The Economic Impact of the High-Speed Train on Urban Regions

Dr. Peter M.J. Pol

Department of Regional Economics and Transport and Port Economics
Erasmus University Rotterdam
P.O. Box 1738 Room H12-23
3000 DR Rotterdam
The Netherlands
tel +31.10.4081186
fax +31.10.4089153
Pol@few.eur.nl

Abstract

What can the advent of the High-Speed Train (HST) mean for the cities connected to this new network? We argue that the impact of new infrastructure depends predominantly on how urban actors react to the new opportunities offered by improved external accessibility. Individuals can either travel further or reach their destinations earlier; it means that their relevant region will become larger. We argue that urban actors will develop strategies to help their city achieve a higher position in the urban hierarchy. What can the advent of the HST contribute to such strategies? Are there certain preconditions that have to be fulfilled to benefit from improved external accessibility? As well as opportunities, does it also generate threats? We will consider the HST-station development in the city of Lille.

1. Introduction

In many European countries investments are being made in infrastructure for high-speed trains (HSTs). The objective is to make rail transport once more competitive with respect to road and air transport. To this end, step by step a European network for HSTs is being built up. The development of that network can be seen as a *renaissance* of rail transport. The increasing importance of rail transport offers new development prospects for the inner cities that it opens up. In urban regions, the advent of the HST can be a stimulus to invest in the rehabilitation of station areas that have been neglected for decades. That neglect can be explained partly by the diminishing share of rail transport in the *modal split*, and partly by the diverging interests of stakeholders. The connection to the European network of HSTs constitutes an exceptional *momentum* for both public and private actors to invest once more in station areas.

After a long period of decentralisation in urban areas in the last century, there is now a general tendency towards reurbanisation. The centres of urban areas are once more attracting activities and residents. Inner cities are considered as good arenas for the exchange of knowledge and information. The transition to the information society spells new life for major cities as the nodal points of worldwide networks. Inner cities have from time immemorial been the places where information is produced and exchanged. In an era in which the western world is experiencing the strongest economic growth in the service sector, and in which the production and exchange of information have become the strategically prominent economic activities, certain urban areas are evidently offering just the right environment in which these activities can flourish [van den Berg et al., 2001, p. 6].

In many European cities, ambitious plans have been drawn up for the redevelopment of station areas. The expectation is that the redevelopment of the major station areas will greatly enhance the accessibility and economic appeal of inner cities, and at the same time create space for new urban activities and residents. The challenge is to bring about the kind of urban development that public as well as private actors accept as advisable for both an economically-sound and an attractive city, and that is also financially and economically feasible. To urban actors the advent of the HST can be a great opportunity to renew and/or strengthen the urban economy, to change the modal split in favour of the more environmentally-friendly modalities, and to improve the image of the inner city and its urban region.

In this article we will try to answer the question: What can the advent of the HST mean for HST-cities? We argue that the impact of new infrastructure depends predominantly on how urban

actors react to the new opportunities offered by improved external accessibility. In Section 2, we therefore explore which factors determine the spatial behaviour of urban actors. Here, it will be pointed out that transportation costs play an important role. Next, Section 3 explores how urban actors value transportation costs, and suggests that these costs determine the communication distances of urban actors, which in turn influence the relevant regions of cities. Moreover, in this section it will be explained that infrastructure investments might take place earlier in some urban regions than in others. Section 4 examines the impact of the advent of the HST on networks of cities. The emergence of hierarchical urban systems will be explained. We argue that urban actors will develop strategies to help their city achieve a higher position in the urban hierarchy. The advent of the HST can contribute to this strategy. In Section 5, we will analyse what the connection to the HST-network means for the economic development of urban regions. Section 6 considers the HST-station developments in the city of Lille. Finally, Section 7 concludes by formulating the expected consequences of the advent of the HST.

2. Spatial behaviour of urban actors

Van den Berg [1987] argues that the spatial behaviour of urban actors is determined by their drive to maximise welfare. All inhabitants, companies, and governmental actors have their own location preferences, which influence their behaviour. Spatial preferences even differ among urban actors of one category. One resident may prefer to live close to cultural facilities in an inner city, while another attaches more value to living in the country, enjoying the open space. The attraction of a location is determined by the extent to which the supply of welfare meets the demand. The spatial allocation of residents and companies is determined, on the one hand, by the difference in regional welfare elements as perceived by urban actors, and, on the other, by the accessibility of these location factors.

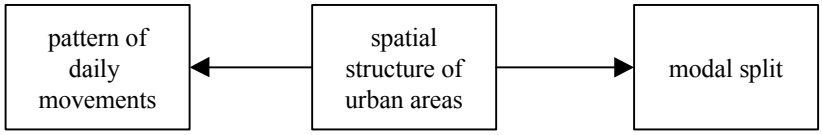

Figure 1 Simple relation system: short-term approach [van den Berg, 1987]

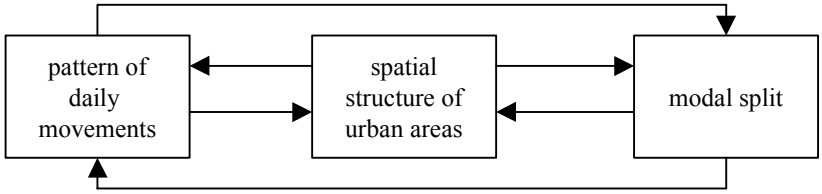

Figure 2 Interdependent relation system: long-term approach [van den Berg, 1987]

A distinction can be made between the perceived and the desired level (aspiration level) of the various kinds of welfare. In the short term, an urban actor can change his *transportation behaviour* when there are differences between the perceived and the desired level of the welfare. In the long term, a change of *location behaviour* is also possible (see Figures 1 and 2). For instance, if an individual cannot find an appropriate job at location i but may find one at location j, he may either consider commuting daily between i and j (if he finds i's other welfare elements to his taste), or move house to location j.

The regional government wants to enhance the well-being in its jurisdiction. It can influence the spatial distribution, quality and quantity of the location factors. It lays down certain ambitions regarding the housing, service and economic potential of its region. The priorities set by the authorities evolve through time and with the economic conditions, and can change with the coming to office of a new (chosen) government.

How the government behaves is determined by the discrepancies between the levels of the welfare potential it considers desirable and those it perceives in reality. The government will try to reduce the discrepancies, attaching different weights to different welfare elements. It may do so by adjusting the quantity and the quality of the welfare elements in question. Thus, if the housing potential fails, the government can either stimulate the building of new residential buildings (quantity), or make public spaces such as parks and streets more appealing (quality). In addition, the government can try to make the different welfare elements more accessible by the construction of transport infrastructure or by influencing the use made of the infrastructure.

3. Generalised transportation costs and communication distances

The advent of the HST can change the relative accessibility of urban regions. As stated in the previous section, its impact depends on the spatial behaviour of the actors involved: will they change their transportation and location behaviour in reaction to the advent of the HST? That spatial behaviour depends in particular on how the introduction of new transport systems affects the 'maximum acceptable transportation distance' (MATD) for individuals. So, we need to know how urban actors value transportation costs.

The costs of travelling between two locations comprise monetary transport expenses, transport time (travel and waiting times), and the effort made for the trip (discomfort, risk of theft of property, risk of delays). The 'generalised transportation costs' (GTC) include the total of monetary transport costs, time and effort. Individuals can differ in their valuation of travel time and the effort

journeys require. A business traveller, for instance, will be inclined to attach more value to relatively fast and comfortable transport than a tourist.

With rising prosperity, the *economic value of time* increases. An individual will be prepared to pay more for relatively fast transport so as to keep the total GTC constant or reduce it. With increasing prosperity, an individual will also set greater store by relatively comfortable transport. He may try, for instance, to keep the number of changes from one mode to another to a minimum. In rail or air transport, a direct connection will be preferred to one implying changes, because it gives less discomfort and more opportunity to work during the journey. The higher a traveller values time and comfort, the readier he will be to pay a relatively high monetary price for fast and comfortable transportation. Price instruments, such as road pricing and parking fees, meant to achieve selective car access, will then become acceptable. To save travel time by preventing congestion or avoiding long searches for a parking space will weigh heavier than higher monetary travel expenses.

The MATD is the distance which an individual, given his travel budget (time, money and effort), is prepared to cover to reach a certain service or workplace. An individual's MATD depends on his income and mobility and on the activity envisaged (working, shopping, leisure activities). The MATD determines an individual person's or business company's relevant region. The relevant region is the area within which individuals and companies orient themselves to certain activities and interact with others.

The introduction of a new, faster, transportation system can increase the MATD and thus expand the relevant region for the individual or the business company concerned. The advent of the car, for instance, has greatly influenced the development of urban systems. Daily commuter distances could be substantially enlarged by the reduction of the GTC. Consequently, functional urban regions could expand relatively fast. Following that line of thought, it is reasonable to assume that the advent of the HST will further increase the distances that people are willing to commute daily and thus widen the relevant labour-market regions.

For an individual, the MATD to a certain location is the distance at which the marginal achievable use of the activity to be visited equals the marginal GTC. The MATD depends on the quality and quantity of the visited function. An individual may, for instance, be prepared to travel a longer distance for a higher-order provision (like a theatre or a large shopping centre) than for one of a lower order (like a corner shop or a sports club). In other words, the distance sensitivity of lower-order provisions is higher. In large settlements, such as central places, many higher-order as well as lower-order activities can be found, and in relatively small settlements in principle only lower-order activities are present[i].

Relationship between increasing prosperity and communication distances

To estimate the impact of investments in infrastructure, the relative accessibility of urban regions is an important factor. Investments in infrastructure do not take place at the same time in all urban regions. Moreover, arguably there are certain patterns which reveal that infrastructure investment happens more often in some regions than in others.

As prosperity increases and incomes rise, people want to travel further and faster. They prefer to live in a pleasant environment, for which they are prepared to live farther from their workplace; companies want economic interaction with actors from a larger relevant region, and individuals want to go on holiday to ever more remote areas. Zahavi argued that people devote, on average, a constant fraction of their day to travel - what he called the travel-time budget[ii]. Thus in his view, the time-element of the GTC has a more or less constant value, irrespective of prosperity. From that starting point, Schafer and Victor have developed the hypothesis that the typical travel-time budget stretches to one and a half hours per person per day in a wide variety of economic, social and geographic settings. If people keep their travelling time constant but also demand more mobility as their income rises, they must select faster modes of transport to cover more distance in the same stretch of time [Schafer and Victor, 1997]. Accordingly, with rising prosperity, a more or less continuous development of faster transport modes can be observed.

New communication and information technology is not introduced everywhere at the same moment. There are time lags among areas with respect to the availability of new infrastructure and know-how. As a rule, the existing prominent economic centres are the first to avail themselves of new techniques. Naturally, that serves to reinforce the hierarchical distribution of economic activities among urban areas. In that connection, Janelle [1969] argued that there are time-space convergence processes. His argument was that new forms of infrastructure tend to be constructed where there is already much interaction. The most intensive interaction occurs among economic key areas, which have a relatively high demand for accessibility (see Figure 3 [1]). However, in and between those areas, there is normally a well-developed infrastructure network, which is congested because of economic growth processes. Therefore, in those regions, there is a more or less continuous process of construction of new transport infrastructure, the occurrence of congestion in the course of time and, in reaction to that, the construction of another new and better infrastructure, which allows faster types of transport mode.

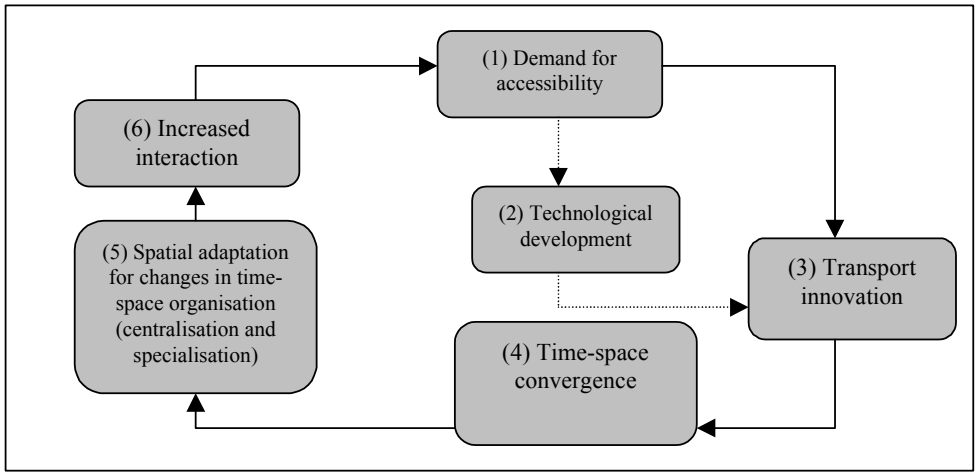

Figure 3 Time-space convergence processes [Janelle, 1969]

In the course of time, helped along by the technological development of new transport systems (see Figure 3 [2]), new innovative systems will be introduced, with larger capacities and/ or higher commercial speeds [3]. With the introduction of new transport systems, MATDs will gradually extend over the course of time. Economic key areas are consequently linked up by ever faster communication systems, bringing the places within those areas closer together in terms of time: a time-space convergence process (See Figure 3 [4]). Key areas in that sense are the Boston-Washington corridor, the Tokyo-Osaka-corridor and the European 'Blue Banana'[iii]. Changes in accessibility can affect the location decisions of economic actors. Companies, and also residents, may decide to move to locations that offer better relative accessibility, which will often be found in these key-areas. The time-space convergence process thus leads to spatial adaptation [5], which in turn might intensify interaction within and between key-areas [6]. That again generates a higher demand for accessibility [1], and so on, and so forth.

A significant negative effect of time-space convergence is the decreasing relative accessibility of backward regions. That process widens the welfare differences among regions and stimulates divergent economic performance.

4. Urban networks and the advent of the HST

Long-haul infrastructure connects cities, giving rise to connecting networks. Depending, among other things, on the type and size of the connected cities, different kinds of network can be distinguished. What are the features of such networks and how can the advent of the HST influence them?

An urban system is an interdependent structure of urban regions or agglomerations mutually connected by functional-spatial relations (for instance, commuting, cultural, and commercial relations). A theoretical distinction can be made between two types of urban systems: the hierarchical or central-places model, and the horizontal or network model [van den Berg and van Klink, 1992].

In the *central-places model*, cities are elements of a vertically-oriented urban system with a certain regional delimitation. In such a hierarchical urban system[iv], the position of an individual city (i.e. its degree of centrality within the urban system) is determined by the number of its functions. The urban structure is dominated by one single central city.

The *network model*, on the contrary, assumes a horizontally-oriented urban system, where the network is a decentralised structure of cities. The position of an urban region in an urban network is determined by the exclusiveness of its functions in relation to other cities in the network. Function specialisation rather than function cumulation is what counts.

The European urban system displays features of the hierarchical as well as the network model. On the one hand, there are some dominating cities, like London and Paris, while, on the other, many European cities together form an interdependent network. Moreover, the European urban system is continuously changing. It is an interdependent system: the development of one city affects the position and development of others in the system. Certain fundamental developments in the surroundings of the cities and the reactions of urban actors to those developments affect the position of the cities and urban regions. Urban governments tend to pursue a strategic policy aimed at satisfying the requirements of their companies and individuals, thus strengthening their competitive position as a business location, a residence, or a place of sojourn.

The construction of the HST-network affects the development of the European urban system, and thus the competition between cities. The influence manifests itself in the two trends distinguished above: on the one hand, the HST reinforces the *existing* hierarchical position of cities, while on the other, it promotes the formation of a network of cities. These two lines of influence will be commented upon below. But we will also elaborate on another possibility, which will turn out to be important in this research, for cities can also try to achieve a better position in the existing urban hierarchy by a number of policy measures. The advent of the HST can in that respect constitute an important momentum for actors in urban regions to try to improve their competitive position in the European urban system.

Hierarchical urban systems

Growth-pole theories put the emphasis on the agglomeration advantages associated with the spatial concentration of people and activities. According to the growth-pole concept, economic growth does not manifest itself in a balanced way across geographical space, but at different intensities in concentration points or growth poles. Myrdal [1957] drew attention to the growth-pole effects of major infrastructure assets, such as seaports and airports and railway stations. According to him a hierarchy of junctions will evolve. The most important transport junctions will have the best chances to generate economic growth. In his cumulative causation theory, Myrdal considers large agglomerations to have the best opportunities to attract new activities. There, concentration will occur at the expense of other areas. Such phenomena will, by definition, manifest themselves across space in an unbalanced manner.

The first urban regions to be connected to the HST-network are often those that already have a relatively high position in the European hierarchy. These cities form the most attractive market for the suppliers of HST-services, as they have the largest concentrations of inhabitants and economic activities. This is in conformity with the theory of Janelle: the urban regions with the highest interaction are the first to face congestion and the first to get new infrastructure.

Connection to the HST-network makes the city more attractive to certain activities for which (international) interaction is essential. Activities from a relatively large area can be enticed to the vicinity of the HST-station. The connection of an urban region to the HST-network can thus strengthen the city's competitive position. The economic attraction of a city connected to the HST can increase further, and so can their 'hierarchical distance' to cities lacking such a connection. The HST can thus exert a polarising force on the regional economy, strengthening the urban regions that already have a strong position.

One aspect considered by Myrdal is the relation between centre and periphery. Growth poles may cause backwash effects as well as spread effects in the periphery. Major infrastructure services can reinforce the polarised spatial distribution of economic activities, because a variety of activities may prefer to settle in the immediate vicinity. Swann [1992, p.284] mentions three centripetal forces that stimulate the polarisation of economic activities: economies of scale (the relation between production costs of one unit and the size of the production); external economies (the emergence of economic clusters depending on the *output of key industries)*; and agglomeration economies (a *general* concentration of economic activities). A large portion of the companies that locate in the vicinity of the growth pole are attracted from elsewhere. Some urban regions, therefore, might experience *backwash-effects* from their decreased regional accessibility: for instance, cities failing to connect to the network of high-speed railways. Their relative accessibility

will decrease in relation to cities connected to the HST-network. As a consequence, they might be confronted with backwash effects: companies moving from their region to other regions that offer better access to the European market. On the other hand, actors in urban areas with a relatively poor economic potential may find the non-connection serves to protect their local industry, because the remaining transport barriers might prevent the occurrence of backwash effects.

The economic activities attracted to the benefiting region can, in turn, induce a variety of related activities to establish in a relatively wide area around the growth pole. They may prefer a more peripheral location because the location conditions there are easier: for instance, cheaper land and labour. That illustrates the *spread effect* (centrifugal force) of the growth pole. Backwash and spread effects occur at different scale levels [Lambooy, 1997, p.86]. The first of these effects can be noticed particularly in (economic) peripheral regions, and the second predominantly in rings around the growth pole, in which related companies but also employees establish themselves. According to Myrdal, economic segregation can be induced by the polarising process, described above, as the lagging regions become weaker and the growth regions stronger.

Horizontal urban networks

Cities connected to the HST-infrastructure may form new horizontal urban networks, and interaction among such cities will be enlivened. As travel times between them become shorter, competition among HST-cities will become keener. Their relevant regions will show more overlap. The companies established in these urban regions will therefore be stimulated to operate more efficiently and more effectively. The expectation is that the intensified competition will stimulate them to focus on those activities in which they have a comparative advantage because they have a lead on other regions in knowledge, quality and efficiency. The connection to the HST-network can thus be an incentive for economic specialisation to take place earlier.

For instance, with better international infrastructure networks, an internationally-operating financial-service firm may no longer need an office in every capital city of the European Member States. This firm might concentrate its activities at the location that offers the most advantageous conditions. Other financial companies may make the same location choices, and a financial cluster might well evolve in an urban region.

Urban governments can try to anticipate such behaviour of business actors. They can analyse their core competencies to be able to stimulate certain business functions in their regions. Then these governments can develop policies designed to strengthen the location factors for *certain* types of business that might be attracted to their urban regions.

Achieving a better position in the existing urban system

The development of the European HST-network can have a particular effect on relatively small cities that are to be connected. Actors in these cities can try to turn their improved accessibility and changing status to good account. Through substantial investments in their station areas and their cities, they may attract new inhabitants and economic activities and thereby achieve a higher position in the urban hierarchy.

Janelle [1969] held that transport innovations, like the HST-development, lead to time-space convergence. The extension of the MATD is greater for some urban areas than for others. Urban areas that already hold a high position in the urban hierarchy (economic key areas) often draw the most benefits from new transport systems. The challenge for actors in other cities is, therefore, to break that pattern in favour of their own accessibility and prosperity. Connection to the HST-network can thus stimulate actors in relatively small cities to invest in their locational attractiveness, and ultimately to achieve a better hierarchical position within Europe.

5. The urban impact of the advent of the HST

Net impact on the urban economy

The connection of a city to the HST-network can be seen as an external impulse given to an urban region. The decision to realise that connection is mostly made by the national government. Therefore, the actual connection is mostly a matter of national policy priorities. Urban actors may try to influence these priorities, but have by no means the last word. How a HST-connection can affect an urban economy is pictured in Figure 4.

Connection to the HST-network implies a reduction of the GTC. That effect is due to the phenomena described in the theory as time-space convergence and cost-space convergence[v]. The high-speed railway brings cities closer together in terms of travel time and (direct) transport costs. In particular, the direct access to the centres of major cities will be improved, because many HST-stations are in city centres. The GTC will also be reduced by competition between transport modes serving the same intercity connections in Europe, notably air and rail. Such competition also spells greater choice and flexibility, as well as lower prices for the travellers.

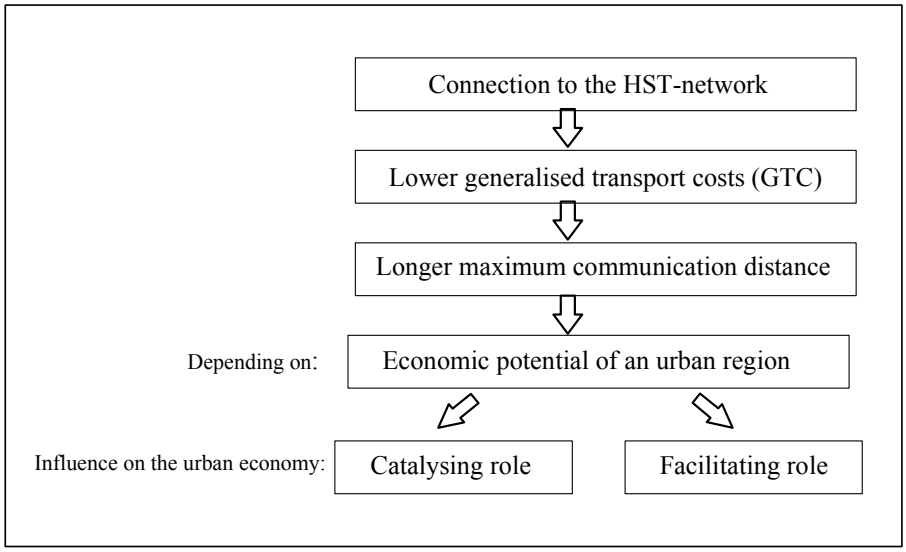

Figure 4 Influence of the HST on urban areas [van den Berg and Pol, 1998]

Reduction of the GTC extends the MATD of individuals from the location newly connected to the HST-network. Individuals can either travel farther or reach their destinations earlier. The relevant region for individuals is thus extended. With the same GTC level, more remote locations can be reached. Therefore, their welfare potential will increase: within the relevant region, more welfare elements will be available.

Whether an urban region in practice will draw economic profits from the realised longer maximum communication distance depends on its economic potential. The HST-connection may affect the regional economy in two ways: it may act as a catalyst or it may have a facilitating effect.

- A *catalysing role* is achieved when the connection to the HST-network draws new activities to an urban region and thus causes the economy to grow. The regions thus affected mostly have low economic growth, or find themselves at a phase of economic transition (for instance, from a manufacturing to a service economy), and need a strong impulse to direct the local economy. Urban actors in such cities expect their economic potential to be strengthened substantially by their connection to the HST-network, and will be inclined to do relatively intensive lobbying to obtain a fully-fledged connection. In particular, actors in these cities are expected to carry out additional investments in response to the HST-connection in order to improve their economic potential.
- By a *facilitating role,* we mean its impact on cities with a prosperous local economy, which need new infrastructure to accommodate their economic growth. Most of them are hierarchically important (capital) cities, often already endowed with a relatively high economic potential, and frequently the first to be connected to the HST-network. These cities constantly

need to ensure that their accessibility keeps pace with their economic growth. We also expect actors in these cities to carry out additional investments in response to the HST-connection, but they are supposed to focus on reducing perceived inbalances concerning welfare potential.

Though, theoretically, expectations of the economic impact of the HST can be formulated, this impact is empirically not measurable. This is because it is not normally possible to directly link accessibility changes with economic development; many other variables have influence on this relationship and economic changes can occur over a relatively long time period, during which many other urban elements change. The advent of the HST can generate opportunities for economic renewal and/or growth, and urban actors can proactively respond to this; it is, however, impossible - ex-ante as well as ex-post - to determine the exact relationship between the advent of the HST and regional-economic changes [Pol, 2002].

Table 2 Development zones related to the accessibility of an HST-stopping place [Schütz, 1998]

	OG1: Primary development zone	**OG2: Secondary development zone**	**OG3: Tertiary development zone**
Accessibility to and from the HST-station	direct 5-10 minutes on foot or by a transport mode such as a people mover	indirect <15 minutes, via complementary transport modes (incl. travel and change time)	indirect >15 minutes, via complementary transport modes (incl. travel and change time)
Location potential	location for high-grade (inter)national functions	secondary location for high-grade functions. Specialised functions related to specific location (cluster)	variety of functions depending on specific location factors
Building density	very high	high	depending on specific situation
Development dynamism	very high	high	modest

Development zones related to the advent of the HST

The additional investments of urban actors in response to the advent of the HST, are often concentrated in specific urban areas. Schütz [1998] tried to describe development areas that might profit from the HST-connection. He distinguished *primary*, *secondary* and *tertiary development zones*, which are, respectively, a zone that is within five to ten minutes' reach of the station; a zone

that can be reached within 15 minutes from the HST-station by complementary transport modes; and a zone at more than 15 minutes' travel time from the HST-station (see Table 2).

The *primary development zone* can be enlarged by several means of transport, such as a people mover. In this zone (the HST-station area), the greatest effects of the advent of the HST can be expected. It is indeed here that most travel time can be saved because in principle the traveller needs no complementary transport. Besides, by its proximity to the HST-network, this area profits directly from its improved status as a location. That is why particularly in the *primary development zone* high-grade office and residential functions can be established and where relatively high increases in land and real estate values are expected. As a result, to build high and dense becomes attractive in this area. On the advent of the HST, stakeholders will respond in the first instance by investing in this zone. In particular, urban actors in cities eager to use the advent of the HST as a catalyst for regional economic growth will invest pro-actively in the *primary development zone*. But so will actors in cities who consider the HST-connection facilitating for economic growth already in progress, although their investment behaviour might be different.

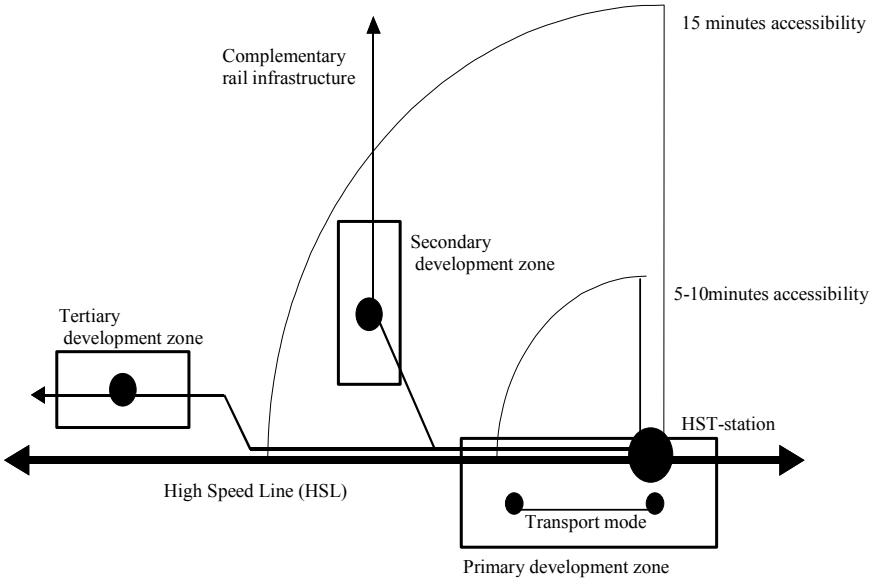

Figure 5 Development zones related to the accessibility of an HST-stopping place [Schütz, 1998]

Schütz points out that in *secondary development zones* too, high-grade functions may be established to be close to the HST-station, but the gains in property value and the building density will be less than in the *primary development zone*. The stakeholder may therefore be less inclined to invest in such zones, but they may still do so at a later stage. Even *tertiary development zones* may profit

from the easier access, but are not likely to show any direct development effects that can be related to the advent of the HST. The three zones distinguished are presented in Figure 5.

Expected consequences of the advent of the HST

The advent of the HST can be beneficial for those cities that already have a strong competitive position (a strong economic potential). But for weaker urban regions, also backwash effects can occur as a result of the improved external accessibility.

We make a spatial distinction between the urban region and the *primary development zone*. Urban actors are expected to focus their investments on those elements of which they expect the largest benefits. Our supposition is that, with the advent of the HST, urban actors perceive both the largest opportunities and bottlenecks in the *primary development zone*. They are expected to draw in particular development strategies for these zones. The considerations in this paper lead to our hypothesis:

Urban actors consider the advent of the HST as a momentum to invest substantially in their HST-station areas in order to enhance the positive effects of the improved external accessibility and/or to prevent backwash effects.

6. Euralille, an interesting European model?

In this section, the hypothesis presented above will be tested on the station development in the city of Lille. In this French city, the station was redeveloped almost a decade ago, so we may be able to observe the first regional-economic effects in the Lille region. The case opens with a concise profile, indicating how the connection to the European HST-network has been planned. The intervention of policy makers with the development of the station area is the next item, in order to test the formulated hypothesis.

Lille is an illustrative example of a European region in transition from an industrial to a modern economy with knowledge-intensive, service-providing activities. In the 1970s, the decline of companies in the metal and textile sectors caused a flood of unemployment. Fortunately, European integration has opened new development prospects for the Northern French region of Nord-Pas de Calais, where, besides Lille, the urban regions of Roubaix and Tourcoing are situated. In the perception of many, Lille is no longer a peripheral French city, but a strategically- and centrally-situated European urban region. By deciding to run the route for the high-speed line from Paris to

the Channel tunnel through this North-French city, the national government boosted Lille's chances of development. Had a more direct connection been chosen, then the HST would have called at Amiens rather than Lille.

Renouncing earlier plans (at first, a station nearer to Roubaix and Tourcoing had been envisaged[vi]), the Lille authorities decided to retain the terminus station, *Gare de Flandres,* and build a new through-station, *Gare d'Europe*, nearby. HSTs from Paris stop at *Gare de Flandres,* while *Gare d'Europe*, opened in 1994, is a stopping place for some of the Eurostar-trains running between Paris and London and between Brussels and London (others pass by without stopping at Lille). In the zone between the two stations, a former military terrain adjoining the inner city, which could be acquired at a comparatively low cost, a new multi-functional urban settlement was developed in direct consequence of the advent of the HST; this new urban area was given the name of *Euralille.*

In the initial plans, 564 million euros were to be invested in the *place* of Euralille. Of the total area of 545,000 square metres, 205,000 were destined for offices, and 140,000 for houses. Not all the plans have yet been realised. It was possible to reserve space for urbanisation purposes around the HST-station area relatively easily. The sites of old fortifications immediately adjoining the centre had long been considered unfit for building, and much of this area was lying vacant. Architect Rem Koolhaas was invited to draw up a Master Plan for the vacant grounds, one condition being that the infrastructure had to be roofed over. Euralille was then launched as a large-scale urban project, as the 'tertiary turbine' for the region. From the earliest planning stage, a mix of urban functions was envisaged for Euralille: offices, houses, hotels, shops, convention and exhibition space, and urban entertainment.

Two towers on top of *Gare d'Europe* contain most of the office space of Euralille. Together, the *Crédit Lyonnais Tower* and the *World Trade Centre* offer 40,000 square metres of office space, which were hoped to attract foreign internationally-oriented business companies. However, upon the completion in 1995, there was a recession in the office market and the towers proved difficult to let. For lack of international tenants, the buildings were filled mostly with regional offices. On the other hand, the demand for quality office space elsewhere in the city has indeed grown.

One of the prominent functions in Euralille is a large regional shopping centre (31,000 square metres of shopping space). There was some serious concern that it would entice shops away from the city centre. Shopowners established in the city centre who wanted to settle in Euralille were therefore put under an obligation to retain at least a branch establishment in the inner city as well. Currently, the Euralille shopping precinct attracts many visitors from a wide area and has

reinforced the function of the inner city, as some visitors combine a shopping spree in Euralille with a visit to the city centre.

Policy goal with the HST-connection

The arrival of the HST was expected to attract new economic activities and visitors[vii]. As the station development process advanced, the emphasis shifted from the creation of a sound transport node towards the development of a location fit to attract new urban activities. The strategy to develop Euralille as a *grand projet* was inspired by the conviction that this was *the* momentum needed to reactivate the region's economy. This idea runs parallel with a more general tendency towards the emancipation of French regions. Many regions want to evolve an identity of their own, cast off the Paris chains, and establish their own new economic relations with other European regions.

In Lille, additional investments were at first channelled mainly to the HST-station area, Euralille. Later on, private actors began to invest in other parts of the city as well (for instance in the restoration of many premises in the inner city). While the effects of the HST-connection are most apparent in Euralille, as a matter of fact the whole city of Lille has clearly received a development impulse. A great demand for office space has developed, and the city is experiencing an upswing in urban tourism.

7. Conclusions

The impact of new transport systems depends on the spatial behaviour of urban actors. Connection to the HST-network implies a reduction of the generalised transportation costs (GTC) and thus an extension of the maximum acceptable transportation distances (MATD) of actors. Individuals can either travel further or reach their destinations earlier; it means that their relevant region has become larger. With more welfare elements available within their relevant region, their welfare potential will increase.

To improve their competitive edge in a service and information economy, cities have to have high grade (international) facilities, and to be attractive and well accessible. The advent of the HST can *inter alia* play an important role in improving simultaneously the quality of urban life and the accessibility of city centres, and stimulating the development of diversified districts.

The HST-connection can have a *catalysing effect* on a regional economy (it draws new activities and thus causes a region's economy to grow), or a *facilitating effect* (the new infrastructure will accommodate economic growth that is already in progress in an urban region). The advent of the HST can be beneficial to those cities that already hold a strong competitive

position. They normally already have a relatively high economic potential and attractive location factors for new service companies and well-educated residents. Both these advantages will be further enhanced by the improving external accessibility. In weaker urban regions, the advent of the HST can be an opportunity to improve their competitive position and to obtain a higher position in the European urban hierarchy. The improving external accessibility may help to enhance their economic potential and location factors. However, a precondition for economic growth and renewal for these cities will be that this economic potential exceeds a certain critical (sometimes psychological) level. When it does not, the improved external accessibility may also lead to backwash effects (for instance, companies moving out of the urban region concerned, since their local markets will no longer be protected by transport barriers). Therefore, the advent of the HST is likely to particularly stimulate these weaker regions to improve their economic attractiveness.

In our hypothesis, we postulated that urban actors in general consider the advent of the HST as a momentum to invest substantially in their HST-station areas. In the empirical part that hypothesis was confirmed for the city of Lille, which was earmarked for *dedicated* HST-connections. In this city firm plans had been made for the redevelopment of the HST-station area, for the purpose of stimulating economic renovation and growth. We could see that the analysed city welcomed the advent of the HST as a great drive towards station development.

For urban actors in cities that want to redevelop their station areas the connection to the HST-network seems to be a logical and essential momentum to take the matter decisively in hand, since it can give a valuable impulse to boost and expand the local economy. To make optimum use of this momentum means to time the planning and implementation correctly, i.e. in parallel with the connection to the HST-network, which can be an important catalyst for (substantial) investment in station areas.

References

- Abler R, Janelle D, Philbrick A, Sommer J, 1975 *Human geography in a shrinking world* (Duxbury Press, North Scituate, Mass.)
- Berg L van den, 1987 *Urban Systems in a Dynamic Society* (Gower, Aldershot)
- Berg L van den, Klink H A van, 1992, "Strategic networks as weapons in the competition among European cities and regions", *Journal of European Integration*, Volume 15, Nos. 2-3, pp 135 - 150
- Berg L van den, Pol P M J, 1998 *The European High-Speed Train and Urban Development, Experiences in fourteen European urban regions* (Ashgate, Aldershot)
- Berg L van den, Meer J van der, Pol P M J, 2001 *Maatschappelijk-Economische Evaluatie van de Herontwikkelingsplannen van het Rotterdamse Centraal-Stationsgebied* (Socio-economic Evaluation of the Redevelopment Plans of the Central Station area of Rotterdam) (Euricur-report, Rotterdam)
- Bertolini L, Spit T, 1998 *Cities on Rails; the redevelopment of railway station areas* (E&FN Spon, London, New York)
- Christaller W, 1933 Die zentralen Orte in Süddeutschland. Eine ökonomisch-geografische Untersuchung über die Gesetzmässigkeit der Verbreitung und Entwicklung der Siedlungen mit städtischen Funktionen (Central places in South Germany. An economic-geographic research into general rules of enlarging and development of settlements with urban functions) (Jena, Gustav Fischer)
- Euralille, 1999 *State of Development of the Euralille,* Project on the 11 March 1999, MIPIM
- Gemeente Rotterdam, NS, ING Vastgoed, AMVest, 2000, *Programma van uitgangspunten voor het Masterplan Rotterdam-Centraal*, (Terms of References for the Masterplan Rotterdam Central Station) April 2000
- Janelle D G, 1969, "Spatial organization: a model and concept". In: *Annals of the American Association of Geographers*, **59**, pp 348 - 364
- Lambooy J G , Wever E, Atzema O A L C, 1997 *Ruimtelijk economische dynamiek* (Regional-economic dynamics) (Coutinho, Bussum)
- Myrdal G, 1957 *Economic theory and underdeveloped regions* (London, Duckworth)

- Newman P, Thornley A, 1996 *Urban Planning in Europe, International Competition, National Systems and Planning Projects* (Routledge, London)
- Pol P M J, 1997 *Hierarchisation and modern requirements of urban business districts* (Euricur-report, Rotterdam)
- Pol P M J, 2002 *A renaissance of stations, railways and cities, Economic effects, development strategies and organisational issues of European high-speed-train stations*, dissertation, Ph.D. thesis (Delft: Dup Science)
- Schafer A, Victor D, 1997, "The past and future of global mobility", In: *Scientific American*, October 1997, pp 36 - 39
- Schütz E, 1998, *Stadtentwicklung durch Hochgeschwindigkeitsverkehr* (Urban development by High-Speed Traffic) Heft 6, 1998, pp 369 - 383
- Swann D, 1992 *The Economics of the Common Market* (Penguin Books, London)

---

[i] See Christaller [1933].

[ii] See Schafer and Victor [1997].

[iii] The 'Blue-Banana' notion is used to indicate the European economic core area stretching from London to Milan, including amongst others the Dutch *Randstad*, the Ruhr and the Munich region.

[iv] See Christaller [1933].

[v] See Janelle [1969] and Abler et al. [1975].

[vi] See Newman and Thornley [1996, p. 190].

[vii] See Bertolini and Spit, 1998, and Euralille, 1999.