart & Koning, 2017).

It is suggested that '... there is no automatic and systematic relation between transport infrastructure and spatial and socio-economic development' (Chen *et al.*, 2019, p. 416) and that an explanation of different effects of large-scale infrastructure investments needs to conceive particular place and regional contexts including planning and policy interventions (Chen *et al.*, 2019; Crescenzi *et al.*, 2016; Matas *et al.*, 2020). Nevertheless, compared to studies about the effects of HSR, there is quite scant research investigating how the development of HSR is integrated into planning and policy, which is the focus of this paper. We will do this through the concept of strategic planning, referring to planning that is policy-driven and integrates different policy sectors (Albrechts & Balducci, 2013). Strategic planning integrates plan- and action orientation and copes with uncertainty (Mäntysalo, 2013); it is about the formulation of visions (Healey, 2007). This means that strategic planning is a stark contrast to high-level policy-making for transport that is normally quite sector-specific (Marshall, 2014).

The empirical cases of this paper, focusing on strategic planning through local government in the context of the development of HSR, involve four urban settlements with different population sizes. These four urban settlements cover all train stops along the first section of a planned HSR system in Sweden. Two of these are second-tier cities within the Swedish system, and the other two are quite small urban settlements. From the background that the development of HSR was originally focused on offering train service between the main cities 'largely as an alternative to air travel over distances of 400–600 km' (Vickerman, 2015, p. 157) and in this way reduce environmental effects of personal transport (Marshall, 2014), small and intermediate cities along HSR have not been a main prioritised target of this large-scale infrastructure. Nevertheless, these are also involved in this infrastructure and are becoming connected to inter-city networks (Garmendia *et al.*, 2012).

From this background, this paper aims to investigate local strategic planning for HSR in how this varies across geographical contexts of intermediate stations. This discussion focuses on two research questions:

- (A) In which ways is strategic planning for HSR taking form through the interplay between locally grounded planning and conditions derived from multi-layer governance?
- (B) How is strategic planning for HSR representing an integrated approach for sustainable development?

The paper is organised into five sections. This introduction is followed by a literature background in Section 2. Section 3 describes the national context for the investigated sub-national strategic planning process for HSR in Sweden, empirical material and method. Section 4 describes how HSR is integrated into strategic planning. The paper is wrapped up in Section 5, in a concluding discussion.

## Literature Background

For this literature background, we define two key aspects for the approach of this paper, which relate to strategic planning for HSR and the way sustainable development is integrated for planning for HSR.

### Strategic Planning for HSR

Healey (2009) defines four integrated dimensions of spatial strategy making: scoping the situation, enlarging ‘intelligence’, creating frames and selecting actions, and mobilising attention. The transformative approach of strategic planning for sustainable development involves elements of re-orientation, recasting and pursuing pro-active strategies. Through this paper, it is illustrated how strategic planning for HSR needs to take these movements in the context of many uncertainties. Uncertainties also derive from continuous economic and social changes, moving social ideals and goals and what can be labelled ‘chance events’ (Abbott, 2012). Uncertainties for planning have been defined as environmental uncertainty and process uncertainty. The discussion of this paper will primarily refer to environmental uncertainty derived from the view that uncertainties about strategies of external actors and development of external structures are important (Abbott, 2005, 2012).

Planning for HSR extends over many years, with an average time span of 16 years from the start of construction to the point when a line is in operation (European Court of Auditors, 2018). This means that local strategic planning for this aspect requires managing extensive time perspectives. This long-time perspective for developing the HSR and dependency on decisions through external actors, for which the state directing and managing the planning of HSR systems is of primary importance, means external uncertainty of planning.

It is illustrated how HSR may support sustainability through an integrated approach to land-use planning, housing and transport planning (Arts *et al.*, 2016; Henriksson & Summerton, 2016). Such planning tasks involve numerous stakeholders and, consequently, stakeholder dynamics have an effect on how local planning for HSR impacts city development (Coronado *et al.*, 2019; Feliu, 2012). For the development of HSR in Sweden, planning for transport through the Trans-European Transport Network (TEN-T), introduced in early 1990, is an important context (Marshall, 2014). However, the ‘siloized or sectoralized character’ of this program (Marshall, 2014) is a challenging

condition for the integrated approach of local strategic planning for sustainable development (García Mejuto, 2017; O'Sullivan *et al.*, 2014).

The locations of HSR stations, which may be directed from national planning decisions, motivate different strategies with respect to planning. Planning for stations and their surrounding urban areas is related to ideas of 'quality of place', which refers to various aspects of functional diversity and quality of functions, public space and architectural expression (Trip, 2008). Station buildings have become iconic buildings with symbolic values contributing to image, attractiveness and the competitive position of cities (Moyano & Dobruszkes, 2017). It is found that public-sector land ownership facilitates the development effects of HSR (Chen *et al.*, 2019).

### **HSR in Light of Sustainable Development**

For some time, sustainability has been a horizontal goal for the EU – meaning that it should permeate all activities and outcomes (European Commission, 2001) – and this could be expected to be important guidance for strategic planning for HSR (Öberg *et al.*, 2018). According to the European Court of Auditors (2018), TEN-T '... serves the goals of economic development, regional competitiveness, regional and social cohesion, and environmental sustainability' (p. 13).

With consideration for the economic aspect of sustainable development, it is already described above that HSR infrastructure focuses on first-tier cities, which is also generally where the strongest growth effects are found (Blanquart & Koning, 2017; Chen *et al.*, 2019; Vickerman, 2015). In general, train operators operate through market-like conditions (Vickerman, 2015), and they have strong incentives to concentrate on supplying traffic between large urban centres, while smaller and intermediate cities tend to have poorer train services (Hall, 2009; Vickerman, 2015).

The impacts of HSR on social sustainability has not been well covered in research (Ribalaygua & Perez-Del-Caño, 2019). Such discussions could involve consideration of accessibility to services on HSR that will be impacted by the location of stations, provision of travel services and associated fares, and how travelling would be directed towards high-income and business travellers, turning rail transport into an exclusive mode of transport serving a relatively small part of society (Banister & Givoni, 2013). In Sweden, inter-regional commuting to work has increased substantially (Lindgren & Holm, 2010). This is an issue for social sustainability and the work-life balance of individuals and households.

Considering the aspect of environmental sustainability, an important point of departure is that the transport sector contributes with approximately 23% of the global emissions of greenhouse gases and has strong carbon dependency (Sims *et al.*, 2014). Railways are considered a means to establish more environmentally adapted transport systems, based on the expectations that the provision of rail services moves travel volumes from road to rail (Marshall, 2014) and from air to rail (Verma *et al.*, 2013). However, although transport by rail is less environmentally harmful compared to other transport modes, it nonetheless affects sustainability. This is particularly apparent when considering the whole life cycle of railways (Trafikverket, 2017; Svensson, 2006). Studies also reveal negative environmental impacts deriving from barrier effects of railways, such as blocking movement and spreading of plants and wildlife (e.g., Morelli *et al.*, 2014) and

threatening habitats (de la Morena *et al.*, 2017). These discussions draw attention to the argument that increased mobility, even by rail, will bring adverse environmental effects.

Our overview gives the impression that most attention for discussion about societal effects of HSR, whether in policies or research, is focused on growth, while the social and environmental effects of HSR receive less attention. However, through our empirical study, we explore how this impression is biased through which level of policy and geographical environment is analysed. While politics through EU and national governments driving the investments for the rail have important impacts on the direction of the discourse of a large-scale infrastructure system with main cities in focus, this paper's focus on local strategic planning may bring up contrasting and complementary views.

## Empirical Study

This paper elucidates strategic planning through the four municipalities with train stops for the first section of the HSR in Sweden. This section is called the East Link, will measure 160 km and starts in Stockholm in a southbound direction. The four stops are located in cities and settlements of different populations. The locations are – from north to south – a small settlement in Trosa municipality, the town of Nyköping, and two second-tier cities, Norrköping and Linköping. The construction of this first section starts successively from 2019 to 2021 and is planned to be finalised around 2035.

Table 1 presents some basic information comparing the municipalities and urban settlements that are the locations for the planned East Link's train stops, which, among other things, shows that Linköping has the largest population and that Linköping and the small settlement of Trosa have had the highest relative population growth.

The estimated future travel time to Stockholm on the coming HSR varies from 30 minutes for Trosa to 55 minutes for Linköping. Similar travel times are estimated for Norrköping and Nyköping, although they are located at different geographical distances from Stockholm. This is based on assumptions of different train services, which are regional trains for Nyköping and national high-speed train service for Norrköping. However, these estimates for travel time are by necessity quite speculative. The conditions for traveling will depend on future train services, which are very difficult to predict at the present time.

This paper's study of local strategic planning through local authorities also motivates some explanation of the national planning system. Sweden can be described as a strong unitary state with comparably strong mandates and resources to act for the local

**Table 1.** Data on the municipalities and cities/settlements for train stops. Note (1) <http://www.ostlanken.se/om-ostl%C3%A4nken/restider> 5 April 2019.

	Linköping	Norrköping	Nyköping	Trosa
Population in 2018 and population growth 2010–2018 for the municipality	161,034 21%	141,676 16%	56,011 14%	13,309 31%
Average income for individuals, SEK, (population aged 20–64 in 2017) and percentage of national average for municipalities	284,300 97%	269,000 92%	298,300 102%	333,500 114%
Number of inhabitants per city/settlement, 2018	111,267	96,766	32,957	3,632
Present travel time by train to Stockholm Central Station	1 hour 35 min	1 hour 12 min	1 hour 1 min	39 min
Calculated travel time by train on HSR to Stockholm Central Station (1)	55 min	40 min	40 min	30 min

authorities. The roles of municipalities involve managing local democracy and authority, acting as a service provider, and being a social partner for development (SKR, 2020). Important mandatory tasks for local authorities include welfare services (social care, primary education and secondary education), physical planning and local physical infrastructure (streets, water and sewage). The Swedish national planning system also imposes extensive responsibilities on local authorities to plan for sustainability, which involves expectations on proactive environmental management (Gustafsson *et al.*, 2019). Local authorities leverage local income tax. Substantial tasks for the local political level are an important reason for local authorities having developed into extensive organisations with large economic budgets. It is also important to consider the substantial variations between municipalities in terms of aspects such as population size, demographic development, level of urbanisation and the scale of geographical territories.

In Sweden, the national state has the main responsibility and mandate to plan for the national rail system through the Swedish Transport Administration (STA). The STA works to realise the EU visions for infrastructure and transport development and centres on objectives for economic growth and cohesion. The STA also hosts the national secretariat for the EU fund CEF, The Connecting Europe Facility (EU, 2018). This national body focuses, in particular, on how the planned national HSR system will connect the first-tier cities in Sweden (Trafikverket, 2017) and which reflects the ideal of a 'Europe of Flows' driving the EU policy for HSRs as discussed earlier in this paper. The role of regional governments with importance for this paper is their competences to plan and operate public transport.

For the most part, Sweden is a sparsely populated country, and the cities for the planned train stops, including their regional hinterlands, have rather small populations compared to cities for HSR located in more densely populated areas of the EU. This is an important reason why the debate in Sweden is still active, with high-level politicians debating in the national parliament how to justify the high costs for HSR. The time plan for the Swedish HSR has been revised on several occasions. The national state's difficulty in making political decisions and planning results in a situation with what can be considered environmental uncertainties for local planning (Abbott, 2012).

### **Empirical Material and Method**

The empirical material for this paper can be divided into three different types. In all, this material has been produced over several years, which helps to limit the risk of over-estimating time-specific situations. The material is listed in [Table 1](#).

The empirical material of Types 1 and 2 are sourced from local authorities. Type 2 material covers mandatory planning and policy documents for local authorities in Sweden, namely, budgets and comprehensive/master plans. These are politically ratified documents produced through rounds of discussions and negotiations, making them relevant to understand agreed-upon ideas within respective local environments. The mandatory status of these documents facilitates comparison across the municipalities.

The second type of empirical material is more heterogeneous and is, for the most part, collected through visiting the web sites of the four studied local authorities to search for documents, information, statements, and so on related to the coming HSR. This material

is helpful because it has a more open form and through which revealed challenges and conflicting situations are possible to identify.

Type 3 of empirical material is documents produced through regional collaboration, regional and national government and government bodies. These are sources to understand the conditions of multi-layer relations and interdependencies for local planning.

The analysis of the empirical material has been made through two rounds. The first round was quite structured through which the word ‘East Link’ was searched for within the compulsory planning documents (i.e., Type 1) through the local authorities. The themes for the paragraphs through which ‘East Link’ was integrated were sorted into three themes. The second step of the analysis of the empirical material was to qualify the discussions around these themes through the collected empirical material covered through Types 2 and 3 (cf. Makkonen & Inkinen, 2014; White & Marsh, 2006). It is also important to explain that the authors of this paper have been involved in commissioned research projects and continuous research communication with some of the bodies producing the empirical material. This has contributed to a pre-understanding of the planning bodies and their experiences and interventions within the theme of the paper and supported the ability to source and analyse the empirical material.

## Results – Directions of Strategic Planning for Future Investments in HSR

As described above, our analysis of the empirical material was introduced through a quite structured search for the word ‘East Link’ through the set of compulsory planning documents. The paragraphs through which ‘East Link’ was integrated were sorted into the three themes listed in Table 2: (i) urban development and regeneration, (ii) accessibility and connectivity, and (iii) growth. In the sections below, we will elaborate on how these themes are explained and communicated through empirical sources and being integrated for local strategic planning (Table 3).

### *Urban Development and Regeneration*

The analysis of the mandatory planning documents illustrated that aspects aggregated into the theme of urban development and regeneration were the main domain for strategic planning for the East Link. This is quite expected since the municipalities have strong mandates for physical planning, which represent key interventions for this theme. This focus should also be interpreted from the context of multi-level governance and, more specifically, how planning for HSR in Sweden has involved a formal procedure for negotiations across political layers called The National Negotiation on Housing and Infrastructure (SOU, 2017). This committee operated from 2014 to 2017 under the Ministry for Economic Development (Näringsdepartementet) and produced agreements between the central state and local authorities. These agreements state a number of commitments by the local authorities primarily for two tasks: (i) to contribute with financial funding for the construction of the rail and (ii) to guarantee that a certain number of dwellings will be built (SOU, 2017).

The agreements through The National Negotiation on Housing and Infrastructure as well as anticipated growth effects on population from HSR have involved extensive work within physical planning and planning for new housing (Henriksson & Summerton,



**Table 2.** The empirical material of the three types. Titles in Swedish are translated into English.

	Mandatory planning documents	Various planning documents and information material
Linköping	Yearly budgets 2018, 2019, 2020. Development plan for the inner city (2016).	(Lkp 2:1) Linköping and the East Link (video, 2 June 2015) website for Linköping, derived 8 July 2019 (Lkp 2:2) Stadsbyggnadsprojekt Ostlänken [urban planning projects for the East Link], derived 8 July 2019 (Lkp 2:3) C Linköping, Current situation and background [C Linköping, Nuläge och bakgrund], derived 5 May 2015
Norrköping	Yearly budgets 2017, 2018, 2019, 2020. Comprehensive plan (2017)	(Nrk 2:1) Great satisfaction for government decision (published 4 June 2018), derived 8 July 2019 (Nrk 2:2) The East Link municipalities agree for the Swedish negotiation (published 13 October 2017), derived 8 July 2019 (Nrk 2:3) The inner harbour becomes reality (published 19 June 2018), derived 8 July 2019 (Nrk 2:4) New organisation for the planning office (published 1 January 2019), derived 8 July 2019 (Nrk 2:5) Butängen and new Central station, derived 8 July 2019 The Swedish negotiation (nd) Agreement for Norrköping municipality (Nrk 2:6) Future journeys. Sustainable Urban Mobility Plan. 2018–08-16
Nyköping	Yearly budgets 2017, 2018, 2019, 2020. Comprehensive plan (2013)	(Nkp 2:1) Nyköping is growing (video), website for Nyköping, derived 9 July 2019. (Nkp 2:2) Common questions and answers about the East Link, Nyköping website, derived 9 July 2019.
Trosa	Yearly budgets 2017, 2018, 2019, 2020. Comprehensive plan (2015)	
Regional level and regional bodies	Traffic plan for Region Östergötland 2016. Traffic plan för Region Sörmland 2017	Comprehensive plan Linköping-Norrköping 2010. Competence needs for construction of infrastructure along Ostlänken 2015–02-12. Commissioned work for the East Swedish Chamber of Commerce.
National level		SOU (2017) Approval of agreement with Sweden Negotiation – Framework Agreement 1. High-speed railway section (Södertälje) Järna – Linköping. [RÖ Dnr: RS 2017–590]. Trafikverket (nd) PP-presentation. A new generation of railway – The Swedish Transport Administration's (STA's) work with new high-speed railways in Sweden. Trafikverket (2014) Trends in the transport system. The Swedish Transport Administration's external analysis 2014. Trafikverket (2017) Climate impact from high-speed rail. The sections Järna-Gothenburg and Jönköping-Lund. Report. [Klimatpåverkan från höghastighetsjärnväg. Sträckorna Järna-Göteborg och Jönköping-Lund] Report STA.

2016). For Linköping, this is described to involve many tasks, including developing comprehensives plans for different urban districts, planning for exploiting the station area and the city park, and acquiring land and changing land use. Planning tasks for this city include the revision of 170 different detail development plans, traffic surveys, assessment of impacts on environmental qualities and water, development and maintenance of local streets and infrastructure, planning and management for water and sewage, electricity and optic fibre. The task list also includes urban redesign projects for main streets in the city centre (Lkp 2:2). Conflicting views between the state and local authority are particularly evident for Linköping. The national government's decision to locate the station above ground on the edge of the city centre was in stark contrast to the

**Table 3.** Themes for discussions within compulsory planning documents for local authorities where the words ‘East Link’ were mentioned.

Themes	Contents of themes	Word count for ‘the East link’ through the total of 19 mandatory planning documents for local authorities.
Urban development and regeneration	Planning and development of the station area; planning for the inner city/surrounding area for the station; development of housing; acquisition of land	34
Accessibility and connectivity	Regional enlargement through improved traffic service; increase of accessibility to the airport Skavsta; become the node for accessibility and regional enlargement; facilitating sustainable transport; getting into national/international reach	19
Growth and development	Population growth; growth of local industry/employment; facilitate STA’s planning; preparation for the construction period	11

local authority’s strong vision for a centrally positioned underground station (Lkp 2:3). This is an important reason why the local authority planning documents, politically ratified after the central state’s decision on the station, have lowered expectations of positive effects from HSR on city development. In recent years, HSR has barely been mentioned in general planning documents; it was mentioned in only one sentence in the Linköping budget for 2018 and not at all in the budget for 2019.

Norrköping municipality, which is comparable in size to Linköping, will also need to manage a similar list of physical planning tasks. This involves planning for the train station area, new city districts for housing and other urban amenities. The local authority has reorganised its planning department and increased the staff working with planning to manage these expanding tasks for physical planning (Nrk 2:4). In Norrköping, the construction of a new city district with close access to the coming train station, called the Inner Harbour, has received much attention and demanded major resources (Nrk 2:3). The actual construction commenced in 2019 and will be completed some ten years before the HSR is anticipated to be completed. Norrköping describes how the district around the future train station will be developed to be sustainable, with access to public transport, cycling and green areas (Nrk 2:5). The different local authorities express in different ways the commitment to meet standards for environmental protection and have ambitions to be in the frontline of innovation for sustainable housing. This can be exemplified through Norrköping’s marketing of the new city district, the Inner Harbour, communicated to set high ambitions for sustainable solutions for construction and energy supply (Hermelin & Jonsson, 2020).

An international airport (Skavsta) in Nyköping municipality has impacted the relationship with national planning for the HSR. In 2018, the government published the decision for the location of two stations in Nyköping. This shows that the state has only recently made crucial decisions that had a significant impact on the local authorities studied in this paper. The airport station will be located on a branch line to the HSR, which means that the main HSR line will not connect directly to the airport. In the city centre, the station will be located on the main line for the HSR and quite close to the

present station. Through its website, the Nyköping local authority explicitly explains that the local authority was against this national state decision (Nkp 2:2).

Trosa also describes several initiatives for housing. This has necessitated acquisition by the local authority of extensive areas of land around the site for the coming HSR station that are intended for a future housing development. For this aspect, the local authority in Trosa also expresses through its official documents its frustration with national planning for the HSR. Its comprehensive plan explains that local planning is severely hampered because the national state plan for rail involved blocking a 1.5 km wide corridor within which no local planning was allowed (Trosa Comprehensive plan, 2015).

### **Accessibility and Connectivity**

The vision of growth connects across the different identified themes for how the coming HSR is integrated through the local planning documents. This includes the expectations on how accessibility and connectivity through HSR foster regional enlargement (Nyköping budget 2019) and how this, in turn, is anticipated to attract more visitors and citizens to the municipality and give induced growth for the company sector: ‘This is of course positive. To grow means new opportunities’ (Nkp 2:1). Also, Trosa stresses the role of the new rail for future regional enlargement. Personal transport is a primary concern for Trosa, which has extensive out-commuting to the Stockholm region. Local planning defines aims to increase the share of public transport through which the negative environmental effects of transport will be reduced (Trosa Comprehensive plan, 2015).

It can be summarised that, to an important extent, Nyköping and Trosa relate their growth potential to the fact that they will become integrated within a wider labour market through shorter travel time to Stockholm. This means that expectations are targeted toward the effect of borrowed size (from Stockholm) through the achieved regional expansion through available efficient transport service.

However, consideration must also be given to the fact that the relatively small settlements of Nyköping and Trosa have weak positions for the coming train service on the HSR compared to the more highly populated Norrköping and Linköping. The national train operator is not planning to include stops for its train service on the HSR between Stockholm and Norrköping (Trafikverket, 2017), which makes assumptions of strategic plans involving national train service to Skavsta airport uncertain (Traffic plan for Region Sörmland, 2017). The present plan for operating train services for Nyköping (for the central station and airport station) and Trosa involves regional tax-subsidised public transport managed by the regional traffic planning.

Norrköping, being a second-tier city located at some distance from Stockholm, expects future train service through the national train operator, and through this, hopes to be integrated within the wider labour market of Stockholm. Norrköping has undertaken ambitious planning work to prepare for sustainable mobility. This was through a project funded by the EU that involved the local authority of Norrköping as well as the regional body responsible for managing public transport (Nrk 2:6).

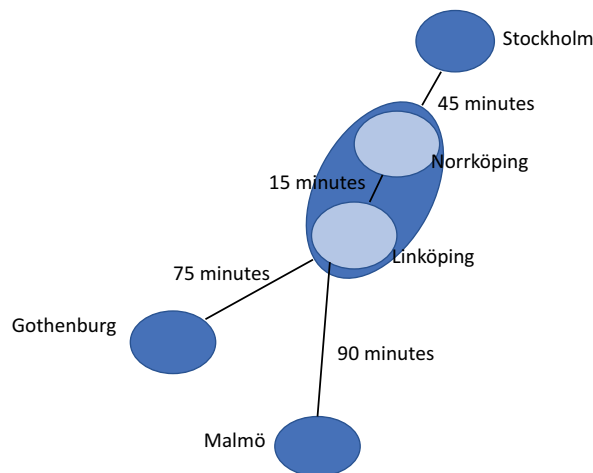
For Linköping and Norrköping, planning for the East Link was a key condition motivating the development of a joint comprehensive plan for these municipalities through which the objectives of economic growth are clearly endorsed (Comprehensive plan Linköping-Norrköping, 2010). The joint comprehensive plan for Linköping and Norrköping from

2010 describes how the East Link is part of TEN-T and that through this new infrastructure, their urban centres will become central meeting points. It also outlines how the connections to HSR from these two cities will be accessed from surrounding smaller towns and settlements using regional traffic. The illustration below shows how, through their joint comprehensive plan, these cities defined themselves as big cities, which was important if they were to boost their visibility ‘on the map’ for HSR development (Jensen & Richardson, 2003). Figure 1 (map from the joint comprehensive plan) shows how Linköping and Norrköping will become connected with the three main city regions in Sweden.

The empirical material for themes about accessibility and connectivity could illustrate that strategic planning of the investigated local authorities relates to different sustainability aspects in different ways. In general, it appears that the aim is to shift personal transport between transport modes, that is, primarily from road/car to rail, representing aims to reduce environmental effects. However, the coming traffic for the smaller settlements of Trosa and Nyköping is assumed to be through regional tax substituted service, while Norrköping and Linköping assume they will become included in national high-speed service (Traffic plan for Region Sörmland, 2017; Traffic plan for region Östergötland, 2016). Nevertheless, all locations share expectations of increasing travel volumes. This is an ideal criticised by research because all transport makes use of resources, and it challenges environmental sustainability (Banister & Givoni, 2013).

### **Growth and Development of the Local Industry and Local Labour Market**

The theme for how strategic planning target growth and development of the local industry and labour market relates to how local authorities collaborate across sectors with the company sector and its stakeholder organisations. For the investigated region, the regional chamber of commerce has been an active collaborative partner and lobbying



**Figure 1.** Stylised map locating Linköping and Norrköping on the national HSR system in Sweden. Source: Joint comprehensive plan for Linköping and Norrköping, redrawn by authors.

actor regarding the coming HSR. Its initiatives have been aimed at the supply of a workforce for the construction industry (for the building phase of HSR) and the establishment of networks of companies that will support their preparations to advance using the resources of the coming infrastructure.

The approach through local strategic planning to population and economic growth is most apparent for Linköping, where planning documents stress that urban qualities are the main competitive advantage for cities to expand. A local development plan for Linköping describes that ‘the inner city is the raw material [for growth]’ (Development plan for the inner city, Linköping 2016). The importance of the provision of housing and a growing population in the inner city is stressed. The Mayor of Linköping (i.e., the Chair of the local council) states that Linköping city centre is estimated to grow from 20,000 to 50,000 inhabitants and that the number of people boarding and disembarking trains in Linköping will increase substantially (Lkp 2:1).

Although the populations of Linköping and Norrköping are quite similar, Linköping nevertheless expresses contrasting priorities and ambitions for the coming HSR. These ambitions involve gaining the status of a city with the attributes associated with a main urban centre. The geographical location of Linköping is one important explanation for this, which, because it is furthest from Stockholm, will only just be included in the commuting zone for Stockholm through services on the future HSR. In addition, Linköping experiences a generally favourable situation that is driving local growth. It is a city with quite advanced industries and a qualified workforce. Linköping’s budget prioritises aims of attractiveness, climate smartness and strong industry. Material produced by the local authority claims that the coming HSR will contribute to the growth of the city, which, in turn, will have positive regional effects (Lkp 2:1) through the city’s function as the ‘main engine’ for the region’s industrial development (Linköping Budget, 2019).

In this way, strategic planning for the coming HSR, as communicated through the available empirical material, seems to approach development in different ways. While Linköping has a strong focus on growth, Norrköping describes a wider approach covering aims for environmental and social sustainability. Strategic planning for HSR in Trosa relates to different dimensions of sustainability. The budget document formulates the vision to ‘grow carefully’ to retain social cohesion (Trosa Budget, 2019).

## Concluding Discussion – Local Strategic Planning for HSR

This paper has aimed to investigate the direction of strategic planning for HSR with a focus on interventions through local policy and how this varies across geographical contexts. The motivation for this aim was the argument that the effects of HSR are not automatic but depend on how these investments are integrated through strategic planning and urban vision (Facchinetti-Mannone, 2019). The discussion has focused on two research questions:

- (A) In which ways are strategic planning for HSR taking form through the interplay between locally grounded planning and conditions derived from multi-layer governance?

(B) How is strategic planning for HSR representing an integrated approach for sustainable development?

First, considering the aspect of multi-layer governance, the results prove uneasy relations between locally grounded visions and national state planning, primarily represented for HSR through the STA. The formal procedure for negotiations across political layers called The National Negotiation on Housing and Infrastructure (SOU, 2017) reflects how the state, through its mandate to plan for national infrastructure, endeavoured impact on physical planning for housing, which is a strong mandate for local authorities in the Swedish planning system. Thus, while this reflects top-down steering from national to local government, the material proves that municipalities are far from content concerning their possibilities to impact the decisions on the location and design of the coming stations and which is considered an important factor driving effects of HSR. It is also described that the national state's planning corridors for the rail hamper local physical planning to make interventions and that decisions for the location of stations are made at a late point in time in the planning processes. In all, quite strong statements through official documents of local authorities signal how these experience environmental uncertainty – related to late decisions of central state – and how this impairs planning to prepare and be pro-active (Abbott, 2005; Healey, 2009).

Second, it seems that the discourse with quite a strong focus on growth represented through the EU-level TEN-T program driving investments for HSR is also adopted for local strategic planning. It seems that the local authorities are for their strategic planning – in different ways captured into wider discourses for development for HSR with focus on growth, which is far more prominent through the empirical material compared to visions for integrated sustainable development. Nevertheless, and what is important to point out, such aims are also visible to some extent. This is particularly evident through planning for housing, which is an important task for local authorities. It is also important to acknowledge that aspects of the integrated sustainable development approach are, in many ways, mainstreamed for local planning. This needs to be taken into consideration for the findings that considerations of sustainable development is less explicitly declared through the planning documents investigated through this paper.

These two conclusions, as a response to the two research questions, should also be reflected on in relation to the overall point of departure for this paper, i.e the need to conceive how planning and policy interventions (Chen *et al.*, 2019; Matas *et al.*, 2020) vary across geographical contexts. Such variations can be made intelligible from the impacts on strategic planning of diverse structures of the local geographies with particular industrial development trajectories and from the impacts of different geographical positions in relation to the main urban region in Sweden around Stockholm. The impacts of relative geographical position for strategic planning is, in particular, evident for how strategic planning approaches aspects of accessibility and connectivity.

Thus, the overall conclusion from this paper's investigation is that the local authorities mobilise in important ways for strategic planning in relation to the coming HSR with aims to leverage development. The local authorities pursue proactive strategies for urban regeneration and which are maintained as an important component of strategic planning (Healey, 2009). However, although the investigated authorities are quite resourceful

bodies, their strategic planning is nevertheless in important ways directed and restricted through high-level politics and policy discourses. This is concretely evident through the open critics of local authorities towards the central state's planning for the HSR and more indirectly evident through a strong focus of local planning on growth effects. This conclusion confirms what has been described to be a 'problematic relationship between planning for major infrastructure and spatial planning' (Marshall, 2014, p. 1503) at sub-national scales.

Lastly, it is also important to highlight the limitations of the empirical material for this study on local planning for HSR, which refers to very extensive planning endeavours over many years. Although empirical material of official documents and statements by local authorities analysed for this paper is important material with relevance for describing focus, ideals and directions for strategic planning, a detailed and comprehensive investigation of planning initiatives and activities, however, would require access to supplementary sources such as interviews and more detailed protocols and programmes from the planning bodies. Findings of this paper suggest that local authorities experience that multi-layer governance challenges local strategic planning. This motivates future deep studies on how this applies for different national and geographical contexts and if this means to underperform for sustainable development aims.

## Disclosure Statement

No potential conflict of interest was reported by the author(s).

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