Megacorridors in North West Europe

Investigating a new transnational planning concept

Wil Zonneveld
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Preface

The corridor is one of the novel concepts in discussions on the territorial organisation of Europe. Its content is rather unclear though. This book, based on the research project CORRIDESIGN, aims to unravel the present discussion. Starting from the observation that regional economies are intertwined on a European scale, this project examined whether, to what extent, and in what ways this process towards a network society is spatially linked with the development of cross-border megacorridors between seven large urban regions in North West Europe – the Randstad, the Flemish Diamond, Rhein-Ruhr, Lille, Paris, London and the West Midlands. This book makes clear that although the origins of the corridor concept lie in the domain of infrastructure, its meaning extends to such fields as regional economy, urban development and governance.

CORRIDESIGN was a joint project of the OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology (Lead Partner); The Bartlett School of Planning, University College London; University of Central England, Birmingham; Department of Social Sciences Administration, London School of Economics; Institute of Urban and Regional Planning, Catholic University of Leuven; Institute for Traffic Planning and Design, Essen University; and the Institut Fédératif de Recherche sur les Economies et les Sociétés Industrielles (IFRESI), Lille (with the collaboration of Territories, Sites & Cités). The project was co-financed by the European Regional Development Fund under the INTERREG IIC Programme, a European Community Initiative concerning Transnational Cooperation on Spatial Planning.

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1 Introduction

Wil Zonneveld & Jan Jacob Trip

1.1 The megacorridor: a new transnational planning concept

In discussions on territorial development in Europe, the concept of the corridor is beginning to take a central place. Although the meaning of the corridor concept has become broader, as we make clear in this book, the origins of the concept lie in the domain of infrastructure. We can therefore, as a starting point in thinking about corridors, imagine them to be bundles of infrastructure that link two or more urban areas. These infrastructure bundles can be highways (sometimes via different routes), rail links (high-speed trains, intercity lines, local trains or trams), separate bus lanes, cycle paths, canals, short-sea connections, or air connections. In general, however, corridor development concerns connections that use different transport modes (car, train, tram, ship, aeroplane, for example), and carry both passenger and freight transport. One can also adopt a broader interpretation of corridors that encompasses such things as ICT infrastructure, power lines and cables as well as pipes for drinking water, natural gas, crude oil, electricity, and sewage. In this book the main concern is traffic infrastructure, that is, passenger and freight transport links. The development of corridors over the course of time has reflected technological advances in transport modes and the construction legacy of different varieties of infrastructure. New generations of infrastructure are often located in the vicinity of older systems and sometimes – in the case of replacement – on top of older systems. In other words, the development of corridors is strongly path dependent.

The use of the term 'corridor' as a spatial planning concept is in fact quite old. About a century ago, linear city models were presented as alternatives to the densely populated, concentric industrial city of the nineteenth century. The most famous of these was put forward by the Spanish urbanist Soria y Mata (1844-1920) in a series of articles published as early as 1882. In fact, he was the first urban planner to design an urban model fully tailored to the development of transport technology. Soria y Mata had strong misgivings about the often chaotic urban development in his day. To combat this, he proposed that urban extensions be fully adjusted to the infrastructure necessary for efficient transport. The 'Ciudad Lineal' takes the form of a city 400 meters wide, centred on a tramway and a parallel-running thoroughfare. Although he advocated a new sort of land policy to make the Ciudad Lineal possible from a social point of view, his model was traditional, since only the dwellings of the more affluent were provided with immediate access to the central axis. For the study of urban models, it is important to remember that the Ciudad

Lineal did not represent a model of an alternative linear city, but was created to extend those already in existence (Hall, 1996, p.112 ff.). As such the model has been influential, because many regional plans made since then have advocated some sort of linear extension of large cities based on infrastructure. The basic difference in most cases is that the proposed model was certainly not an unbroken linear development, but rather a model resembling 'beads on a string': smaller urban settlements grouped along an infrastructural line. The famous Copenhagen Finger Plan of 1947 is a clear example of this (Lemberg, 1997). Virtually all urban planners have rejected the unplanned extension of cities based on the road system, however. In the words of Lewis Mumford (1938) this model would ultimately lead to that of the 'Townless Highway'. Many nature and landscape conservationists up to the present day also strongly reject such a model. At an early stage in the development of the planning profession, planners opposed the very occupation of the countryside by urban functions. Later on – in the last decades of the twentieth century? the fragmentation of scenic areas and the destruction of ecological infrastructure became the main grounds for objections. Nevertheless, as history tells us, urbanisation in the shape of linear and fragmented development has taken place on a grand scale. Studies of many towns seem to agree that 1850 represents a peak in urban densities (Hohenberg & Hollen Lees, 1995, p.303 ff.) After that, most European cities spread out into the surrounding countryside rapidly, sometimes in a carefully planned manner and sometimes totally haphazardly. Technological innovations clearly made this possible, first with the arrival of tram and railway lines and electricity, and later on with the internal combustion engine and the private car. The trams and railways, although enabling urban decentralisation, also allowed for some regrouping in the form of streetcar suburbs. However, the private car made decentralisation in totally fragmented patterns possible, although some sort of clustering is still often discernable at a higher scale level. The corridor concept has thus become part of the ongoing debate on patterns of urbanisation and urban spatial structure.
Only recently, at least in the European Union, has the corridor concept turned into a multi-faceted concept with the addition of a prefix: 'mega', or 'euro'. The 'Europe 1992 project', aiming at a 'borderless' Europe, played a pivotal role. The assumption was that the abolition of the barriers posed by national borders would result in a substantial rise in cross-border and transnational relationships that could ultimately reshape the spatial structure, and thus the map of Europe, in a significant way. With hindsight, it is not surprising that the modern version of the corridor concept – the megacorridor – cropped up in this period of time. More or less at the same time as the unfolding of the Europe 1992 project, an infrastructure discourse at the European level took shape (Hajer, 2000). In regional policy, there was a firm belief that enhancing the level of connectivity would stimulate the economic performance of the regions that were lagging behind. This line of thinking was scaled up to the level of

Europe. Economic integration pushed forward by the Europe 1992 project should thus have been accompanied by a policy programme aimed at the physical integration of the European territory. This idea was linked in part to the expectation that certain areas and regions would profit more from integration than others, but that there would also be some clear 'losers'. Geographical location has much to do with this, so it was assumed. New cross-border and transnational infrastructure would offset remoteness and peripherality and, in general, make economic integration physically possible. Such assumptions and expectations as these have led to the Transeuropean Networks programme, which is probably (at least in financial terms) one of the most important outcomes of the European infrastructure discourse.

Transportation itself became the object of cooperation within the European Union. The first reason for this was that the passing of the deadline of the Europe 1992 project did not bring all the obstacles to trans-border traffic to an end. A well-known example is the division of European airspace into many sub-spaces, each commanded by its own air traffic control system. The European rail system is plagued by similar institutional fragmentation, resulting in a host of different technical systems being used by national rail companies simultaneously. This problem has led to a distinct corridor concept, not in the dictionary sense of the word (that is, a safe passage through an otherwise hostile territory), but as an unhampered passage (freeway) through an institutionally and technically fragmented European territory. So what we are dealing with here is, in fact, an institutional corridor, albeit limited to the transportation theme. All these various strands of thinking and emerging policy issues focused on the idea of linkages were brought together under the umbrella of the (mega)corridor concept. In particular, some of the transnational studies carried out to produce the European Commission report 'Europe 2000+' (CEC, 1994) gave prominence to this concept. Particular attention has been directed to the concept of the 'eurocorridor', a guiding concept in the report of the study on the Central Capital City region (CEC, 1996), an area encompassing South East England, Northern France, the Netherlands (except the northern provinces), Belgium, Luxemburg, and parts of western Germany. In this CCC report, the eurocorridor is defined as: *A combination of one or more important infrastructure axes (road, rail, telecommunication lines) with heavy flows of cross-border traffic that link important urban areas* (ibid., p.107). In literal terms, the CCC study draws a distinction between (euro)corridors and urban areas. However, the study is not conclusive on this point, because the authors see a close connection between the level of competitiveness of an urban area and whether this area is located in a corridor or not. The study speaks in terms of an emerging group of cities with very high nodality (London, Paris, Frankfurt, Brussels, Amsterdam, Cologne, Duisburg, and Lille). This nodality is to the disadvantage of, for instance, cities in regions not linked to

the eurocorridor network. For that reason, the CCC study promotes the development of several new eurocorridors and the improvement of metropolitan cooperation and connectivity in existing eurocorridors. So underlying this 'policy scenario' is the assumption that (new) infrastructure is of crucial – maybe even decisive – importance where competitiveness is concerned. The eurocorridor concept is therefore intimately linked to the European cohesion discourse. The concept also, however, raise the issue of institutional and administrative fragmentation in an area where there are strong links between the constituent parts. The CCC area is a European macro-region characterised by a very high density of borders. This is made even more true by the internal borders of Belgium, which from a spatial planning point of view can also be considered as national borders.

The European Spatial Development Perspective has brought the discussion on 'eurocorridors' – the preferred term in the ESDP – to a new level by advocating it as nothing less than a comprehensive planning concept (CEC, 1999). In the ESDP the eurocorridor is indeed considered as a bundle of infrastructure, but also as a development corridor, in fact making explicit what was still implicit in the CCC study. "The spatial concept of Euro-corridors can establish connections between the sector policies of, say, transport, infrastructure, economic development, urbanisation and environment. The development perspective for Euro-corridors, should clearly indicate the areas where the growth of activities can be clustered and the areas which are to be protected as open space" (ibid., p.36). Earlier, draft versions of the ESDP emphasised the importance of a eurocorridor approach even more strongly. The Noordwijk and Glasgow versions of the ESDP (Dutch Presidency, 1997; British Presidency, 1998) explicitly advocate the development of eurocorridors as an important element of a European spatial development agenda. While the final ESDP only advocates building bridges between sector policies, the Glasgow document not only lists specific policy goals, but also states that eurocorridors ought to be developed. eurocorridors "could [be] used as a conceptual tool for integrating policies relating to the development of multinodality, cooperation between cities, the improvement of infrastructure and transport in more peripheral areas, the reduction of congestion, international accessibility, etc. Such corridors could contribute considerably to the cohesion of the European territory" (British Presidency, 1998, p.67). On top of that, the document lists examples of eurocorridors that have already emerged, or that could be developed and linked with existing ones. To the first category belong such corridors as Transmanche-London-Glasgow, Amsterdam-Brussels-Paris, Brussels-Cologne-Hanover-Berlin-Poznan-Warsaw and Rotterdam-RheinRuhr-Main-Stuttgart-Munich. To the second category belong such corridors as Dublin-Manchester-London-Transmanche and Rotterdam-Hanover-Berlin (ibid.).
All in all, the early versions of the ESDP view eurocorridors as instrumental in

spreading economic development over the European territory; eurocorridors "can help structure the territory of the whole continent." (ibid., p.49). In the final ESDP, this emphasis on the importance of the eurocorridor has been somewhat toned down. There are two explanations as to why this has happened. First, the listing of specific eurocorridors probably did not fit neatly into national spatial planning policies. It is likely that, in several countries, no agreement could be reached on the question of which areas could or should be designated as eurocorridors. More fundamental is the rejection by some EU member states of the eurocorridor concept in itself, particularly the argumentation in favour of corridor development. In these countries it was assumed that eurocorridors would pave the way for ribbon development. Nevertheless, the eurocorridor has acquired a prominent place in the final ESDP. The further elaboration of the eurocorridor concept, however, is a matter for lower levels of decision-making. Here we enter the realm of cross-border and transnational cooperation in the field of spatial planning.

1.2 The CORRIDESIGN project

It has been acknowledged in the European Community for a considerable time now that the existence of national borders has negative consequences for the areas directly adjoining them. The Community Initiative INTERREG, set up in 1990 and focusing on cross-border cooperation, exemplifies this. Gradually the realisation grew that the geographic *scope* of this programme needed to be enlarged, resulting in 1995 in a new 'panel' within the INTERREG programme. INTERREG IIC was the programme for the period 1996-1999. INTERREG IIIB is the title of the programme for the period 2000-2006. Both programmes are based on the recognition of a growing spatial coherence crossing national borders. The active financial and practical support organised through these Community Initiatives have launched a large number of 'transnational spatial development projects' in the past five years or so. For North West Europe alone we are talking about at least 70 individual projects. They can be seen as part of a major attempt initiated by the European Commission to anchor the 'transnational dimension' firmly in the spatial planning practice of the EU member states.

The CORRIDESIGN project is one of the more than 40 projects that were carried out under the INTERREG IIC programme for North West Europe (NWE), also known as the North Western Metropolitan Area. The project investigated the development of megacorridors in North West Europe. Seven megacorridors were identified (see Figure 1.1.) as the starting point of the analyses: 1) the Randstad-Flemish Diamond corridor; 2) the Randstad-RheinRuhr corridor; 3) the RheinRuhr-Flemish Diamond corridor; 4) the Flemish Diamond-Lille

Figure 1.1 The seven megacorridors examined in the CORRIDESIGN project

1) Randstad-Flemish Diamond corridor
2) Randstad-RheinRuhr corridor
3) RheinRuhr-Flemish Diamond corridor
4) Flemish Diamond-Lille corridor
5) Lille-Paris corridor
6) Lille-London corridor
7) London-West Midlands corridor

corridor; 5) the Lille-Paris corridor; 6) the Lille-London corridor; 7) the London-West Midlands corridor.

CORRIDESIGN started from the observation that regional economies are intertwined on a European scale. CORRIDESIGN examined whether, to what extent, and in what ways this process towards a network society is spatially linked with the development of cross-border megacorridors, or bundles of infrastructures between the large urban regions in North West Europe. This emphasis on the possible development of cross-border megacorridors implied a focus of CORRIDESIGN on transnationality. Important questions in CORRIDESIGN included: which types of corridor development should be stimulated, slowed down, or dismantled? Where should corridors be developed, and why there? Should the growing spatial coherence within megacorridors be followed by institutional coherence? If so, which public or private parties should be involved?

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CORRIDESIGN started in early 2000 and was finalised in early 2002. The project included 18 'actions' divided into 3 'work packages'. In the first of these work packages for each corridor, relevant public and private key actors and academic experts were interviewed. These interviews aimed at the detection of actors' 'mental maps' and the creation of a network based on common interests. An extensive database has also been set up, containing data on, for example, transport, infrastructure, the economy, and urban development. Finally, literature research was conducted to gain insight into the background of corridor development; a theoretical framework was developed. In the second work package, an analysis was conducted of actual developments with respect to infrastructure, economic and urban development, and policy per megacorridor. This phase was referred to as the 'field studies', involving among other things workshops for each corridor. In the third work package, attention shifted to developing building blocks for future policies, those addressed being stakeholders at regional, national, cross-border, and transnational levels of decision-making. As part of this third work package, studies were conducted of the future spatial organisation of each megacorridor. Again, workshops were organised for each megacorridor. Building blocks were also defined for European spatial policy. Policy and decision makers within the NWE are expected to be the first to benefit from the results of the CORRIDESIGN project. In addition, the outcomes may provide an important impetus to the academic debate on transnational corridors, in particular those in North West Europe, which is still in an initial stage.

1.3 The structure of the book

This book cuts across the various work packages of the CORRIDESIGN project. The writing of this book ran parallel with the preparation of a special issue of the Journal of Transport Geography containing contributions from various members of the CORRIDESIGN consortium team concentrating largely on individual megacorridors (Priemus & Zonneveld, 2003; Chapman *et al.*, 2003; Schönharting *et al.*, 2003; Romein *et al.*, 2003; Albrechts & Coppens, 2003). It is here that empirical findings of the CORRIDESIGN project can be found. The emphasis in this book lies on the theoretical level.

The structure of the book is as follows. Chapter 2 sets out the background of corridor development with regard to the concentration and interlacing of networks. Attention is also paid to the various interpretations of the corridor concept. Different spatial dimensions of corridor development are identified: transport and infrastructure, economic development, and urbanisation. These spatial dimensions are elaborated in the next three chapters. Chapter 3 discusses the corridor in terms of physical infrastructure networks. The trans-

port modalities most relevant to the megacorridor are also considered, as each has different implications for the structure and development of the corridor. Chapter 4 concentrates on the relationship between infrastructure, transport, and economic development. Attention is paid to the exchange points of transport flows and the ways in which these constitute the focal point for economic development. A brief review is also presented of former research on the relationship between infrastructure and economic growth and its implications for the megacorridor. Chapter 5 focuses on the corridor as an urbanisation axis. Major spatial trends in urbanisation are discussed with respect to the development of corridors. The relationship between spatial patterns of urbanisation and the role of transport and infrastructure are also discussed. Finally, these issues are related to their technological, economic, demographic, and socio-cultural contexts. Chapter 6 presents an analysis of the various ways in which stakeholders within the CORRIDESIGN megacorridors look at the concept of the megacorridors in general terms and at the various spatial and governance issues relevant for 'their' megacorridor. Based on the preceding chapters, but also integrating the overall results of the CORRIDESIGN project, in Chapter 7 building blocks for an improved governance of megacorridor issues are proposed. This chapter embodies the main policy lessons of the CORRIDESIGN project. The chapter gives consideration to the institutional context in which megacorridor development takes place. An attempt is made to bridge the gap between spatial development as the result of the decision making of individual actors and the ambition to influence spatial development in the public interest. The idea of 'framing' and the concept of policy networks are elaborated. In Chapter 8 some final conclusions are put forward, mostly on the added value of the concept of the megacorridor in discussions on spatial planning policy.

1.4 Acknowledgements

Previous versions of the various chapters have been discussed at CORRIDESIGN consortium meetings. Members of the CORRIDESIGN consortium teams have also given some written reactions. In addition, the fruits were harvested of the EURBANET project that was executed simultaneously with the CORRIDESIGN project and that was also, like CORRIDESIGN, co-funded by the European Community through the INTERREG IIC programme for the North West Metropolitan Area (NWMA). Wil Zonneveld's contribution is part of the NWO-ESR programme 'Spatial Developments and Policies in Polynuclear Urban Configurations in North West Europe', which was financed by NWO, BNG (Dutch Municipalities Bank) and the municipalities of Amsterdam, Rotterdam, The Hague, and Utrecht.

2 Dimensions of the megacorridor concept

Jan Jacob Trip & Wil Zonneveld

2.1 Introduction

At the European level, the use of the megacorridor concept is clearly advocated in various fields of policy, as we have seen in the introduction. We have also indicated the resistance to the concept coming, in particular, from the domain of spatial planning. This resistance may seem at odds with the generally favourable picture we have given of the megacorridor concept so far. This chapter clarifies the apparent confusion concerning the concept by drawing a distinction between the various dimensions that can be attributed to the megacorridor and megacorridor development. We first explore the important notion of scale dynamics in infrastructure development (Section 2.2). We then discuss the various dimensions of megacorridor development (Section 2.3) and round the chapter off with some conclusions (Section 2.4). Various interpretations of the concept are therefore dealt with in this chapter. The background of corridor development is described with respect to the scaling-up and interlacing of networks of different orders and kinds. Various interpretations of the corridor are contrasted and compared. The main elements of corridor development are identified; these are elaborated more extensively in the following chapters.

2.2 Scale dynamics in infrastructure development

Since the Industrial Revolution, the spatial scale of urban, economic, and transport networks has been increasing. Cities have spread out, as have patterns of transport and economic relationships. The implementation of new or improved transport systems has played a crucial role in this process. At the local level improved transport has led to an increase in the average radius of action of citizens (Hall, 1996; Anas *et al.*, 1998; Filarski, 1999). Before the age of the modernisation of mass transit, there was a practical restriction to the size of a city. This situation changed with the appearance of cheaper and faster public transport, such as the horse tram and the streetcar. As early as 1900, streetcar suburbs stretched out from the old city centres leading to a first wave of suburbanisation, but in a rather distinct pattern based on the linear characteristics of the early means of mass transport, combined with the nodal patterns of stops. At about this time various claims were put forward for decentralised forms of urbanisation based on the characteristics of tramways, such as the concept of the Ciudad Lineal (Linear City) of the Spanish urbanist Soria y Mata discussed in the introduction (see also Dupuy, 1991;

De Herder & Sanders, 1997). Later, the linear urban concept was popular with the Soviet 'disurbanists'. Ginzburg & Barshch designed a 'green city' near Moscow, while Leonidov's Magnitogorsk project of 1930 consisted of a corridor of glass skyscrapers. However, none of these concepts was actually built (Cohen, 1998).

In recent decades, through the massive popularisation of the automobile – which increased the range of mobility of citizens even further – the process of decentralisation has been repeated not only on a much larger scale level, but also in a much more fragmented way (see Chapter 5). Decentralisation has often taken a polycentric rather than a linear form, because of the growth of suburbs and 'new towns'. Daily activity patterns may now cover several tens of kilometres; greatly increased commuter distances are the most significant indicator of this development. Cities grew together to form economic-functional urban networks. Eventually, this development even happened on an international scale. There is a network of mostly medium-sized cities in the densely populated North West European core area running from London via the Dutch Randstad, Flanders, and RheinRuhr to Northern Italy. Outside this zone, urban development is centralised in fewer, larger cities.

Simultaneously with this development of urban and economic networks, a strong internationalisation of production and trade took place. Transport networks expanded, too. The ever more intense interaction, in particular over longer distances, brought about a rapid expansion of road, streetcar, railway, and airway networks. Initially, between the two World Wars, some of these networks, particularly railways and tramlines, acquired extensive and intricate structures. Later, these networks were, for efficiency reasons, concentrated and sometimes cut back to a limited number of main connections. This concentration occurred not only in the railway sector, but also in air transport and ocean shipping. Recently, the bundling of infrastructure has sometimes taken place for environmental and spatial planning reasons (Willems, 2001). Usually, however, concentration is initiated for reasons of economic efficiency, in particular economies of scale. The bundling of infrastructure is often accompanied by a concentration and scaling-up of the nodes in the network. The time order in which these processes take place, and the immediate causes for them, differ according to the type of transport or distribution, but examples may be found virtually everywhere. For efficiency reasons, airline companies have long since adopted the hub-and-spoke system, which enabled the use of larger planes (although at the present time this system is under pressure, thanks to the emergence of the rapidly growing cheap airlines providing direct connections between an expanding network of origins and destinations). High-speed trains have been introduced; they only run on a coarse network between the major population centres, since a high thres-

hold volume of passengers is required to compensate for the high construction and exploitation costs, while the benefits of high speed are only achieved over long distances. For efficiency reasons, ocean ships are becoming ever larger. But because of the required draught and the high costs of unproductive time spent in ports, today's 6,000 TEU container vessels and VLCCs (very large crude carriers) call at only a few European ports. This leads in turn to a concentration of freight flows to and from seaports in the hinterland. The introduction of automatic mail sorting machines in many national mail delivery systems in the last few years has necessitated the scaling-up and concentration of the sorting at only a few locations.

These long-term developments are currently being accompanied and intensified by three main trends (Kleyn & Heijs, 1998): first, the integration of national and regional economies within the European Union; second, the liberalisation of the intra-European traffic of goods, passengers, services, capital, and information; and finally, the rapid technological developments, in particular those with respect to information technology. The latter in particular enables a further large-scale spatial division of labour, not only between cities, but between entire regions, even on an international scale. Many production processes are being fragmented and relocated in different regions, sometimes cutting across traditional institutional borders. Furthermore, because of European integration, the national borders have become less of a hindrance to transport and international trade. Other factors contribute to this, for example the erosion of language obstacles between countries through the rise of English as the lingua franca of the digital era.

Transport, economic, and urban networks have become increasingly interconnected and interdependent as a result of these processes and simultaneously with the increase in scale. Consequently, the fabric of these networks has become ever more complex. It is a hierarchy of networks, a network of networks on different scale levels, in which transport, economic factors, communication, and urbanisation are connected up and in which the relative location and function of each element may differ with the spatial scale that is applied. But how exactly these different kinds of networks are connected, and how networks on different spatial scale levels are connected is still a matter of research and debate. The interdependence between networks is both spatial and functional; it might be regarded in spatial terms as connecting nodes in different networks through their location within the same space, and in functional terms as connecting nodes in different networks through their role in the network. The newly emerging patterns are not yet fully understood. In view of the broadness of the field of research and policy, various disciplines are involved, for example economics, spatial planning, sociology, transportation research, and geography. There is confusion from time to time. It appears

that, for example, many spatial planners are struggling to get a hold on the phenomenon of flows. Traditionally, many of them focus on territoriality rather than on networks. Similarly, public administration is based on territoriality and specialists find it difficult to get a hold on dynamic systems such as transport flows, or even the internet. Furthermore, there appear to be significant differences between various disciplines in the use of terminology. The analytical, political, and administrative context of CORRIDESIGN is therefore complex, leaving room for different interpretations of the corridor concept in general; this is the subject of the following section.

2.3 Dimensions of corridor development

In view of the above, how should we perceive a corridor? Few things with respect to corridors are clear-cut at first sight, so that there are many different interpretations of the concept. Since some type of linear infrastructure constitutes the basis of a corridor – while at the same time being its distinctive element – every definition of a corridor should somehow refer to this backbone. However, that is not to say that every definition should emphasise the importance of infrastructure above everything else. In fact, the opposite is the case. Although the theoretical insight that corridor development or formation includes various elements is generally accepted, in practice a sectoral approach is most common. Even the rather scarce literature that deals specifically with corridor development shows a wide range of interpretations of what actually constitutes a corridor, largely depending on the disciplinary background of the author. In transportation research, a somewhat limited, infrastructural interpretation of the corridor as a bundle of parallel infrastructure of a certain length is not unusual and is often sufficient, although the effects of (new) infrastructure on economic development is also taken into consideration. Geographers generally emphasise the accessibility effects of infrastructure and its effects on regional economic and urban development – focusing in fact on the area near the infrastructure (see Rienstra *et al*., 1998, for example) – while economists tend to focus on the impact of infrastructure investments in economic growth (for an overview see Flyvbjerg, Bruzelius & Rothengatter, 2003, p.65 ff. for example). Different as these approaches may be in focus and point of view, somehow they all share the same elements: infrastructure, interaction, accessibility, and economic growth. They all recognise the relevance of infrastructure, either as an object of research, or as a significant influential factor.

In many countries, spatial planners seem to be struggling with the (potential) implications of infrastructure development. On the one hand, mainly on a larger scale level, infrastructure is often seen as instrumental in bringing

about such spatial development goals as a higher degree of territorial cohesion; examples have been given in the first chapter. On the other hand, however, urban policy on the local and regional level is characterised by a limited engagement with transport issues (although certainly less so than previously was the case). This trend has been encouraged by the nature of many spatial plans that focus on a division of the urban area into functional zones: housing, industry, recreation, and so forth. (Dupuy, 1991; Dietvorst & Hetsen, 1996; Witsen & Zonneveld, 1996; Kleyn & Heijs, 1998; Lawless & Gore, 1999). These divisions are often paralleled by the way in which administrative systems at local, regional, and national level are organised; this arrangement hampers the improvement of policy integration. The corridor approach advocated in the European Spatial Development Perspective is clearly a reaction to this situation, although the ESDP plea for improved connections between policy domains is relevant beyond the domain of corridor discussions.

In view of the wide range of perceptions and definitions of the corridor, we do not pretend to strive for a final definition of the concept. Instead, our objective is to provide a conceptualisation of the process of corridor development that can be operationalised. At present there is no single acknowledged interpretation of what constitutes a corridor, let alone an unambiguous definition; in fact, every definition depends on the point of view of the observer. Nonetheless, three elements of corridor development are generally accepted. Accordingly, a corridor may be defined as: 1) an infrastructure axis; 2) an economic development axis; 3) an urbanisation axis (Priemus, 2000; Priemus & Zonneveld, 2003). In the first interpretation, the corridor is defined in terms of traffic engineering. A corridor in this sense is used, for example, by the Dutch Ministry of Transport, Public Works and Water Management when developing or improving interconnected infrastructure on a particular route. A simultaneous approach to the various modalities within a corridor offers important advantages, such as opportunities for bundling and, with it, a restriction of further criss-cross traffic. In the second interpretation, the corridor as an economic development axis, an explicit relationship is supposed between opportunities for economic development and major traffic axes. This point of view assumes that the spatial results of functional economic activities are strongly determined by the infrastructure network. Considering the corridor as an urbanisation axis, the infrastructure network functions as the basis for the directions of future urbanisation for residential and work activity. This definition is often related to the aim of supporting public transport infrastructure at the local level and the regional level.

Each level of definition exceeds those that precede it, but it also includes them. Thus, the perception of a corridor as an urbanisation axis implies an economic development axis as well as an infrastructure axis. All three inter-

pretations of the corridor concept are, in fact, good examples of what could be referred to as 'implicit theory'. The assumption is that traffic and infrastructure are not only derived from social and economic processes, but to a high degree they also determine these functions. Following this logic, corridors have a considerable impact on spatial developments and spatial patterns. Areas through which large volumes of passenger and freight transport pass are particularly attractive for the location of companies, especially those operating in the realm of distribution and logistics. Eventually, such preferences would lead to urbanisation in places located between present urban centres, starting with some sort of ribbon development, and then giving way to new urban growth poles. It is at this point that spatial policy plays – or will have to play – an important role. Recent discussions in the Netherlands exemplify this; the policy issues at stake are forming an interesting arena for the three most relevant Dutch ministries and the societal interests they represent: 1) the Department of Transport which, almost by nature, is mainly concerned with the capacity of infrastructure networks and a smooth circulation of traffic flows; 2) the Ministry of Economic Affairs, prioritising an abundant supply of space for economic development at attractive locations and embracing the (mega)corridor concept for this reason; 3) the ministry responsible for spatial planning, striving for a neat, orderly, well-contained urbanisation of society, which does not disrupt greenbelts, scenic areas, or nature reserves (and therefore rejects all corridor concepts).

This whole discussion represents a tremendous task for spatial planning: how can it combine the endogenous qualities and characteristics of areas and zones surrounding cities with the transportation functions and potentials of railway stations, airports, and access points to the motorway system? (see Bertolini & Spit, 1998). Again taking the Netherlands as an example: so far, Dutch spatial planning has strived to achieve contained urbanisation and well-defined compact cities. Looking at the spatial distribution of cities, towns and villages, their functional relationships, their growing size and the intertwining of labour and housing markets, and finally the dense network of infrastructure, it seems logical for spatial planning to accept the reality of network cities, urban networks, and corridors, even when the present administrative organisation is not at all equipped to cope with the emerging reality. Nevertheless, the question remains whether the empirically observable spatial phenomenon of corridors can still be denied or ignored. And the question also remains of how the spatial organisation of corridors should be mapped out.

This discussion makes it clear that the corridor concept shows not only a spatial dimension, but also an institutional, fourth dimension. This dimension is mentioned far less frequently than the others. Most legislation and

policy development has a sectoral, or regional focus, according to the established administrative areas. The institutional dimension is seldom related directly to the corridor; typically, the corridor cuts through administrative borders. The situation changes when the corridor itself constitutes the spatial basis for policy or regulation. So far this situation is rare, although there are exceptions. For example, barge transport on the Rhine and the Danube has been authorised in both the Convention of Mannheim (1868) and the Convention of Belgrade (1948). These conventions cover the whole river, but only the river (which may be regarded as a corridor). More recently, the EU introduced the freeway concept in order to encourage legislative and technical harmonisation on major freight transport rail lines. As yet, however, the concept has not been a great success; technical differences between railway systems remain troublesome, for example. A spatial-institutional dimension of the corridor may eventually emerge through interregional or cross-border cooperation.

2.4 Conclusion

In this section we have dealt with the widespread confusion about the relevance of infrastructure development for spatial planning in general and the meaning of the corridor concept in particular. To rationalise the present academic and political discussion, we have introduced three spatial dimensions of the corridor concept and added a fourth: the institutional. This dimension cuts through the three spatial dimensions, since it focuses attention on governance issues. So far the topic of spatial scale has been implicit. It is evident that corridors can take various forms in terms of size or scope. Most corridors could be identified by the primary facility or facilities they include: infrastructure, transportation hubs, industrial sites, urban patterns. The function of these elements may be dependent on the applied scale level. For example, although the three corridors Randstad-Flemish Diamond, Flemish Diamond-Nord/Pas de Calais, and Nord/Pas de Calais to Ile de France were studied separately in CORRIDESIGN, they could equally well be considered as parts of one corridor Randstad-Ile de France. Similarly, the North European Trade Axis (NETA) from Ireland to Berlin, a truly trans-European corridor, could be divided up into a number of bilateral cross-border corridors, or into several regional corridors.[1]

Accordingly, any international corridor could be regarded as being composed of several regional and national corridors. However, such an approach would deny the essence of CORRIDESIGN, which emphasises the cross-border

1 NETA has been a project, like CORRIDESIGN, under the INTERREG IIC initiative.

aspects of corridor development. In CORRIDESIGN, several megacorridors are distinguished. Three criteria may be applied to draw a distinction between corridors and megacorridors. First, the megacorridor is of an international or cross-border nature and forms part of different national institutional frameworks. Second, the megacorridor may be defined as constituting a vital element of an international, cross-border network, covering distances of several hundreds of kilometres. Third, the megacorridor may also be understood as a multimodal corridor in the sense that it does not necessarily imply a truly intermodal network as well as a bundle of parallel infrastructure of several transport modalities.

Most of the megacorridors selected in CORRIDESIGN meet these criteria, although in a few cases one of the first two conditions is not satisfied (see Figure 1.1). The corridors from Nord/Pas de Calais to Ile de France and from London to the West Midlands do not cross national borders, but they are indeed important elements of international, cross-border networks. And the corridors between the Randstad, Flanders, and Nord/Pas de Calais can hardly be said to cover 'several hundreds of kilometres'. This results largely from the fact that they are actually parts of a much larger corridor, as mentioned above. Their interconnection has influenced the development of the individual stretches of corridor, which is the reason why we think the designation of megacorridors is appropriate. This approach has become the convention. The CORRIDESIGN network of seven megacorridors is an important element of the spatial vision for North West Europe developed only a few years ago (NWE Spatial Vision Group, 2000). In the following three chapters the three spatial dimensions are discussed, mainly drawing from existing literature. We then continue with different perceptions of (mega)corridors based on interviews with stakeholders in the various regions, an important part of the CORRIDESIGN project. We conclude with a discussion on the institutional dimension.

3 The corridor as a transport network

Jan Jacob Trip

3.1 Introduction

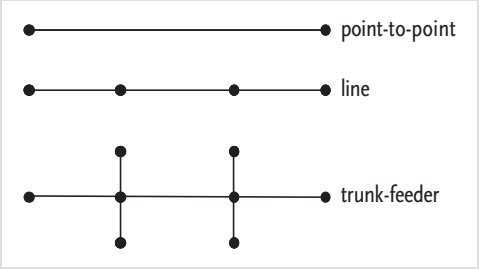
In the previous chapter, the main dimensions of (mega)corridor development were identified. The first and foremost of these was the transport axis. A bundle of linear infrastructure of several modalities constitutes the basis of a megacorridor. Such a bundle has a length of some hundreds of kilometres and crosses national borders. The megacorridor is therefore an important part of the transport network in North West Europe. It is important to stress however that, on a smaller scale, the megacorridor forms a transport network in itself. This is the main subject of this chapter. In Section 3.2, the morphology of the megacorridor in terms of physical infrastructure networks is considered in more detail. However, besides infrastructure, transport services and flows are also important although often underrated. This, together with the issue of different modalities, is the subject of Section 3.3. We round off with some conclusions.

3.2 The corridor as a linear infrastructure axis

Corridors are structured by some type of linear infrastructure network so that, at first sight, most corridors have a more or less identical morphology. Indeed, this linear structure is the corridor's most distinctive element. Nonetheless, when observing corridors in detail, several network types can be distinguished. It appears that there is no generally accepted classification of corridors, while rather confusing terms are used to describe similar networks (cf. De Herder & Sanders, 1997; De Ruijter, 1997; Heerema & Puylaert, 1997). Of the basic network concepts distinguished by Kreutzberger (in: Trip & Kreutzberger, 2002, p.23), three can be regarded as corridors: the begin-end network, the line network, and the more complex trunk-feeder (Figure 3.1). While the first two consist of a straight connection between the ends of a corridor – that is to say, its poles – with or without intermediate nodes, the trunk-feeder network implies a wider corridor that contains different branches within its general linear appearance. Because the corridor is part of a broader network, it is possible that an intermediate node of the corridor is in itself a hub; the corridor would then consist of two of the spokes.

The network types in Figure 3.1 do not represent a static division; they change in time and may transform into one another. For example, starting with a begin-end network, intermediate nodes may develop as a typical case of corridor development. Furthermore, nodes may develop near the line net-

Figure 3.1 Different morphologies of the corridor in terms of network types



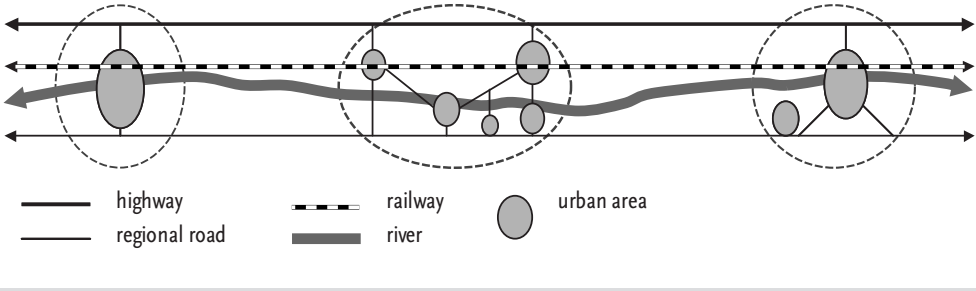
Source: Kreutzberger, in: Trip and Kreutzberger, 2002, p.23

work, with their connections to this network transforming the entire system into a trunk-feeder network. More or less the opposite is the case when nodes nearby are the first to develop and a new node connects these to the corridor.

The transport network is subject to constant changes in which subsystems of an ever-higher quality are developed and added to the system. Generic and specific elements are added alternately (Le Clercq, 1999). Generic elements are added in the shape of new subsystems of major innovations, such as the introduction of the high-speed train and the implementation of the maritime twenty-foot container in inland freight transport. Specific infrastructural elements provide missing links in the network, or increase the capacity of the existing network, such as the construction of the Betuwe (freight) railway in the Randstad-RheinRuhr megacorridor. The latter has the purpose of improving the connection of the port of Rotterdam to its German hinterland. The revival of the 'Iron Rhine' railway in the Flemish Diamond-RheinRuhr corridor serves a similar objective, in this case for the port of Antwerp (Romein & Trip, 2003).

The transport system is characterised by a strong path dependency with respect to both infrastructure and technology (Kloosterman, 1998; Geerlings, 1999). The present development is strongly influenced by former investments reflecting the technical standards, perspectives, and aims prevailing at the moment the investment decision was taken and which may have come to 'dominate by accident', even if better alternatives have been developed later (Batten, 1996; Geerlings, 1999; Mahoney, 2000; Pierson, 2000). This path dependency implies that new infrastructure has to fit into the existing network: new infrastructure is dependent on the former development path, which reflects previous stages in the development of the urban and economic structure. In the case of a specific link, the necessity and location is largely determined by the requirements of the network. For instance, the dominance of conventional railway technology led to the development of high-speed trains that can run on existing railways. This capability now appears to be a great, if not decisive advantage (cf. Vuchic & Casello, 2002) over an entirely new system such as magnetic levitation, or Maglev (known mainly in Europe as the German Transrapid). Another well-known example of path dependency is the Spanish rail network's different track size. At one time, it was chosen for reasons of national defence; today, it is a major hindrance for rail traffic between France and Spain. The European track size was chosen for the Spanish high-speed train, the AVE, making it compatible with the TGV network, but not with the rest of the Spanish network (Vickerman, 1997, p.30).

Figure 3.2 Polynuclear urban concentrations on the corridor may, on a higher scale level, be considered as single line nodes



While the classification of corridors in Figure 3.1 may be appropriate on the regional level, it is somewhat debatable with respect to the megacorridor. As mentioned above, the number and function of the nodes in the network may differ with the scale level applied (Kleyn & Heijs, 1998; Transportation Research Board, 1998). A railway station that is an important regional hub may be a begin or end station for high-speed trains, or a minor intercity station, or of no importance at all beyond the region. An airport that is vital for the local or regional economy may be of relatively low importance when considered on the national level. Rotterdam Airport, for example, has an important regional and to some extent also a national function, but it is not considered an important node on the level of the megacorridors between the Randstad, RheinRuhr, and the Flemish Diamond. Thus, a change in the scale level involved results not only in a different corridor length: nodes on the corridor may also appear or disappear from the mental map, or their function in the network may change. This may cause some difficulties, since the spatial scale level on which a corridor is considered is for a large part 'in the eye of the beholder'. Nevertheless, on a sufficiently high level of scale, each corridor (except the simple begin-end network) could be regarded as a line network: in Figure 3.1 each 'vertical' pair of nodes in the trunk-feeder corridor could be considered to be one single line node. This is illustrated in Figure 3.2, in which the dotted circles indicate large-scale line nodes. These may each, on a lower scale level, consist of different ensembles of urban areas; they even may include local or regional corridors. The Randstad, which is considered a single begin or end node on the level of the megacorridor, consists of several major cities and includes, for example, the regional A4 corridor. Thus, the Randstad resembles the node in the middle of Figure 3.2. London, on the other hand, is more similar to the left node shown. In fact it is even larger, since it is an almost complete physical barrier between the corridor from the West Midlands and the link to the continent (see Chapman *et al.*, 2003).

The reasoning above is certainly applicable to the megacorridor, since this is usually regarded on the highest, international level. Therefore, the megacorridor as a whole may in general be considered as a line network, often referred to in spatial planning documents as a 'string of pearls'. The difference

between the network types illustrated in Figure 3.1 could then be an indicator of the width of the corridor.

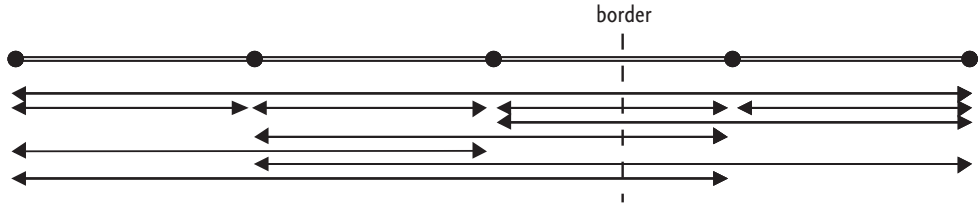
3.3 Transport services, flows, and modalities

A purely infrastructural interpretation of the corridor is not sufficient for an understanding of its assumed versatile potential for economic and spatial development. In this respect, the importance of transport services and flows should be emphasised. The existence of such services is essential for collective transport such as public transport. Rail transport is dependent on fixed routes and transfer points. Thus, bundling is required: separate individuals do not have direct access to the rail network, but have to share a train with fellow passengers. Moreover, local trains and express trains may run on the same track, but their impact on the megacorridor is entirely different. Services are also required for intermodal freight transport while, in contrast, most road transport is individual. In addition, in the case of ICT, the development of networks is driven by both physical infrastructure and services development (Corey, 2000; cf. Shiode, 2000). The need for transport services also implies that a certain threshold volume is required for exploitation. Often, however, this can only be achieved if there *is* a service. This is often a problem in peripheral areas, whether on the regional, national, or European scale.

As Figure 3.3 indicates, transport flows of different length in the corridor overlap like roof tiles. Not indicated in the (schematic) figure are the local and regional flows, which just use a part of the corridor, and which interfere with the national and international flows that are the most relevant with respect to the megacorridor. Furthermore, flows of people and freight, of different volumes, and flows using various modalities should be distinguished. The result is indeed a rather chaotic pattern of transport flows that becomes even more complicated when telecommunication and information flows are included.

In practice, conflicts may occur between long distance flows and local or regional flows, in particular of commuting traffic. Transport flows within the corridor are often a mixture of short and medium distance and long distance transport. This mixture is a main cause of congestion in or near urban areas, in particular with respect to road transport, but also to a certain extent to rail transport, since the railway capacity appears to be inadequate in dense urban regions such as the Randstad and RheinRuhr. This congestion is the reason why in many cases urban regions are a hindrance to long distance transport. In North West Europe, this congestion counts in particular for London, which

Figure 3.3 Transport flows of different length in the corridor overlapping like roof tiles



is effectively a barrier between the Channel southeast of the capital and the rest of the United Kingdom. This barrier is considered a main problem in the Midlands, the North of England, and Scotland.

So far, we have discussed the transport network on a general level. In particular terms, motorways are the most important with respect to the megacorridor. Road transport is the main modality for many business sectors. Furthermore, the road network in North West Europe is rather dense, especially around urban areas. In these areas, motorways have relatively many exits. Highways (and roads in general) are the most important type of infrastructure for structuring the corridor. Virtually all typologies that are applied to corridors are therefore based on the road network. However, while the motorway network is most often used to characterise the megacorridor, in fact the high-speed train could well be the most typical megacorridor modality. In North West Europe, this involves the German ICE (Intercity Express), the French TGV (Train à Grande Vitesse) and variants of the latter, such as the Eurostar between Paris and London, and the Thalys from Paris to Amsterdam and Cologne. Although the network is quite coarse, it broadly corresponds with the network of megacorridors as defined in CORRIDESIGN (see Figure 1.1.) With a few exceptions, exchange points are limited to major cities. For example, the Randstad-Flemish Diamond corridor will eventually include high-speed train stops in Amsterdam, Rotterdam (both within the Randstad), Antwerp, and Brussels, while the Eurostar does not stop at all between Lille and London. The Thalys has fewer stops than the former 'Etoile du Nord'. In fact, most high-speed train connections extend over two or three megacorridors: the Thalys from Amsterdam to Paris, for example, or the Eurostar, running from Paris to London with no intermediate stop. In addition to the physical impact of high-speed trains on the structure of the corridor, and the impact on local and regional economies, the effect of the strong image of this modality on the mental maps people have of areas and places, even in advance, should be recognised.

Air traffic could also be approached from a corridor perspective. Several airports located within the North West European megacorridors are important nodes in the European air transport network: Heathrow, Frankfurt, and Charles de Gaulle are among Europe's most important airports. Furthermore, Schiphol is a major transit airport. Although airports are important for the

structure of the megacorridors, airline networks themselves only partially follow a pattern similar to that of the megacorridors. So the main issue here is how airports relate to the overall infrastructure network within the megacorridor: airports are the only locations where the air transport network 'touches down' on the network of corridors (cf. Graham & Marvin, 2001, p.189). A most interesting development is the competition between air and high-speed rail transport on many routes within North West Europe, in which the high-speed train is highly successful. The HST resembles air transport much more than traditional express trains in many respects: its private rather than public character in terms of management and coordination; its fares and booking system; its expected impact on urban spatial-economic development; its upmarket image; and last but not least, its effect on time-distance experience. However, the success of the HST compared with air transport differs between the megacorridors. The Channel Tunnel has made rail transport between London and Paris or London and Brussels very attractive, but the Amsterdam-London route is still one of the most congested air transport routes in North West Europe. Air and high-speed rail transport may also be complementary, as in the case of the Paris-Brussels route. On this route, Air France has replaced its flights by a TGV service by means of dedicated carriages, fully included in the air transport service and bearing normal Air France flight numbers.

With respect to freight transport systems, road transport patterns reflect the highway network, the importance of which has been stated above. Furthermore, regular train and barge services (shuttles, for example) are relevant for structuring the megacorridor. The importance of barge transport depends on the availability of waterways with a sufficient capacity; thus it is very important for the Randstad-RheinRuhr megacorridor, but less so for the Flemish Diamond-RheinRuhr megacorridor. For cross-border rail transport, a main problem is the lack of technical standardisation, or the harmonisation of rules. Different voltages and safety systems still hamper international rail transport, as we have indicated.

The spatial implications of ICT infrastructure are often not clear (cf. Kotval, 1999). An increase in telecommuting may affect the patterns of residence, but how and to what extent this will happen is uncertain. With respect to the location of economic activities, the spatial structure of data networks does indeed appear to affect the location patterns of ICT-related activities. Although data may seem ubiquitous on the network, sufficient network capacity and broadband access are not (Faulhaber & Hogendorn, 2000). Consequently, leaving possible future technological developments out of consideration, at present the 'physical' structure of data networks should certainly be taken into account in corridor analysis. This is particularly true since

important ICT backbones tend to correspond with the main highway network.

3.4 Conclusion

One of the main issues in this chapter is the role of physical infrastructure in structuring a corridor. This emphasis implies that the corridor is considered in terms of transport networks, which raises questions related to the scale level that is applied. On a sufficiently high scale level, the corridor may be considered a line network. Thus, it consists of linear, continuous infrastructure and spatially separated nodes that are the focal points of urban and economic development. When considered in more detail on a lower scale level, a corridor may appear to be much more heterogeneous, partly a trunk-feeder network, a ladder, a matrix, and so forth. Again, the composition will depend partly on the applied scale level, the involved modality, and the focus and background of the observer: the latter is discussed in Chapter 6.

The duality mentioned above is the cause of much debate on the question whether a corridor should be regarded as a continuous zone or rather as a discontinuous 'string of pearls'. It is in fact both, depending on the focus of the observer and the applied scale level. In general, however, the corridor may be considered linear as far as infrastructures and transport flows are involved, while the 'string of pearls' model prevails where the economic and urban development of the corridor are concerned. Thus, Chapter 4 starts with a further elaboration of the notion of the corridor as a string of nodes along a – basically linear – infrastructure axis, with a discussion of the relationship between the transport dimension of the corridor and the corridor as an economic development axis. In Chapter 5 the corridor is discussed as an axis of urbanisation.

4 The corridor as an axis of economic development

Jan Jacob Trip

La chaussée n'a pas crée les deux villes qu'elle unit; mais les villes ont cherché à se joindre par une chaussée. La chaussée a peut-être crée des haltes ou des auberges le long de son parcours, ou à ces endroits privilégiés que sont les carrefours (Baudez, 1960, p.202).

4.1 Introduction

Understanding the complex relationship between transport infrastructure and economic development is crucial for understanding corridor development, since it is this relationship that defines the function of the corridor as an axis for economic development. In corridor studies, it is often assumed that the bundling of different kinds of infrastructure generates synergetic effects. Thus, a corridor would generate more opportunities for economic and spatial development than separate infrastructural links. Economic development then provides an important basis for urbanisation. Urbanisation patterns, in turn, are an important basis for infrastructure provision.

As an introduction to the issue of transport and economic development, in Section 4.2, a brief review is presented of research on the relationship between infrastructure and economic growth. Economists and geographers from various schools have all studied the subject, with different approaches and different results. In Section 4.3, classical location theory is then discussed insofar as it may be applied to the corridor; subsequently attention is paid to the role of nodes, where transport flows exchange and as starting-points for urban and economic development. In Section 4.4, some implications with respect to the development of megacorridors are discussed. At present much is unknown about the effects of infrastructure development on economic growth, so it is not even certain that the effect will always be positive. Finally, some conclusions are presented.

4.2 Debating the relationship between infrastructure and economic growth

Central to the notion of the corridor as an axis of economic development is the presumed relationship between transport and economic growth. Whether such a relationship actually exists is then an essential question. This section therefore presents a brief review of research on this issue. During the last two decades the possible relationship between transport infrastructure and eco-

nomic development has been much disputed; the issue was almost entirely neglected during the 1960s and early 1970s, in research as well as in policy. In that period public investments in infrastructure decreased from year to year, until in the late 1980s concern began to rise about the decline of productivity in the private sector and the stagnation of economic growth. A renewed awareness grew that public investments could stimulate economic growth. The relationship between the supply of public infrastructure and the amount and productivity of private investments, employment, and output became an international research topic (Immergluck, 1993; Gillen, 1996; Vickerman, 1998). Aschauer (1989; 1990) was a pioneer in this field, although his analysis of the correlation between the decline in US productivity in the 1970s and the declining rates of public capital investment a few years earlier has been somewhat controversial (Munnell, 1992) right up to the present day (Flyvbjerg, *et al*., 2003). Since the publication of Aschauer's work, a considerable amount of research has been conducted on the subject. Nevertheless, the intensity and nature of the relationship between public infrastructure and economic growth are still not fully understood. Even the existence of such a relationship, although intuitively expected, is hard to prove. This elusiveness may be even more the case with respect to corridor development, since most literature on infrastructure provision and economic growth concentrates on the economic development of peripheral regions, while megacorridors connect economic core areas. The quality of the infrastructure and the accessibility in these regions has reached high levels, beyond which new infrastructure in fact ceases to be a critical factor, since its marginal economic contribution is close to zero.

Transportation investments affect a regional economy in several ways. They affect the flows and availability of raw materials, machinery, and labour and thus the costs of production and distribution of regional firms. Investments also affect the costs of goods that a region's population consumes. These effects occur on different spatial scale levels. Changes in the pattern of movements of goods and people within a region may affect the ways in which the components of the regional economy interrelate. Furthermore, a change in a region's economic ties with the outside world affects the regional income (Huddleston & Pangotra, 1990). But would it be possible to explain and quantify these relationships? Research on the relationship between infrastructure and economic growth is hindered by methodological difficulties. First, there is the question of measurability: how should economic growth be measured? Second, which scale level is most relevant to apply in research? Even when a clear-cut research area can be defined, the influence of infrastructure may exceed the borders of the region involved (Rietveld, 1989). Finally, it is often difficult to attribute a certain economic growth to specific infrastructure construction. Any significant impact may be noticed only after several years; in

the meantime, other factors will probably have influenced the regional economy. Furthermore, it is not possible to compare any observed growth rates with an alternative *status quo* scenario. For example, it is not possible to compare the development of a region after the construction of a road with the virtual situation in which that road had not been constructed (De Vet, 1996). In addition, in practice it is hardly possible to draw comparisons with a reference region.

Macro-economists tend to focus on marginal transport costs and possible links between public infrastructure expenditure and private investments. However, within what is referred to as this output approach, macro-economists take different positions with respect to the formal role of infrastructure in a firm's production function. Infrastructure may be a direct input in a production function, similar to capital and labour. More often, however, the benefits of infrastructure are regarded as an indirect effect: infrastructure provision may lead to an increase in the supply of other inputs, because transport costs will be lower and production levels higher. Thus, better infrastructure provision may make other production factors more productive: that is, it increases the rates of return on private capital and labour. Acting as a magnet or catalyst, better infrastructure may even attract inputs from other regions, (Rietveld, 1989; Immergluck, 1993; Gillen, 1996). Therefore, public investments could have a larger positive impact on the rate of return to private capital than equivalent amounts of public consumption expenditure and may thereby be a means of stimulating private investments (Aschauer, 1989; Huddleston & Pangotra, 1990).

The results of the output approach are not completely unambiguous, however. In certain cases a causal relationship has indeed been found between public and private investments. Den Hartog and colleagues (in: Rietveld, 1989) found significant effects after an interval of three to four years. No evidence of a reverse relationship was found. Rietveld (1989) therefore assumes that improving infrastructure leads to a higher productivity of private production factors. In general, however, there is no consensus among macro-economists about the significance of the relationship between public infrastructure and economic growth (Aschauer, 1989; 1990; Munnell, 1992; Immergluck, 1993). As Rietveld (1994) states, production function models often indicate substantial impacts of infrastructure on regional productivity, but this outcome may often be the result of the improper specification of the production function.

Aschauer, one of the initial and most prominent advocates of the output approach, found a very high correlation between (non-military) public investment and economic output. His results were met with considerable scepticism. The main criticisms referred to three aspects (Aschauer, 1989,1990;

Munnell, 1992). First, it was asserted that common trends in economic output and public infrastructure investments would lead to a strong correlation through external factors. This objection seems plausible enough and is not completely countered by Munnell's reply (defending Aschauer) that his results do not indicate a simple year-to-year correlation. Second, the correlation found by Aschauer is fragile. Coefficients are suspect, because of the large differences between results. In a recent review of some research in this field, Bhatta and Drennan (2003) found correlation coefficients between 0.04 and 0.39, too large a range to allow clear conclusions to be drawn. It is true, however, as Munnell states, that almost all the correlation coefficients found were significant. Finally, some critics suggest that the supposed relationship may be the other way round: in wealthy regions there may be more demand for transport, and therefore for infrastructure, and more willingness to pay for it (Vickerman, 1998). Munnell's reply is that this objection is in itself legitimate, but that mutual influence does not change the coefficient of public investments in the production function. However, for a proper scientific understanding, which way round the relationship is would make a major difference. Causality is the key: does infrastructure lead to economic growth, or does economic growth (or wealth) lead to more infrastructure? Research has failed to provide any conclusive evidence concerning the role of public infrastructure in stimulating private capital. There is only a limited amount of evidence on the influence of infrastructure on employment and the location of firms, in particular concerning employment in small firms. It can be said that many macro-economists are sceptical and that the relationship between infrastructure and economic development cannot be proved by the output approach.

Might other approaches be more successful? Geographers and micro-economists in general concentrate on the concept of accessibility, thereby assuming a positive relationship between accessibility and economic growth. It is this assumption that forms the basis of many policy documents, especially on higher scale levels, such as the Spatial Vision for North West Europe, in which the improvement of the (mostly external) accessibility of regions is considered crucial for their international competitive position (NWE Spatial Vision Group, 2000). Accessibility is a characteristic of a location, often defined as *the sum of the distances, or travel times, to a set of destinations* or, alternatively, as *the number of locations that can be reached within a certain distance or time limit*. One could also approach the concept in a more functional way, focusing on the number of different functions within a certain reach (Le Clercq & Langeweg, 1997; Vickerman, 1998; Goeverden & Sanders, 1999). The exact definition of accessibility appears to depend on the specific case and on the point of view of the observer. Although accessibility is usually defined as an absolute quantity, it is in fact plausible to regard the accessibility of a

region as relative, compared with that of competing regions nearby. This notion implies that an absolute improvement of a region's accessibility, for instance by the construction of a road, may well be a decrease of accessibility in relative terms if another region benefits more from this road.

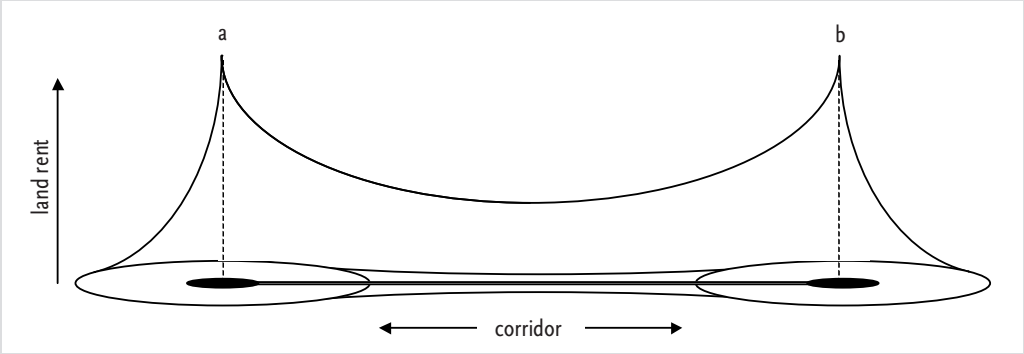
A problem with the concept of accessibility is that not only its definition, but also its significance differs from case to case. Transport costs are only of limited importance for most firms compared with their total production costs (Lawless & Gore, 1999). Firms in different branches may have different accessibility requirements. Consequently, the productivity increase resulting from certain infrastructure investments may differ markedly for different economic sectors. Biehl therefore asserts that the index of sectoral composition of the regional economy says more about regional income per capita than do infrastructure investments (in: Rietveld, 1989). Vickerman (1998) suggests a more eclectic approach that should reflect sectoral needs, local variety in access to networks, and the position of a region within the network (within a corridor, for example).

In short, the effect of accessibility on employment is often difficult to establish. The effect is obviously quite clear for the transport and communication sector itself (see Bruinsma *et al*., 1997). Although a relationship between accessibility and economic growth is plausible, there is no solid evidence for it. Nevertheless, in spite of the controversial results of research on infrastructure and economic growth so far, there is consensus on one aspect: that infrastructure is necessary, but not sufficient for economic development. Thus – in sharp contrast to popular wishful thinking – improvement of infrastructure does not make an autonomous contribution to the stimulation of a region's economic development; a certain economic potential, a certain core of economic activities, is always required (Kloosterman, 1998). The 'structuring effect' of transport, if it exists at all in that form, seems to be an oversimplification. Rather, the effect is a complex reciprocal process (Offner, 1993, p.239; see also Offner, 2000).

4.3 The corridor as a 'string of pearls'

The basis for understanding the possible influence of infrastructure on economic development can be found in the classic agricultural location theory of Von Thünen (1930; Goodall, 1987). In this theory, land value, and therefore rent, is determined by the distance of a site to the central market town (that is, by the accessibility to the market, assuming a homogeneous space). Land rent in turn strongly influences land use: a certain level of land rent makes specific types of land use unprofitable, since its added value would be insuffi-

Figure 4.1 The location theory of Von Thünen applied to a transport corridor between two towns



cient to compensate for the land rent. Or, as Von Thünen himself states: "Der Preis der Milch muß so hoch steigen, daß das Land, was zum Zweck der Milcherzeugung verwandt wird, durch kein anderes Produkt höher genutzt werden kann."

In an adapted form, this theory has also been applied to the more complex situation of two or more central places connected by an infrastructure corridor. This form implies that the environment of the city is no longer considered homogeneous: better market accessibility would lead to lower transport costs in the area near the corridor. This would therefore be a desirable production site and land rents would be higher than outside the corridor area. The 'land rent peak' in the original Von Thünen model now becomes a mountain ridge between two peaks (Figure 4.1). The same principle is part of Christaller's Central Places theory, in which the example of a highway through several central places is elaborated (Haggett, 1983). It should be acknowledged that Von Thünen based his theory on agricultural practice around 1820, while the majority of modern industries can be described as highly footloose, not tied to any specific location by need for materials or market, as had already been 'discovered' by the end of the 1960s (Clark *et al*., 1969). In many cases, transportation costs no longer entail mainly the transport of freight, but rather the movement of people, or the transmission of knowledge, electronically or face-to-face. Nevertheless, the area of greatest attraction for economic activities will in general be the region where, *ceteris paribus*, the interaction costs are least to all possible markets – which does not necessarily mean that distance *per se* is the least.

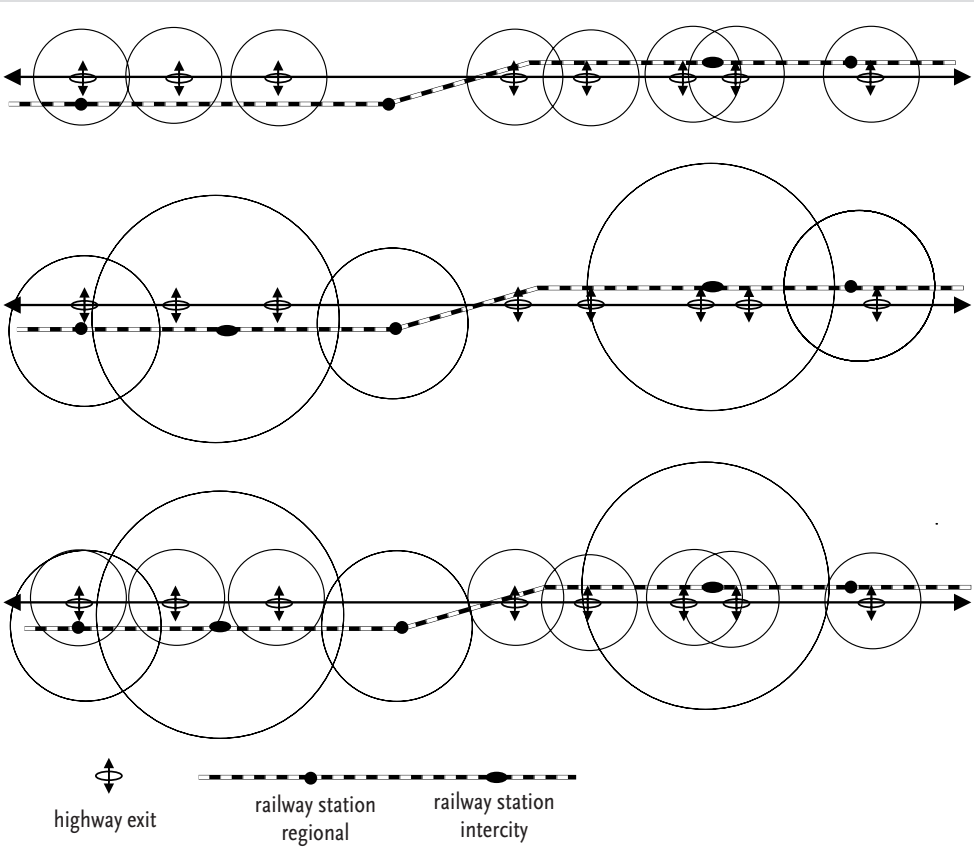
The economic benefits of the corridor for the intermediate zone between the main urban 'poles' are not equally noticeable in all megacorridors. The benefits are obvious in the major parts of the corridors between the Randstad, RheinRuhr and the Flemish Diamond, where cities such as Arnhem, Nijmegen, Breda, and Liège provide a sufficient basis for development. In contrast, in the largely rural area on the German side of the border (Randstad-RheinRuhr corridor), economic development is lagging behind. Similarly, in the megacorridor between the Ile-de-France and Nord/Pas de Calais, the

sparsely populated region of Picardy does not seem to benefit much from the corridor passing through its territory. However, this benefit is again scale-dependent. In the same megacorridor, but on a higher level, Lille is a textbook case of an intermediate location that has benefited from a very specific type of corridor development: the introduction of high-speed trains in the corridors between the Ile-de-France, London, and Brussels that engendered the huge Euralille project. Nevertheless, the effect seems to be somewhat less than was hoped for: it appears to be limited mainly to the city of Lille itself, on a less grand scale than was originally assumed, leading to a trimming down of the original Euralille project.

It seems that, to explain these differences, we ought to take a closer look at the ways in which transport and economic development are related within the corridor, not to define the measure of correlation – the difficulties of this have already been discussed – but rather to consider the more basic question of how the two dimensions of the corridor are related. Imagine a flow of people or freight that just passes through a region. The flow may cause noise, congestion, and pollution, but will generate hardly any beneficial spin-off effects. To take advantage of passing transport flows, it is necessary to interrupt them. People must change trains, park their cars, go shopping or, with respect to freight transport, there must be transhipment of containers, trading, sorting and re-packing of goods, or assembling of parts. Accordingly, the starting points for economic and urban development are those locations where the traffic is disrupted for some reason; in the past numerous cities arose near fords, bridges, (natural) ports, crossroads or (in the Low Countries) dams. This development is a mutual process; economic development and urban growth in turn generate transport flows and accordingly may encourage the building of a railway station, the replacement of a ford by a bridge, a natural port by a quay. The development of the corridor is therefore highly dependent on the points of entry and exit to the infrastructure, where flows exchange between modalities: highway exits, crossroads, railway stations, terminals, ports, and airports. The selection and quality of such exchange points is very important for structuring the corridor; consequently, this selection should be a main point of attention of any policy aimed at either stimulating or preventing corridor development (Van Binsbergen & Kooijman, 1997; Heerema & Puylaert, 1997; Verroen & Ter Brugge, 1997).

When such notions are applied to the corridor types mentioned in Figure 3.1, it seems that a point-to-point connection is of little interest with respect to corridor development. This situation generates the ‘tunnel effect’: a corridor is like a tunnel through an inaccessible area (cf. Graham & Marvin, 2001, p.201). With regard to the megacorridor, high-speed rail links are the predominant example of this effect. It is to a certain extent the case in the megacor-

Figure 4.2 The corridor consist of networks of different modalities. Each of these has its own exchange points and service areas. The schedule is simplified; in reality service areas differ more in size and shape.



ridor between the Ile-de-France and Nord/Pas de Calais, partly as a result of the relatively low population density of this part of France, partly of the structure of the corridor as a bundled motorway and high-speed railway. In effect, this corridor functions as a 'tunnel' through Picardy.

When intermediate nodes evolve, the corridor becomes a line network. Intermediate centres may develop further, based mostly on their own economic potential and the size of their service area or hinterland. Often, smaller centres maintain a strong focus on one of the poles or larger intermediate nodes of the corridor. Similarly, when secondary centres develop near the corridor, feeder lines connect at the intermediate centres, generating the interruption of the transport flows and transhipment of freight or transfer of people. Furthermore, intermediate centres on the trunk line become central nodes themselves, because their service area (indirectly) includes that of the secondary centres. Freight transport generated by various types of firm has different orientations on the corridor; for example, bulk transport by barge rarely exchanges with intermodal transport, or road transport of consumer

durables (one could even say that in fact bulk transport involves different corridors). This separation also applies to passenger transport: with respect to commercial activities, mainly roads are relevant, while housing and government offices, for example, are also oriented towards railways and public transport.

Taking all this into account makes it difficult to speak of *the* megacorridor. In effect, transport flows related to different activities are focused on different groups and, spatially, on different locations even within single nodes. For example, within the Randstad, freight transport corridors concentrate particularly on the port of Rotterdam, while flows generated by financial business and media focus on Amsterdam. Infrastructure networks reflect such differences. Thus, the ICE and the main ICT backbones start from Amsterdam, and the Betuwe railway from Rotterdam. The same applies for instance to Antwerp versus Brussels in the Flemish Diamond.

In short, the corridor may be considered to be composed of 'pearls' of very different size and characteristics, depending on the distance between them and on the modalities involved. Each modality has its own exchange points: railway stations, highway exits, airports. Also, exchange points have different ranges or service areas. Thus, the service area of a high-speed train station is larger than that of a regional railway station, or a highway exit. This is shown in schematic form in Figure 4.2 (cf. Niérat, 1997).

4.4 Concentration, deconcentration, or 'concentrated deconcentration'?

Even if infrastructure does influence economic growth, it is far from certain that its effects are always positive. From a neo-classical perspective, it could be argued that reductions in production costs through infrastructure investments would lead to increased market shares for firms that benefit from the improved accessibility. This in turn would lead to a production increase and thus to an increase in employment and income (Aschauer, 1989; Huddleston & Pangotra, 1990). As a result, demand for imported resources would increase while technology, in turn, would spread to other regions. In this 'model', economic growth leads to a decrease of differences between regions in terms of their economic performance. The implication is, however, that corridor development might affect cities negatively. This situation is similar to the spread effect, a familiar concept in development geography (Myrdal, 1957; Haggett, 1983). Improvements in infrastructure may also increase the economic differences between regions. This, for instance, is the case when a change in accessibility allows firms to serve an area from a more central location, cutting

down the number of regional branches, while at the same time taking advantage of a city's agglomeration economies. Thus, a core area 'absorbs' economic activities and resources from regions. Improving the external accessibility of a region that is underperforming in economic terms leads in this way to the opposite of what regional policy seeks to achieve.

With respect to corridor development, spatial policy has to deal with the dilemma between, on the one hand, the fear that corridor development will be at the cost of the existing cities and may lead to zones of unlimited ribbon development, and, on the other hand, the wish to develop the areas between the main urban regions or, in the case where this is already happening, to guide such a development so as to avoid a ribbon type development. The improvement of infrastructure may not always result in a thriving and balanced development, but may instead take the shape of a 'concentrated deconcentration' in a limited number of larger centres. The replacement of international trains by high-speed trains that have fewer stops could contribute to this trend; similarly, so could the ongoing concentration in freight transport. On the other hand, congestion and diseconomies of scale in core regions, the footlooseness of many economic activities, and the increasing possibilities of ICT could lead to a more balanced corridor development. Nevertheless, it should be noted that the concern is still for a deconcentration within the corridor. Although it might be a cause of deconcentration, at the same time the corridor might have the effect of 'concentrating the deconcentration'.

Regions, like products, seem to have their economic life cycle. Thus, in a certain period they may possess the right competitive advantages to attract specific types of activity. However, with respect to the relative importance of various comparative and competitive advantages, differences between sectors are significant. While accessibility in the traditional 'physical' sense becomes less important as a location factor, specific competitive advantages gain importance, such as the possibility of easy face-to-face contacts, sufficient (electronic) network capacity, broadband accessibility to the network, a certain tradition with respect to the activities involved, or an ambience favourable to innovation and knowledge dissemination (Kloosterman, 1997 and 2001; Kotval, 1999; Faulhaber & Hogendorn, 2000; Storper & Venables, 2002). These advantages may in turn cause a strong territorial path dependency, which is reflected in the sector's location pattern. Since such comparative advantages are found more commonly in cities than in the intermediate corridor zone, a concentration of new, innovative activities develops in larger urban areas, that is, in the poles of the megacorridor. Nonetheless, this path dependency does not apply to all ICT-related activities; in fact, apart from a specific category of small, highly innovative activities, it may be true more for

the financial and legal than for the ICT sector. While banking and law firms are still largely concentrated in downtown areas, many larger software houses tend to locate at business parks along highways, suggesting that the 'death of distance' is more applicable to their products than to their clients and personnel who arrive by car. Thus, accessibility remains relevant as a location factor, not only for 'traditional' activities. Moreover, 'old' activities still constitute an important part of the total economy, especially where the material and spatial effects of economic activity are concerned. Furthermore, the increase in such 'new' activities as e-commerce will have considerable effects on the development of transport, storage, and distribution activities. As the congestion near cities increases, intermediate corridor zones become interesting locations for distribution centres or general industrial parks.

4.5 Conclusion

Of course, the development of a megacorridor does not start as a *tabula rasa*. Its poles will already be major economic and urban core areas and often the transport flows between them are voluminous. The megacorridor will already be a main transport axis, more advanced in infrastructural as well as economic terms than the surrounding areas. Hence, megacorridor development is to a large extent a matter of building on existing foundations.

Economic and geographic research has not provided any conclusive evidence regarding the extent to which economic development is structured by infrastructure provision. Nonetheless, it is clear that a sufficient quality of infrastructure is essential for the economic development of a region, although beyond a certain level improvement of infrastructure seems no longer to be a critical factor. It would seem that this level has been reached in most of the megacorridors discussed here. Nevertheless, the implementation of a new transport system, such as the high-speed train, may have significant effects on the economic (and spatial) development of a corridor.

As far as economic development is concerned, a corridor should be considered as a discontinuous zone of focal points (like 'pearls,' or 'beads' on a necklace) largely corresponding to the exchange points of transport flows rather than as a continuous ribbon of industrial sites. Nonetheless, especially along highways, the exchange points (that is, the exits) may be very near each other and so still appear as a ribbon. This is often the case where a (mega)corridor runs through a large urban area, in particular the areas forming the 'nodes' in the North West European network of megacorridors: the West Midlands, the London region, the Lille region, the Flemish Diamond, the Randstad, and RheinRuhr. The same concentration is more or less true for the

urban development within the corridor, since both economic development and transport exchange points may be considered important (and interrelated) bases of the development of urban patterns. This matter is discussed in Chapter 5.

5 The megacorridor as an urbanisation axis

Arie Romein

5.1 Introduction

An urbanisation axis constitutes one of the ways of looking at a (mega)corridor, as argued in the introductory chapter. In this chapter, the relationships between infrastructure and patterns of urbanisation are explored. At first sight, it might seem plausible to expect that the location and nature of existing linear bundles of infrastructure determine to some extent the spatial patterns of urbanisation. In particular, multimodal nodes within infrastructure systems are places that could be expected to attract urban development. On the other hand, emerging patterns of urbanisation may generate growing flows of goods, or even lead to the construction of additional infrastructure, thereby strengthening corridor development. In this chapter, the exploration of the relationship between infrastructure and urban development starts from this general assumption of interdependency.

For an adequate understanding of urban development within corridor-shaped bundles of infrastructure, Section 5.2 contributes a brief overview of an important process that may 'push' urban functions (mainly residence, employment, and daily services such as retail and personal services) towards such bundles, that is, the spatial dispersion of cities and city regions that have been observed throughout advanced economies for several decades. Section 5.3 is guided by questions on the level of scale and nature of urbanisation, on involved modes of infrastructure and transportation, and on the spatial form of specific infrastructure-related urbanisation patterns. Another basic question that has been explored concerns the relative importance of infrastructure as a determining factor of spatial patterns of urbanisation. This question is dealt with by considering the broader spectrum of processes and factors that determine spatial trends of urbanisation, including technological, economic, demographic, and socio-cultural factors. In the final section (Section 5.4), some of the conclusions drawn are put forward.

The exploration described in this chapter is based on a review of literature on urbanisation. The review has a historical perspective and a wider scope than just the North West European megacorridors. It should be kept in mind that findings are coloured by the variety of political, economic, and socio-cultural contexts of urbanisation. The major distinction drawn in literature is between North American and European cities in general, but on the lower intra-European level important differences between national contexts may also affect the speed, timing, territorial extension, and shape of urban spatial dynamics.

5.2 Urban de-concentration

Cities have shown ongoing processes of geographical extension and spatial scaling-up for more than a century and a half. Through history, an evolution can be observed from small, compact, monocentric settlements, the mid-19th century 'pedestrian cities' (Anas *et al.*, 1998), to urban regions that extend across much larger territories, consist of many suburban centres of distinct types, encompass considerable mixtures of urban densities, and generate increasing mobility flows over increasing distances. In general terms, this evolution can be subdivided into several stages, each with its own dynamics and determinants. The basic distinctions in these historic stages are those that can be drawn between the pre-industrial, the industrial, and the post-industrial (or informational) city (Brotchie, Anderson & McNamara, 1995). Moreover, most urban functions, that is, residence, manufacturing, office-based sectors, retail, wholesale, warehousing, and leisure services, have definitely been the subjects of decentralisation, but each has followed its own locational logic and, hence, its own spatial pattern and timing. Finally, the predominant tendency of decentralisation has always been accompanied by the processes of re-centralisation, or the spatial regrouping of urban functions in new sub-centres. This recent outcome of both processes has been the emergence of polynuclear urban configurations.

The evolution of urban form since the mid-19th century has been guided first and foremost by innovations in transport and communication technologies. During most of the 19th century, the outward spread of urban areas was predominantly bound to the streetcar and railway-based transit systems, as we have discussed above. Both modes of public transport had a radial spatial pattern connecting the city centres with new suburbs and hence created finger-shaped patterns of urban decentralisation. These were, in fact, the earliest examples of corridor development. The suburbs themselves were predominantly residential nodes, 'pearls on a string', within walking distance of the new stops of the transit system corridors. Following residence, economic activities such as retail and personal services soon clustered around the streetcar and local train stations in the suburbs. The rapidly accelerating dissemination of the truck and private car that began in the early 20th century in the USA, accompanied by massive road construction from the 1920s, caused an expanding residential apron by settling the areas between the older finger-shaped 'streetcar' and 'railway' suburbs. Consequently, the string-of-pearls type of regional corridors became blurred. Outside North America, streetcar suburbs also emerged, for example in the surroundings of Amsterdam, but in most cases a few decades later. A similar time lag between North America and Western Europe has been observed with regard to the dominant features of 20th century urban decentralisation, such as massive residential

suburbanisation and the emergence of edge cities (Camagni, 1999; Anas *et al.*, 1998; Hall, 1997; Breheny, 1995; Knox, 1994).

Knox (1994) subdivides the process of urban decentralisation since the beginning of the automobile era in North America in the 1920s into three successive stages: fill-in suburbanisation (1920-1945), suburban sprawl (1945-1973), and post-suburbanisation (1973-present). After three post-war decades of suburbanisation from central city areas, sprawling over ever more areas, the current stage of post-suburbanisation, or *ex*-urbanisation, has even eroded the traditional functional hierarchy and duality between city centre and peripheral suburban places. The outcome of this process is the formation of multinucleated metropolitan systems. According to Hall, "all post-industrial cities are now polycentric, with dispersed patterns of residential locations and multiple centres of employment and services" (Hall, 1997). Reviving the famous concept of Friedmann and Miller (1965), some authors speak of the emergence of 'urban fields' when they refer to the spreading of population, work, services, and recreational facilities over ever increasing areas in such a way that the traditional functional duality between city centre and suburb diminishes (Bontje, 2001; Van der Laan, 1998 and 2000). Within today's complex multinuclear metropolitan systems, suburbs have matured into places with city-like qualities, whereas suburban-like qualities are found in central cities. Hall (1999) saw a new archetypal form in many cities in the late 20th century, with six main elements: a traditional business core, a secondary business core, a tertiary business core or inner 'edge city', an outer 'edge city', outermost 'edge cities', and specialised concentrations of activities. This dispersion spreads out across an even larger territory brought about by the combined effects of advanced telecommunication and high-speed train linkages. The London region is a fine example of formerly separate smaller towns becoming incorporated into the metropolitan system and the development of new urban centres, especially along the (future) Channel Tunnel Rail Link, not to mention developments like the vast 'standalone' Blue Water shopping centre, which in itself could be designated as a new urban pole.

The tendency of the massive suburbanisation of households in post-war Europe since the 1960s is demonstrated by research findings on population redistribution across the continent's metropolitan systems. Most of the studies have arrived at the same conclusions. First, many large urban areas, and in particular their central cores, tended to lose population throughout the two decades following the 1960s. There were signs of recovery in the late 1980s, but the demographic growth rates of the core cities have remained below those of the suburbs and peri-urban commuter zones in the outer parts of the metropolitan systems. This pattern leads to the second shared conclusion of many studies, namely the strong growth of both suburban

nuclei and small and medium-sized urban centres, physically not contiguous and at larger distances from the central metropolitan cores. These small and medium-sized centres include some new settlements, but also some older towns that have been swallowed up by the extending urban systems. The gap in the demographic growth figures for central city cores compared with the outlying centres has narrowed since the late 1980s, but has definitely yet not closed. Moreover, the demographic sprawl of some cities has begun to scale up to a higher spatial level. In his analysis of population de-concentration in the greater southeast of the United Kingdom, Breheny (1995) observed a 'rolling back frontier' of migration from London down the urban hierarchy that radically changes the settlement structure in the entire southeast of the United Kingdom. An example of a similar tendency is the net out-migration from the cities of the Dutch polynuclear Randstad region that is being countered by a demographic growth of medium-sized and small cities located to the east and south of the Randstad. Intermingled with open rural zones, these towns and cities are part of the crescent-shaped Central Netherlands Urban Ring, stretching out over the eastern part of the province of Utrecht and the provinces of Gelderland and North Brabant (Priemus, 1998). The demographic growth of the cities and towns in these zones located to the east, southeast and south of the Randstad has been accompanied by economic growth through the relocations, or new start-ups of businesses. In fact, this demographic and economic growth is linked to the bundles of infrastructure running from the Randstad to the Flemish Diamond and RheinRuhr, leading to a pattern that, according to some observers (VROMRaad, 1999), could be referred to in terms of 'transnational eurocorridors'.

As the above Dutch example illustrates, many suburban places have become important locations of employment in addition to their initial residential functions. 'Following the employees' has been a motive for a considerable share of the activities that moved to these suburban locations. In several contexts, such suburban centres now offer more jobs than central cities, if not individually, then at least collectively (Cervero, 1995 (US cities); Brotchie, Batty, Blakely *et al.*, 1995 (Melbourne, Australia); Spencer & Frost, 1995 (three large UK cities)). The largest and most specialised of these suburban centres harbour high-level activities in advanced producer services and high-tech manufacturing. Some even compete directly with downtown areas on such highly specialised services as mortgage banking, management consultancy, luxury hotels, and headquarters of advanced information-based service companies. Associated with the stronger impact of the private car, such 'edge cities' are predominantly a North American phenomenon, although 'edge cities European style' may also be observed (Harts *et al.*, 1999). The famous study by Garreau (1991) shows that many edge cities in North America are bound to the road infrastructure. Some are even more widely known by their

road numbers than by their official name (if any), for example "287 & 78" in the New York Area, located at the crossing of these two highways in the state of New Jersey. The entire map of both existing and emerging edge cities in the New York Area shows corridors like 'strings of pearls', stretching out into not only New Jersey, but also Long Island, Pennsylvania, and Connecticut. In general, improvement of the accessibility by road compared with inner city locations is a second important motive for many activities to move to suburban locations. Ample space for parking, moderate land prices, high-amenity and environmentally attractive residential environments, rapidly improving technology for electronic data and information transfer, and the agglomeration economies of enterprise clustering are the main motives.

This picture of what can be massive urban de-concentration raises the question of the fate of inner-city areas. Many studies have charted the decline of these areas and have linked it to the migration of the more affluent population and the transfer of jobs to suburban locations. True as this may be in many cases, Knox (1994) asserts that the image of the US city as a 'doughnut city' is frequently a parody. Inner city areas, in particular their Central Business Districts (CBDs), may have become less dominant, but they have also become more specialised: they still remain the favourite locations of specialised retail outlets, company headquarters, and office-based producer services that depend heavily on information exchange by face-to-face contacts. In spite of the increased locational freedom of firms made possible by the ICT revolution, strategic activities in high-order advanced business services that involve frequent face-to-face contacts tend to concentrate in traditional central city areas, in particular in the biggest and most specialised centres such as the inner parts of London.

On the level of the emerging polynuclear urban systems, the continuing spread of people and jobs over suburban places and along infrastructure axes has diminished the traditional 'up the gradient' type of mobility for commuting, shopping, and so forth from suburbs to city centres. Instead, the volumes of criss-cross patterns of mobility both within and between suburban centres have been increasing. These emerging patterns of criss-cross mobility can only be partly served by the traditional, inner-city oriented, mass transit systems and travellers therefore depend predominantly on the private car. In addition to the growing criss-cross nature of mobility patterns, the spatial scope of mobility is increasing, leading to an overlapping and integration of former clearly distinguishable functional urban areas. The Ruhr area is a clear example; so are the two 'wings' of the Dutch Randstad (Van der Laan, 1998; VROM *et al.*, 1999).

5.3 Infrastructure and urban development patterns: an exploration

This section centres attention more explicitly on the relationships of the urban de-concentration tendency that is taking place in most advanced urban economies with the development of linear corridor-shaped infrastructure and transport systems. As to the relationship of changes in urban form and infrastructure and transportation in general, many scholars agree with the observation by Knox (1994) that improvements in infrastructure and innovations in transportation technologies have been the single most important determinant of urban form and land use across the phases of urban development. The main reason is that infrastructure and transportation systems control the density and lateral expansion of urban areas. In the subsequent eras of streetcar and rail-bound transit systems, the territorial extension of urban developments was relatively limited and restricted to the sphere of influence of these modes of transport. Urban development was concentrated in nodes within walking distance from stations. The invention of the internal combustion engine and the consequent introduction and large-scale dissemination of private trucks and cars facilitated the filling-in of spaces between the 'rail-fingers' and the expansion of cities over wider areas. It is self-evident that the massive road construction that started in North America in the 1920s and in Europe in the 1950s played its own part in this development. Many authors stress that it is the automobile that has brought about, or has at least made possible, the deconcentration of metropolises over ever wider areas. On the scale of such metropolitan regions, a comparison in general terms of the automobile and the public transit system suggests a different impact on spatial patterns of urbanisation. Public transit systems, from the mid-19th century streetcars to the current light rail systems, are more strongly oriented towards city centres, and need minimum standards of supporting power, such as residential densities. On the other hand, improved road infrastructure and increased automobile use have facilitated inter-suburb criss-cross mobility patterns and have allowed for lower densities of urban land use and less closely matched deconcentration patterns of residential and working locations.

Hypothetically then, public transit systems tend to be associated with urbanisation patterns within regional corridors that focus on city centres, whereas the private car supports more dispersed patterns of living and working that could hardly be called corridors. The tendency of diminishing shares of commuting by public transport in favour of the shares by private car – many North America cities are almost completely 'car dependent' (Camagni, 1999) – does not make regional corridor bound patterns of suburbanisation very plausible. Nevertheless, authors such as Anas *et al*. (1998), Knox (1994), and

Garreau (1991) have discovered that subcentres are sometimes arrayed in linear corridors, some of these following older established transportation facilities, whereas others follow recently constructed freeways. According to their specialisation, these are labelled retail strip corridors. or high-tech corridors, and so forth. 'Route 128' near Boston exemplifies this. On a much higher level of scale some metropolitan areas have grown together into a 'megalopolis', as has occurred between Boston and Washington D.C., but it would go too far to say that we are dealing here with a corridor type of urban development.

With respect to the explanatory power of infrastructure and transportation on spatial patterns and processes of urban developments, this appears to have diminished in the current stage of post-suburbanisation compared with the stages in the 19th and most of the 20th century. First, innovations in information and communication technologies (ICT) have to be added to infrastructure and transportation in order to explain these patterns. Some authors even suggest that these new technologies now have perhaps even more impact than innovations in infrastructure and transportation. Knox (1994) goes one step further when he asserts that the changing spatial organisation of some (but not all) activities and the freeing up of consumers and workers from some (again, not all) of the frictions of distance that characterise post-suburbanisation are the combined effects of the constraints of older transportation and circulation technologies and infrastructures and the opportunities of new technologies, particularly telematics. This assertion suggests that ICT developments free people and firms not only from the need to stay in congested cities, but also from the need to leave these cities for transport corridors that may also be congested. Instead, the road is open to more attractive environments. However, matters appear to be more complicated and less unequivocal than this. The relationships between ICT and the spatial dynamics of the various urban functions are a fairly recent theme on the urban research agenda and much is still unknown, let alone documented, as was concluded in Chapter 3. According to Graham and Marvin (1996; see also Graham & Marvin, 2001), this relationship is quite problematic, multifaceted, and far from clear-cut. The only finding that is becoming less disputed is that ICT is not the deathblow to cities. For many strategic economic activities, ICT cannot replace the sort of face-to-face contacts that are most frequently made in central city areas. To this assertion it can be added that high-quality ICT facilities are still unevenly spread over all types of location. The fastest, most reliable, and highest-capacity facilities are available predominantly in cities and in corridors.

In addition to the still far from obvious impact of ICT on urbanisation patterns, it can be concluded that transportation and communication infrastructure and technology have been facilitators rather than direct causes of the

observed speed, timing, form, and territorial extension of urban deconcentration. Transportation and communication technologies are not autonomous forces and their spatial impacts are determined, or filtered, by the economic, social, and political context. Currently, this context is heavily affected by the transition from the industrial to the informational economy and from the modern to the post-modern society. Wegener (1995) puts forward the idea that the private automobile made possible the expansion of cities over a wider area, but that it is not the direct cause of this expansion. In his words, suburbanisation is a consequence of the same changes in socio-economic contexts and lifestyles that were responsible for the growth of private car ownership. Often mentioned in this respect are increasing incomes, the growing labour participation of women, smaller average household size, the increasing diversity of lifestyle groups, more leisure time, and changes in the residential preferences of households.

In general terms, the suburbanisation waves have been pushed along by a mixture of push and pull factors. Push factors include the declining quality of life in urban areas because of congestion and criminality and the lack of appropriate, but affordable housing. These factors have persuaded many people to move to non-urban residential *milieus* in spite of longer commuting distances. The qualities of these non-urban natural environments also represent pull factors. Increasing affluence has brought such desired residential environments within the financial reach of more and more households. A recent study in the Netherlands (WRR, 1998; NSCGP, 1999) concludes that the preference for larger houses in green and less densely inhabited zones is being shared by many households, in spite of the larger diversity of lifestyle groups and household types. As to the deconcentration of economic activities, improved transportation and new communication technologies have brought more accessible suburban locations within the reach of firms. But, as stated in Section 5.2, less traffic congestion and better accessibility are not usually the only motives for relocation. Lower office rents and land prices, higher amenity levels, better access to a suburbanised labour force (very important for women with children who prefer part-time jobs) and ample parking space can all be added to the motive of accessibility. Hence, even if the suburbanisation of residence and the deconcentration of economic activities favour corridor locations, which is not always the case with respect to the congestion in such zones, the presence of infrastructure and transportation is not the only directly underlying reason.

The emphasis of the CORRIDESIGN project on long distance corridors leads us to the subject of spatial scale. Many studies stress that urban deconcentration involves continuously increasing territorial extension, although most of them deal with the regional level of one metropolitan entity or 'daily urban

system'. Moreover, only a few studies quantify the process of urban deconcentration. An exception is the general impression given by Fishman when he coined the term 'New Cities' for those sprawling urban regions in which the basic unit is the growth corridor that stretches for 75 to 150 kilometres (Batten, 1995). The strings of pearls (edge cities) in the New York Area described by Garreau (1991) fit more or less within this range. The city that is often mentioned as the most extreme case of urban sprawl in the western world, Los Angeles, has developed patterns of continuous stretches up to Fishman's upper limit of 150 kilometres from its inner city centre (Hall, 1997). Another major city, London, recruits a considerable number of commuters to its downtown employment centre from a labour catchment area with a radius of up to 120 kilometres around its inner city. The long-distance commuters are predominantly highly-educated professionals who prefer the quality of life in small towns or semi-rural residential environments to short home-to-work travel times. Although such long distance locations are not necessarily physically contiguous to London (in fact most are not), their current labour-providing role is nevertheless a consequence of metropolitan residential suburbanisation by professional workers. The observation by Hall (1993) that the radius of the commuting area of some cities has extended over even larger distances because of the construction of high-speed train linkages, and trains serving locations at considerably longer distances from metropolitan areas than the automobile, demonstrates that such urbanisation patterns may follow the improvement of line-shaped transport systems. In addition to the increasing extension of the suburbanisation of workers, a second impact of high-speed train linkages on urbanisation is the deconcentration of office locations over increasing distances. London-based offices have relocated to Reading, while the French TGV has facilitated the relocation of offices from Paris to medium-sized cities such as Le Mans (200 km.) and Nantes (400 km.).

Last but not least, it remains to be seen whether, as a connecting axis between major urban centres, the corridor (in particular, the long distance corridor) is a natural spatial course of urban deconcentration. This topic is far from well documented in the literature, in particular in relation to the high transnational level of scale. In Europe, there is a general consensus on the intensifying interactions between metropolitan areas at this high level as a result of globalisation, the liberalisation of markets, and the political unification of the EU. There is also a consensus that these intensifying interactions materialise in thicker and more diversified flows of goods, capital, information, and people. Apart from some general observations that such processes have been accompanied by physical urbanisation taking place in the intermediate areas between these metropolises (CEC, 1996, for example), this matter has rarely been examined carefully. There are some studies that emphasise the rapid growth of populations and economic activities in the physical corri-

dors connecting the Randstad with the Flemish Diamond in Belgium and RheinRuhr in Germany (Bestuurlijke Initiatiefgroep Voorland, 1998; Dieleman & Faludi, 1998; Harts *et al.*, 1999; Priemus, 1998; Verkennis & Groenwegen, 1997), but these are also marred by a lack of detail. The same can be said of the observation that there are indicators that the spatial extension of the RheinRuhr metropolis is going as far as Bielefeld in the North East and Bad Godesberg in the South (CEC, 1996). An interesting point of view has been raised by provincial and city governments located in the south of the Netherlands. In a memorandum (Bestuurlijke Initiatiefgroep Voorland, 1998), they criticise the implicit assumption in much thinking on corridor development that intermediate zones such as that between the Randstad, the Flemish Diamond, and RheinRuhr are empty areas, 'available' to such urbanised regions to develop connecting corridors in their own interests. The metaphor of *hinterland* is turned around: instead of these regions' backyard, the '*Voorland*' ('Foreland') located between these three conurbations is a zone of high and endogenous potentials and qualities that should be developed further from an international perspective that includes these urbanised regions.

5.4 Conclusion

In Chapter 2, it was concluded that most of the contemporary literature on urbanisation and urban planning pays little attention to infrastructure, let alone to the development of megacorridors. The review of literature in this chapter confirms this conclusion. This neglect may be explained by the fact that much urban research is concentrated on the metropolitan 'ends' of possible megacorridors and hardly extends to the intermediate areas. Nevertheless, some observations can be usefully distilled from the review. To start with, there is little doubt that part of the new urban developments outside large cities takes places near the bundles of infrastructure of both transport and digital infrastructure that form the backbone of corridor formation. How large this share is in the new urban developments, compared with other areas outside the cities or the cities themselves, has rarely been investigated. It should be appreciated that such an investigation depends directly on the availability of a clear geographical definition of a corridor. A second observation concerns the nature of the relationship between urbanisation and infrastructure within corridors: what induces, or attracts, what? We still consider the notion of interdependency between these two dimensions hypothesised earlier in this study to be valid, although there are some indications that infrastructure is the more important leading dimension, in particular when megacorridors are concerned. A third observation that can be distilled from this chapter is that the particular spatial pattern of urbanisation depends on the mode of transport involved. On the level of urban regions, suburbanisa-

tion depends chiefly on the private car and therefore rarely takes place within recognisable regional corridors. The 19th century streetcar suburb is an early, but clear example that suburbanisation based on public transit systems takes place within more readily recognisable corridors. This same 19th century type of suburb is also an early example of a fourth observation, that is, the urbanisation within corridors that usually takes the shape of 'pearls on a string'. This observation confirms the assumption at the end of Chapter 4, that the spatial pattern of urban development within corridors should be considered a discontinuous zone of focal points rather than a continuous ribbon of residential neighbourhoods. It is unlikely that uninterrupted ribbons of hundreds of kilometres, such as the Ciudad Lineal proposed by the Spanish urbanist Soria y Mata, will develop in the real world. Where exactly the pearls or nodes would develop and how they would relate to infrastructure, transport systems, and exchange points of transport flows have remained unanswered questions. Finally, new urban developments in corridors are normally spatially separated from cities, although they often form some part of their 'daily urban systems'. In most advanced societies, these systems gradually increase in size as a result of societal processes and increased levels of personal mobility. A high-speed train development often gives a sudden impetus to this process: smaller places at a distance of several hundred kilometres may start to interfere with metropolitan functional markets (labour, housing, retail, and so forth) as soon as such trains connect both locations.

Clearly, the review of literature presented in this chapter raises several questions with regard to the corridor as an axis of urbanisation. One set of research questions that can be posed deals with the dynamics of the spatial pattern of urbanisation within megacorridors: which urban nodes have developed in which places (relative to the locations of connected metropolitan regions and national borders) and at what growth rates? Are these nodes newly emerging urban centres, or did they already exist? And which factors explain these specific spatial patterns? A second set of research questions deals with the policy-driven notion of spatial and environmental quality: do the emerging patterns of urbanisation put severe pressure on green open areas, perhaps on some of high ecological importance? Or do these patterns generate an excessive amount of mobility? A third set of research questions deals with the ways in which urban development relates to the infrastructure and transport systems located in the corridors: does urban development occur at unimodal exchange points and/or at multinodal nodes, and why? Special attention has to be paid to high-speed train development, since this adds a new 'layer' to the systems of infrastructure in North West Europe. A fourth set of research questions addresses the contradictory issue of urban development within corridors versus their metropolitan 'ends': is urban development within a corridor complementary, or detrimental (by draining

off demographic and economic resources) to the development of these metropolitan areas; what is the position of new urban nodes in the corridors within emerging daily urban systems?

6 Perceptions of megacorridors

Dirk Ipenburg

6.1 Introduction

In the course of the CORRIDESIGN project, the research partners conducted over one hundred face-to-face interviews with key actors and stakeholders in the field of spatial planning and transport from both the public and private sectors. In addition to having an important role in building a network of stakeholders, the interviews were set up to gain insight into the ideas and opinions (mental maps) in circulation about megacorridors, especially with regard to the seven megacorridors that connect the main urban regions in North West Europe. This chapter gives an overview of the main findings (for a full account, see Ipenburg, 2000); it draws only occasionally on written sources such as policy documents.

All the research teams used a standard questionnaire with open questions reflecting the explorative character of the survey. The method can best be labelled semi-standardised, so as to leave room to adjust topics and questions to the specific megacorridor and the specific expertise of the respondents. The interviews consisted of two main parts; for each of these, a non-exhaustive list of questions was formulated (see the appendix). One part of the interviews was centred on the present state of the megacorridor and expectations concerning future trends; the other part concentrated on the desired state and relevant (key) policy issues. It should be stressed that this chapter deals with the perceptions of stakeholders and therefore implies visions on (mega)corridors. It is also important to keep in mind that the research approach also anticipated situations in which people were not (yet) thinking in terms of (mega)corridors. The research teams therefore had to discover whether the spokesmen they had labelled as stakeholders in a corridor discourse did indeed think in terms of corridors, that is, in terms of 'linear' linkages between areas and regions.

The seven surveys yielded very interesting results on how key actors perceive and conceptualise spatial developments, both in abstract terms and also where specifically related to megacorridors in North West Europe. Closer consideration of the surveys reveals the striking variation in thinking of the different interviewees. The differences can be related partly to their respective professional and institutional background and partly to their country of origin, a conclusion very much in line with current discourse analysis (see Hajer, 1995, for example). Nevertheless, important similarities can also be discerned, both across borders and between different backgrounds. The following sections provide an overview of both the similarities and the differences,

Figure 6.1 Public-private distribution in the backgrounds of the interviewees

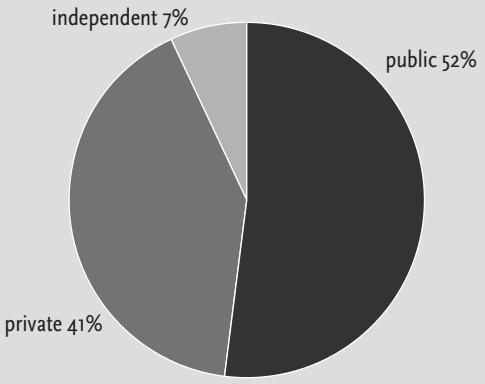
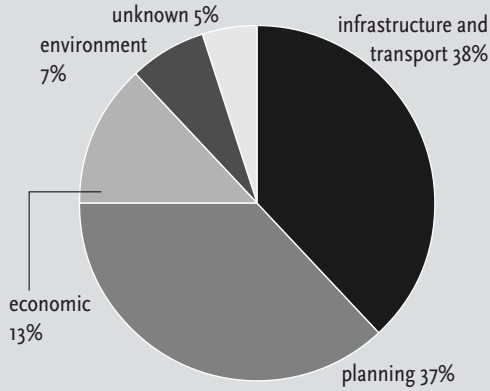


Figure 6.2 Professional backgrounds of the interviewees



although it should be recognised that the richness of the results cannot be fully reflected in the general conclusions; we therefore focus on the main issues related to megacorridors put forward by the interviewees.

Figure 6.1 shows the division between interviewees from the public and private sectors and an additional category: independent, or academic experts. The initial goal to select respondents from different backgrounds in order to cover the broad spectrum of spatial interests (horizontally) and on different levels (vertically) has been broadly achieved. It is clear that there is an appropriate degree of balance between the public and private sectors, although the former is somewhat over-represented. Incidentally, the private sector could also be labelled 'non-public', because it comprises not only businesses, but also such 'hybrid' organisations as seaports and railway companies and non-governmental interest groups such as labour unions and environmental organisations. Additionally, the private group includes (semi)public organisations representing business interests such as chambers of commerce and employers' organisations.

Figure 6.2 shows the professional background of the respondents. It is clear that the infrastructure/transport and spatial planning backgrounds predominate. Economic backgrounds account for a larger part than the 13% depicted in the chart, because of the occasional difficulty of drawing a distinction between 'economic' and 'transport'. Environmental interests are somewhat underrepresented, although this is partly compensated by the fact that planners and locally oriented actors also tended to voice environmental opinions.

6.2 The megacorridor: a disputed concept

In general, there was considerable reluctance on the part of respondents to speak in terms of corridors or megacorridors. For many of them, the corridor concept was not central to their thinking about spatial developments or spatial policy. In the United Kingdom, France, and Germany the interviewees had

no general, let alone a common, understanding; neither was there evidence of a daily use of the concept. In contrast, the corridor was more commonly used in the Netherlands and Belgium in both the political and the wider public debate. Respondents gave varying definitions of megacorridors. While some focused on infrastructure and flows, others also took into account urban and economic aspects. Not surprisingly, infrastructure was commonly cited as the central element of a corridor. Thus, in the London – Nord/Pas de Calais corridor, the Channel Tunnel Rail Link was generally seen as the key element. It was predominantly the people with a background in spatial planning who also included urban and economic dimensions. However, the distinction between infrastructure and planning backgrounds was not always clear-cut.

An important reason for the interviewees to show reluctance regarding the megacorridor concept was the element of linearity. When taken as a line or an axis, so it was argued, megacorridors only catch part of reality; the Belgian situation is a case in point. Linear demarcations of the two megacorridors from the Flemish Diamond to the Randstad and to RheinRuhr are virtually impossible to draw, because land use patterns for housing, business, and infrastructure are evenly spread out. Taking all three dimensions into account leaves one with the entire Flemish region. Indeed, occasionally interviewees gave demarcations as wide as the entire area between the Randstad and the Flemish Diamond and eastward as far as the RheinRuhr. Respondents from the West Midlands and Nord/Pas de Calais also had reservations regarding the linear aspect, but for a different reason. They discerned additional corridors crosscutting, or parallel to, the study corridors of CORRIDESIGN. The UK respondents mentioned the east-west connection from the West Midlands to both Wales/Ireland and to the European mainland. The French survey distinguished additional corridors crosscutting their study corridors: one following the coastline in the north west of France, and a second from Dunkirk in the eastern direction to Lorraine in the northeast of France.

The prefix ‘mega’ gave rise to some debate, since ‘mega’ seemed to imply ‘too big’; similarly, as one UK interviewee pointed out, ‘corridor’ could imply ‘too linear’. The prefix ‘mega’ was also rejected in the United Kingdom corridors on the grounds that the study area in question was not large enough. When discussing the West Midlands – London and London – Nord/Pas de Calais corridors, several interviewees noted that these were not very ‘mega’. One English interviewee – a Kent County planner – even expressed the view that “the expression megacorridor is appalling”.

In short, then, a general lack of enthusiasm was shown by many stakeholders and experts. This indifference was based not only on analytical grounds, such

as those described above, but also on all kinds of negative connotations that arose when speaking in terms of corridors. These negative connotations related to several undesirable phenomena. First, megacorridors are associated with ribbon development. Continuous building along infrastructure for housing and business purposes was rejected unanimously; such a development is not wanted and seems to be a topical issue in many countries, especially in those countries and regions already showing a dispersed pattern of urbanisation such as Flanders and the Netherlands. Second, corridors are associated with infrastructure, and road infrastructure in particular; this is associated with a negative attitude towards car and truck-based mobility, which give rise to environmental and quality of life concerns.

In view of this widely shared uneasiness with the concept as it stood, we asked whether alternative notions should not be put forward. The interviewees displayed a great deal of creativity in presenting alternative terms, often explicitly related to the different negative reactions mentioned above. The negative aspect of linearity led respondents to propose broader, more comprehensive notions such as urban network, matrix, armature, and polycentricity. The negative association of megacorridor with unbridled ribbon development gave rise to the image of 'beads on a string', in which development is spatially concentrated in a limited number of sites (beads). This metaphor was used frequently in all countries, which seems to indicate that it is really a strong concept, capable of shaping mental maps. The third negative aspect mentioned above relates to the alleged narrow focus on the transport function; this could be rectified by using more inclusive terms such as (economic) development axis, urban field, urbanisation axis, and daily urban system.

Given the variations in conceptualisation, it seems realistic to conclude that no single definition of a megacorridor can be used. Diversity is visible in at least three respects. First, there is a great deal of variety between megacorridors and therefore the ideal-typical corridor simply does not exist. Consider for example the Lille – Paris and Randstad – RheinRuhr megacorridors. The former is very much a 'tunnel' through an otherwise largely untouched landscape in the north of France, particularly Picardy. The contrast with the Randstad – RheinRuhr megacorridor is enormous. Given the many exits on highways, people from the transport sector do not even call this a megacorridor, since the long-distance traffic is seriously hindered by local traffic. In contrast with the largely open space in Picardy, the intermediate zone of the Dutch-German corridor is prone to economic and urban development exerting high pressure on nature and the living environment.

Second, within the megacorridors considerable diversity also exists in terms of land use, economic opportunities, and the resulting spatial (economic)

dynamics. A good example is offered by the Randstad – RheinRuhr megacorridor, which shows on-going trends of urbanisation and economic development on the Dutch side, while the German side remains behind in economic terms, but to the benefit of nature and the open landscape.

A third sign of diversity in the surveys is the fact that respondents from different backgrounds perceive one and the same corridor very differently. Representatives from the transport sector not surprisingly favour a narrow and long-distance focus on infrastructure, while planners take into account urbanisation patterns and the danger of landscape fragmentation. In addition, respondents from regions tending to lag behind, such as the Walloon region and Picardy, emphasise the assumed development potential of infrastructure, while interviewees from South East England and the Netherlands are more concerned with the negative side-effects of economic growth. The former see the megacorridor as an instrument for regional economic development, and the latter as a threat to the quality of life. As we see below, not only do different perspectives take into account different dimensions; they also focus on different scales.

Interviewees revealed a wide range of scales in their mental maps, but as a rule their orientation was regional, or even sub-regional. Consequently, little attention was paid to the cross-border aspect of megacorridors, let alone their transnational dimension (respondents in the Flemish, English, and, partly, Dutch surveys, for example). Other respondents focused on local opportunities or local threats related to transnational infrastructure (the English and Dutch surveys, for example). This parochial thinking is all the more striking in view of the increasing European integration and the open economies of RheinRuhr, Flanders, and the Netherlands, for example. These limited mental maps may be related to the overrepresentation of public actors; it is plausible that business actors have a wider view in this respect. The main exception was Nord/Pas de Calais, where the respondents shared a general awareness of the region being placed at an intersection of trans-European relations. An interesting example of their ability to 'think big' was the planned direct freight rail link between Liverpool and Lille, which was seen as a vital link in the transcontinental network combining the United Kingdom via Lille to central Europe. The German survey also stressed the wider extensions from RheinRuhr into the rest of Germany and Central and Eastern Europe.

The local and regional scale was dominant among (urban) planners and also economic actors. In general, transnational mental maps were found predominantly among respondents with an infrastructure and transport background (the seaports and airports, for example), although here, too, sometimes the maps simply 'stopped' at the national border. Some of the planners working

at the national level (in ministries, for example) also had available a transnational mental map. Although the prefix 'mega' clearly alludes to the transnational dimension of megacorridors, respondents generally stress that lower scales also have to be taken into account. In short, multiple scales are relevant: local, regional, national, and transnational.

6.3 Bottlenecks, nodes, and missing links

Several interviewees referred to the problems of infrastructure congestion in many megacorridors between the conurbations of North West Europe. Some put emphasis on the limited capacity of roads and railways, whereas others concentrated more on the demand side, saying that there was an increasing demand for mobility of both goods and persons. Severe congestion on the roads and in public transport also occurs within most of the cities and city regions in our study area. Road congestion provides a good illustration of the conflict between the local and the transnational aspects: in Belgium, the Netherlands, and the United Kingdom local flows (commuters, for example) use the same motorways as transnational flows (freight trucks, for example) leading to severe congestion, especially at peak hours. Solutions are sought in increasing infrastructure capacity, in separating long-distance from short-distance flows, and in promoting a modal shift towards other modalities. Some respondents expressed hesitance concerning the building of new infrastructure; more 'intelligent' solutions such as traffic management, multimodal solutions (see below under multimodality), and reducing the need to travel were preferred.

Airport congestion was mentioned as a serious problem in and around London, Brussels, and Paris. Congestion is not confined to the surroundings of the airports and related to their (poor) accessibility; congestion also occurs in the air above, limiting the airports' capacity and the number of slots available. In the Lille survey, the suggestion was put forward to build a new airport between Brussels and Lille.

In the United Kingdom, the conurbations of London and Birmingham are seen as barriers in the communication between this country and mainland Europe, a viewpoint particularly expressed by respondents outside these urban areas. These urban regions, which are becoming increasingly polycentric, suffer from so much congestion, through-going traffic seeks to avoid these conurbations whenever possible. The West Midlands – London corridor is therefore not the only route to the continent: increasingly, alternative corridors are emerging to the east coast (Harwich and Felixstowe) and the south coast to avoid the London agglomeration. The same tendency to bypass conurbations can be

observed in France: Paris is circumvented via several corridors linking the north of Europe with the Mediterranean area. Respondents are aware that there are more north-south links than just the CORRIDESIGN study corridor consisting of the A1 motorway and the TGV between Lille and Paris.

The intersections of axes of infrastructure are perceived to be key nodes for economic development by respondents in the United Kingdom, France, the Netherlands, and some others (the Brussels representatives, for example, who regarded Brussels as an important European node). Lille was also often mentioned as a city that has managed to benefit from its strategic location at an intersection of infrastructure, most notably involving the high-speed train. These intersections can in principle offer good opportunities for multimodal terminals and for 'value added logistics' when accessibility is assured. Whether other economic sectors would also benefit from these supposed opportunities was not always clear. It was argued, however, that not every intersection could be developed, because multimodal terminals need a certain critical mass to be profitable. The development of nodes should also be limited to avoid 'unhealthy' competition.

Nodes are also seen as important 'instruments' to prevent continuous building along infrastructure; they must become the 'pearls' on the infrastructure 'string' in order to avoid ribbon development. The preservation of open space was a key issue for many interviewees from all countries. There was a general feeling that the existing 'old' urban centres should be regenerated to avoid the further spread of economic and urban development. One English respondent noted the "need to develop models of higher-density compact urban form. This would allow spaces between clusters and spines to remain low-density open countryside."

Urban regeneration is a key issue in many parts of North West Europe. Industrial regions such as RheinRuhr, the Midlands, Northern France, and the Walloon region are all involved in the difficult process of economic restructuring, with varying degrees of success. Many of the cities in these regions face an out-migration of business and population to the benefit of smaller towns, new towns, and corridor locations. In this respect corridors are seen as a threat to the cities. A representative of the Brussels Capital Region notes that Brussels is a node of European importance and it should be stimulated by concentration policy in urban regions to the detriment of development alongside infrastructure axes. In this view, megacorridors are seen as transnational connections between urban regions and not as development axes.

In sum, although infrastructure intersections can offer great opportunities for economic and urban development and intermodal solutions, there is also a

counterforce at work. The attractiveness of a node can lead to serious congestion, particularly when short-distance and long-distance traffic use the same infrastructure. In such cases successful nodes may become victims of their own success. The development of nodes is also important with a view to urban regeneration; these nodes should in this view be concentrated in existing urban centres.

Respondents identified a number of flaws, or missing links, in the infrastructure network. These missing links were usually related to an insufficient capacity of the present infrastructure; at times the links were completely absent. Of course, whether these missing links should be improved is a matter of debate. Environmental concerns are often diametrically opposed to investments to mitigate these missing links. The most important missing links mentioned by respondents included:

- An efficient cargo railway connection between Rotterdam and RheinRuhr. This link is now under construction: the Betuwe railway between Rotterdam and Arnhem. The project went ahead in spite of protests from local and environmental interest groups and from experts who questioned both the financial rationality and the decision-making procedure.
- The cargo rail connection from Antwerp to RheinRuhr, the 'Iron Rhine', should be improved (modernised) considerably; this link was generally favoured on both the Flemish and the German side.
- The A4 Midden-Delfland is the missing stretch of some ten kilometres on the A4 Amsterdam-Antwerp motorway. This stretch of motorway between Rotterdam and Delft was never built because of local and environmental protests. A consortium of private investors is prepared to build this motorway and turn it into a toll road, but to date no approval has been given by the Dutch government.
- In the West Midlands there is a general feeling that a direct HST connection via the Eurostar to the Continent is missing. London is seen as both a physical and a political barrier.
- In the corridor between Flanders and Lille the network of inland waterways is far from optimal; it was said on both sides of the border that this network should be completed – in particular the connection between Seine and Schelde.

6.4 Multimodality

Multimodal transport is very much evident in the Dutch and Flemish debate; respondents from Lille also showed an interest in this issue. In contrast, multimodality was hardly addressed by respondents from the United Kingdom, where it does not seem to be on the agenda. Among Dutch respondents, it

turned out to be fashionable to speak in terms of multimodality, even when they referred to the mere concentration (instead of the combination and inter-linkage) of infrastructure.

There are several reasons why multimodality is generally favoured. First, it can improve efficiency in transport, so that transport costs are lowered and a more efficient use is made of existing infrastructure capacity. This in turn could slow down the need for investments in (new) infrastructure. Second, it is argued that a better inter-linkage between transport modalities by means of advanced communication technologies could increase the fluidity of flows and, in so doing, decrease congestion. Third, multimodal solutions are perceived to be more sustainable: multimodality can help prevent the fragmentation of the open countryside and the breaking up of ecological habitats. This third reason for promoting multimodality was particularly dominant in the Dutch debate, whereas in the United Kingdom the negative side was highlighted, in the sense that close bundles of physical infrastructure are considered environmentally damaging.

Modal shifts towards more sustainable modes of transport were also quite generally favoured. Two modal shifts received particular mention: from freight trucks to barge and train; and from cars to public transport. This means a relative popularity of railways and a certain degree of agreement that investments in rail capacity should be made. Less attention was paid to the (economical) feasibility of modal shifts: for instance, the difficulty of making them profitable and so making transport by rail competitive with transport by truck was sometimes underestimated. These hesitations were raised by the Belgian respondents, but were much less evident in the Dutch debate.

In general, freight trucks were not very popular and were predicted to have a 'bleak future' because of the pollution and nuisance they cause. Trucks are subject to regulatory constraints (apart from tolls) in the countries of Germany, France, Belgium, Switzerland, and Austria. The European Union is also considering imposing speed limiters on trucks.

6.5 Governance and public-private cooperation

There was a general rejection of the idea of a 'Corridor Authority' to deal with 'corridor affairs'. Only informal arrangements and better coordination between existing institutions was called for. Additional institution building was emphatically rejected. Added to this point of view, which is held by many, we can add that a number of rather 'loose' and non-compulsory cross-

border projects are already in place in all the cross-border megacorridors of the CORRIDESIGN project. Within the context of INTERREG IIC the European Commission has supported many cross-border networks already and some of these projects will be continued in the INTERREG IIIB programme period.

The European Union could have an important role in facilitating collaboration and cross-border coordination, as the INTERREG community initiative is already showing. The European Union has recognised the necessity of unhampered transport on the European corridors, for instance in the promotion of common technical standards (especially related to railways) and the harmonisation of regulations and tariffs (on road and rail). At present, trains have to change locomotives at border crossings, because of differences in voltage and technical systems. Some interviewees welcomed the European Spatial Development Perspective (CEC, 1999) including its plea for a eurocorridor approach (see Section 1.1) as a positive contribution to the European debate on spatial planning. Others, however, note that the document is very general and too vague, because it is a political compromise. For example, no corridors are identified in the document. At times there was a fear of over-centralisation and over-regulation by the EU. In any case, the ability of the EU to play a part was put into perspective by some interviewees who pointed out that the EU has no decision-making power in the field of spatial planning. This limitation constitutes a serious constraint on its role, but is also a comfort for those who fear over-centralisation.

Respondents generally favour more intensive relationships between public and private parties. Businesses have available financial resources and a great deal of expertise, both of which can be very useful to the public sector. An example of private involvement is the privatisation of the railways in the United Kingdom, which was generally viewed in negative terms.

Of course, the public–private dichotomy is already blurred; many organisations have elements of both: port authorities, railway companies, and airports, for example. An interesting combination of public and private parties can be found within the Rotterdam Port Authority. This hybrid organisation forms part of the Rotterdam municipality, but enjoys a high and increasing degree of autonomy. Moreover, the Port Authority has recently established a private department in which the relevant public (local and national) authorities remain involved as shareholders. This private branch will be better able to take part in commercial investments involving financial risks and also undertake commercial activities, such as consulting, outside the Rotterdam area proper.

There is a general feeling amongst the interviewees that businesses should be taken very seriously, because they determine to a large extent the course

of spatial developments. For example, the strategic decisions of businesses concerning (re-)location, or just-in-time management have large spatial impacts. The respondent from the port of Rotterdam pointed out another trend, one towards 'postponed manufacturing'. Producers are increasingly unwilling to store goods. Firms are turning increasingly to the strategy of assembling final products as close as possible to consumer markets. The various components are shipped to Rotterdam from many different places and they are put together in, or near to the port before they are transferred to their next, or final destination. The establishment of a Reebok plant in the port of Rotterdam is a good example. In the course of time, ports have been transformed from storage to transhipment nodes. Perhaps in the future the storage function of the old staple market may revive once more. Ports and their vicinity may be the place, and the Reebok example may have more than anecdotal significance.

Until now, investments in infrastructure have been a predominantly public affair. The envisaged private financial involvement in the Betuwe railway between Rotterdam and Germany is marginal, although business interest groups lobbied hard for it for a number of years. At the end of the day, however, businesses often failed to follow up vague assurances with real money. On the other hand, concrete proposals to form a consortium of private investors and a construction company to build the missing link of the A4 motorway between Delft and Rotterdam were rejected by the public authorities. In general, as some interviewees assert, there is considerable reluctance on the part of public authorities to share governance with private parties, which is a key condition for private investors to be prepared to run (or share) financial risks.

In terms of investments in nodes, the picture is also mixed. The Euralille project was generally considered to be a success story, although the alleged benefits do not seem to have trickled down to the rest of this metropolitan area, where economic restructuring remains problematic, with persisting high levels of unemployment. Public-private investment in nodal development and urban regeneration does not proceed without problems. The redevelopment of the area around Kings Cross in London has made little progress over the past ten years, in spite of a Kings Cross Partnership being set up. On the public side, there is fragmentation of powers and responsibilities over the site, which has made the decision-making process very frustrating, according to one representative. This fragmentation deters private investors. The result is a situation in which the blight of some ten years has stopped anything happening. There is very little incentive for anyone to make the first move; investors own a lot of land and real estate, but they are only sitting still, waiting to see what happens, and hoping for a rise in property prices.

6.6 Conclusion

Conceptual vagueness abounds in the emerging debate about megacorridors. Many of the interviewees were not familiar with the concept. Those who did have a notion of it gave a wide range of definitions and subsequent demarcations. While infrastructure planners and interviewees with a transport background saw infrastructure as the most important – if not the only – dimension of a megacorridor, others gave multidimensional definitions, including urban and economic aspects. In the end, however, there was general agreement that infrastructure was the central element, since it justifies the linear shape of the corridor. At the same time, the centrality of infrastructure and transport was the precise reason for environmentalists and local planners to reject the concept altogether.

The concept of beads (or pearls) on a string was mentioned spontaneously in all the countries concerned and it received wide support. This conception of the idea indicates that economic and urban development should be concentrated on a limited number of locations along the infrastructure bundles, while at the same time the open landscape can be maintained and continuous ribbon development avoided. Development should not fill in the open space between existing settlements to produce a Megalopolis-like continual ribbon. The 'beads on a string' concept combines two widely shared goals of spatial planning: economic revival for cities, and the preservation of nature and open landscape. Most people prefer these beads to be existing settlements, since many cities face persistent socio-economic problems and some even a loss of population.

An explicit goal of the survey was to address the cross-border and transnational aspect of megacorridors and spatial planning. However, this element did not come out as a very central issue in most interviews. It is indeed surprising that so few of the interviewees expressed a truly transnational view; apart from the transport respondents, they included some academic experts and representatives from supranational organisations such as the Benelux Economic Union. In other words, the scope of the mental maps of most of the interviewees was national, even regional, and did not cross any national border. Nord/Pas de Calais is the region where the transnational awareness seems to be greatest. In short, then, megacorridors embody multiple scales; the transnational level is relevant, but so are the national, regional, and local levels.

The main problems related to infrastructure are congestion and missing links. Road congestion is particularly severe in and around all the cities and urban regions in North West Europe. Interviewees gave a variety of reasons

for this congestion. To start with, the study area is very densely populated and urbanisation patterns are generally regarded as 'polycentric'; medium-sized and some larger cities are evenly spread over the entire area. The economic growth of the 1990s led to increasing traffic intensity on all transport modalities for both goods and persons. Some respondents pointed to the inefficient use, or management, of the existing infrastructure. One respondent gave the example of the Rhine, which has considerable spare capacity for freight transport, but is not used efficiently, because of the fragmented business structure. In general terms, there is a feeling that local traffic (that is, commuting) is a major hindrance for long-distance traffic (that is, freight trucks). Creating separate lanes with fewer exits, or imposing time restrictions could be instruments capable of separating these two flows.

Related to the congestion issue is the subject of multimodal transport. According to many people, a more efficient use of infrastructure by means of multimodality could decrease congestion, or prevent the need for additional infrastructure investments. Multimodality is generally favoured, although its feasibility is sometimes questioned. A multimodal terminal for freight, for example, would need to have a certain critical mass to be profitable. Multimodal solutions are also seen to be sustainable when they entail a modal shift from road transport to rail or barge.

Better cross-border cooperation is generally favoured to improve connectivity across borders and coordinate policies with a spatial impact. In practice, however, spatial planning is predominantly nationally oriented, as is the orientation of many of the policy actors included in the survey. Institutionally 'weak' networks, such as the cross-border Euroregions, have a regional focus and do not usually deal with transnational issues such as megacorridors. The European Union could be useful for promoting the harmonisation of technical standards, regulations, and tariffs. Although cooperation on the level of the megacorridor is deemed useful, there is a widespread rejection of a genuine 'Megacorridor Authority' with decision-making powers.

Support is quite wide for closer cooperation between public and private parties and for more private investments in infrastructure and the development of nodes. Relationships between public and private parties are already close in a number of organisations, such as airports, railway companies, and port authorities. Large-scale private investments in infrastructure, however, remain relatively rare. There is therefore a general consensus that a lack of governance is one of the most critical issues in megacorridor development, an issue addressed in the following chapter.

7 Governance and megacorridors

Jochem de Vries

7.1 Introduction

This chapter is centred on the institutional context in which corridor development takes place. In the previous chapters the emphasis was on the state of affairs with respect to the spatial development of (mega)corridors. In this chapter, we bridge the gap between spatial development as the result of decision making of individual actors on the one hand and the ambition to influence spatial development in the public interest on the other. The focus is on how the idea of a megacorridor as a spatial concept can contribute to capacity building in the regions between the major urban networks in North West Europe. In Section 7.2, the related issues of framing and spatial concepts are discussed. In Section 7.3, it is argued that spatial concepts as a means of capacity building fit the institutionally fragmented context of megacorridor regions. Section 7.4 elaborates the megacorridor as a spatial concept. We end with some concluding remarks.

7.2 Framing, spatial concepts, and policy network formation

This book separates megacorridor development (analytically) into three constituent parts, or dimensions: infrastructure and flows; nodes of economic development; and zones of urbanisation. In the Netherlands, for example, each of these different elements of corridor development forms the heart of a policy field with a strong spatial dimension. The Ministry of Transport, Public Works and Water Management is responsible for a national traffic and transport plan; the current 2000 Plan pays only a limited amount of attention to the international context of traffic and transport. This Ministry advocates spatial development around nodes of public transport. In the Ministry's view, the rail tracks form the 'string' and the train stations the 'beads'. The Ministry of Economic Affairs is responsible for strengthening the economic structure of the country. This Ministry's point of departure is optimising the use of existing infrastructure, which amounts to opening corridors up for economic development. The Ministry of Housing, Spatial Planning and the Environment is responsible for an integrated spatial policy. While spatial planning (see Williams, 1996 for the origins of this relatively novel Euroenglish concept) claims to provide a balanced framework of different sector claims, it also has its own agenda. Its main planning strategy is indicating the locations for housing development. Principal among the policies of the Spatial Planning Ministry is the concentration of development in cities; corridor development

is often equated with ribbon development, and therefore rejected (Priemus, 2000).

In the Netherlands, there is as yet little agreement on whether the use of the corridor concept is appropriate for describing actual spatial development, let alone desired spatial development. From the interviews conducted in the CORRIDESIGN project, at least one thing is clear, as the preceding chapter shows: in none of the other regions is there a clear consensus about the characteristics of the megacorridor either. Many of the interviewees doubted whether a megacorridor truly exists. The respondents who thought of the megacorridor as a useful concept put forward different interpretations of its content. For some, the concept reflects the avoidable perspective of ribbon development. For others, the concept relates to optimising the use of infrastructure. In other words, whether the megacorridor will become a concept that defines policy measures, and if so in what ways, remains to be seen.

The above shows that a debate on megacorridor development in circles of policy actors is closely related to what can be called the 'framing and naming of policy issues' (see Schön & Rein, 1994; Faludi, 1996). At this stage, policy actors are aware of the fact that the major bundles of infrastructure play an important and specific role in presentday spatial development. Nevertheless, all actors operate for reasons of their own and so put their own emphasis. Framing and naming draws attention to the fact that, by defining policy issues in a particular way, various options and actors are included and excluded. Speaking of the megacorridor in terms of zones of urbanisation, for example, means by definition that flows and infrastructure are considered to be major forces in shaping spatial development. Such a conception also means that policy arrangements on the scale of the megacorridor should involve actors from at least the fields of spatial planning. Speaking of the megacorridor as infrastructure and flows puts emphasis on characteristics such as optimising flows, identifying missing links, multimodality, and operating transport services. In this definition, the relevant actors are those responsible for building, managing, and using infrastructure. Noteworthy in this respect is also that the 'mega' in megacorridor means not only 'large corridors', but also 'cross-border' and hence the involvement of actors from different countries.

The literature on framing acknowledges that getting a certain issue with a particular connotation onto the political agenda is an important and often underestimated dimension of policy processes. These involve actors with different perceptions of reality and different sources of power. This dimension of policy processes appears to be particularly undervalued in transport planning, which is dominated by a technical approach to policy making and infra-

structure planning (Willson, 2001). The verbal struggle between different sectors of Dutch government mentioned above must be seen not only as a debate on concrete policy measures, such as where to build housing estates, but also (and primarily) a debate on the issue which actors are allowed to participate in future decision-making processes. In spatial planning and related fields of government policy, framing is often undertaken through spatial concepts (see Zonneveld, 1998). Spatial concepts provide a simplified impression of an area. This impression is based on factual developments and includes ideas about desired developments as perceived by those who support, or are propagating the spatial concept in question. Its major communicative asset is the fact that a complex web of spatial relations and developments in an area is radically reduced ('simplified') into a single image and a short label. The metaphor often used for a corridor to enhance this communicative quality is a string of pearls, or beads, in which the nodes form the valuable parts and the line infrastructure the functional component.

Spatial concepts contribute to the establishment of an arena for policy development and decision-making. The boundaries of this arena determine the actors who will be involved as well as the scope of the decisions the actors inside the arena can take. The arena consists of a network of actors with shared perspectives. Defined in this way, a concept reflects a basic consensus. It is a second-order activity, which provides a context for the first-order activity of concrete decision-making (Faludi, 1987). Today, this second-order activity of providing a context is often referred to as 'capacity-building' (Healey, 1997). This notion refers to the possibility of creating institutional conditions for collective action. These conditions can be hard, such as legal procedures, but also soft, such as mutual trust, or a common vocabulary among stakeholders. It is the social capital that enables stakeholders to interact in a constructive way. The whole set of structures, procedures, attitudes, and perceptions that are shared by stakeholders can thus be described as "a public good of a second order" (Gualini, 2002, p.38). The (transnational) areas in which megacorridors are located often lack these kinds of second-order public good and therefore encounter great difficulty in the creation of public goods in the traditional meaning, such as cross-border nature parks or cross-border infrastructure.

A spatial concept contributes to capacity building when actors are influenced in such a way that they perceive the relationship with other actors as mutually dependent. That is to say, "actors cannot achieve their objectives without resources which are possessed by other actors" (Klijn & Koppenjan, 1999, p.6). Furthermore, the existence of a shared perspective amongst stakeholders of a certain policy issue, for example in the form of a shared vocabulary, is a precondition for meaningful communication between them.

What does the above mean for the emergence of the megacorridor concept? In the next section we make it clear that the introduction of spatial concepts is an appropriate strategy for capacity building in fragmented institutional contexts, as is the case in megacorridor regions.

7.3 A fragmented institutional context

A lack of self-evident societal consensus is a common feature of the context in which governments currently operate. As a result, there is a need for strategies that create a certain degree of consensus while at the same time leaving room for a diversity of interests to be promoted. For the relationship between stakeholders and a policy issue, this statement implies that actors have to take the interests of others into account and at the same time have the room to exert their discretionary powers. To a certain extent, cooperation is thus combined with rivalry. Drawing on the terminology from the business world, Teisman (2002) defines the relationships as coopetitive: "Companies work together, while at the same time they are competitors."

With respect to the possible use of the megacorridor concept, there are three important interrelated developments, which lead to diverging interests among actors and at the same time create the need to cooperate: internationalisation, liberalisation of the economy, and territorial competition.

7.3.1 The emergence of a network society and multi-level governance

The increase of spatial coherence across borders is driven by technological and institutional developments. Technology has always been a driving force behind the increase of mobility of people and goods. The scale of spatially coherent areas increased from local areas via regions to the nation. The scale of government intervention in spatial development followed suit. In this view internationalisation would, logically, lead to coherent supra-national spaces. As a result, government intervention should also move to the supra-national scale. Reasoning along this line of argument, the megacorridor concept could, if reflecting desired policy aims, eventually form the basis of a supra-national planning policy: a planning policy to which 'lower' tiers of government, by and large, should adhere. This view has to be dismissed, however, because it ignores the specific spatial characteristics of internationalisation. These characteristics can be described as 'scale dynamics' (Kreukels, 1997). Different social practices increasingly have their own spatial scale. As a result, integrating policies on one spatial scale becomes more difficult.

More recently, good currency has been gained by an alternative view of internationalisation, or globalisation (to go into detail about the differences between these two concepts would be beyond the scope of this book; what matters here is that internationalisation and globalisation are not equally relevant for all activities). According to this idea some spatial functions are increasingly part of international, even global, networks of relationships, while at the same time most functions are still only part of local, regional, or national networks. Examples of functions that are rooted in international networks are: international finance and service centres, modern R&D spaces, 'airport cities', and leisure areas such as Disney World (Kunzmann, 1996). While most categories of land use are defined by their function in local or regional spatial networks, land use categories that are part of international spatial networks are increasingly important for the overall quality (wealth) of places. These places, nodes in international networks, are in turn increasingly shaped by international flows of people, goods, and information (Castells, 1996). Among other things, this development can lead to a gradual shift in planning policies. In general, the idea that spatial planning can significantly limit the increase of mobility, or even decrease it, has been gradually replaced by the thought that the overall increase of mobility should be the starting point of spatial planning. The Dutch Scientific Council for Government Policy (NSCGP, 1998), for example, draws the conclusion that, in contrast with what was previously the case, increasing mobility should be the starting point of spatial planning policy, which if accepted would lead to a major change in the Dutch spatial policy with inescapable changes in national administration.

As mentioned above, a core element of this view is that territorially-based government is decreasingly capable of integrating government interventions. At the same time, however, political legitimacy remains based on territorially defined governments. The extent to which citizens identify with the community of a territory is still a key factor for the overall legitimacy of government. It is assumed that there is a tendency towards identification with sub-national territories. In any case, identification with supra-national structures of government, such as the EU, is problematic. As a result, effective and legitimate government has to find ways of addressing issues that clearly supersede its territory and at the same time leave room to exert its power in such a way that it can be considered legitimate. On the one hand, modes of decision-making on a transnational scale, notably the EU, should respect the primacy of national and sub-national governments to decide on land use issues. On the other hand, national and sub-national government institutions cannot do what they like arbitrarily if they want to be regarded as reliable partners in transnational decision-making processes. With respect to the European Union, the idea of a network state has been introduced to describe the relationship between national policy actors and international structures of deci-

sion-making (Castells, 1998, p.330 ff.) Others speak of multi-level governance: "a system of continuous negotiation among nested governments at several territorial tiers – supranational, national, regional and local as a result of the broad process of institutional creation and decisional reallocation that has pulled some previously centralised functions of the state to the supranational level and some down to the local/regional level" (Marks, quoted in John, 2000, p.882).

7.3.2 Liberalisation and territorial competition

A development that makes a strong contribution to internationalisation and globalisation and at the same time directly changes the role of governments is liberalisation, by which is meant the lifting of institutional barriers and the introduction of the market mechanism into sectors that were previously under government control. Most important with respect to megacorridor development is the creation of a level playing field in the European Union, but liberalisation on a world scale also plays a role (GATT and WTO). First of all, the abolishment of institutional barriers to the movement of people and goods has contributed to the increase of spatial coherence across state borders described above. One of the consequences is that there is increasing competition between (territorially based) governments for subsidies and capital investment (Brenner, 1999, p.432). This statement is elaborated below. The second aspect of liberalisation is the substitution of government intervention by the market mechanism. To some extent, this liberalisation is the direct result of European Commission regulations. It is also driven by national government policies: particularly in Western Europe, these governments, for a variety of reasons (budgetary, ideological, efficiency) rely more on the market mechanism for the provision of goods and services than was previously the case. Important changes have taken place in sectors such as rail transport, air transport, and the telecom industry. Investment in the 'infrastructure' of the information economy, for example, is largely a private endeavour.

These developments of internationalisation and liberalisation coincide with what has been described as the emergence of 'competition states'. The yardstick of government success is no longer based on its performance as a welfare state, but is judged according to economic indicators such as the rate of economic growth (Castells, 1996, p.87). For economic success, public decision-making is geared towards creating competitive advantages *vis-à-vis* other states and regions. The creation of a level European playing field leaves fewer opportunities to take fiscal measures to create favourable conditions, as was done in the past. As a result, other policy fields, such as spatial planning, were given the task of contributing to competitive advantages. The Dutch infrastructure policy is a case in point. In the Netherlands, a fixed percentage

of the income from the sale of natural gas has been ringfenced for investments in infrastructure geared at international accessibility (De Jong, 1999, p.126). The result has been "an enormous increase in the investment volume in large-scale infrastructure projects. The Betuwe Line, a traditional railway connection between the port of Rotterdam and the German hinterland, and the High Speed Rail Link from Amsterdam via Schiphol, Rotterdam, and Brussels to Paris will take up a large share of the infrastructure budget in the coming years."

The introduction of the spatial concept of the Flemish Diamond by the Flemish regional government, to give another example, was motivated by the argument that it would increase the international competitiveness of the Flemish region; the underlying idea was that the coherent development of the cities of Brussels, Leuven, Ghent, and Antwerp would create synergy (Albrechts, 2001). In Wallonia the concept of eurocorridors has been embraced (see also the preceding chapter) to frame its spatial economic strategy. As a result, the region will offer many opportunities to enterprises locating along major infrastructure. The neighbouring regions of Brussels and Flanders can only enforce a restrictive policy along infrastructure at the risk of losing investment, so they fear.

7.3.3 Governance of megacorridor regions

What does the above mean with respect to the use of the megacorridor concept? The increasingly-fragmented context of spatial planning leaves less room for classic command-and-control types of planning. New forms of public planning better suited to this context are often discussed under the denominator of governance. The term 'governance' covers a variety of developments. One important element involves the view that attending to (and articulating) the public interest is increasingly a matter of a complex interplay of a variety of actors (public, semi-public, and private). The use of the market mechanism to provide public goods is another element of new governance practices. Furthermore, and partly as a result of the previous characteristics, governance is often 'multilevel'. Policymaking is increasingly a cooperative process in which different tiers of government interact.

In the previous section, the role of spatial concepts was defined as part of a strategy for capacity building within which governance can take shape. The problem definition underlying the megacorridor concept should convince actors that establishing contacts with other actors is useful. This definition cannot be too narrow, because the room to manoeuvre should be controlled as far as possible. A definition that can be interpreted in too many ways however will not be able to keep the number of actors involved down to a work-

able size. On top of that, the different orientations of the actors would lead to a Babel-like confusion.

'Spatial flows' are at the heart of international relationships and increasing international competition. Bringing actors to see themselves as part of a megacorridor actor network in this context can follow (at least) two lines. First, the problem definition underlying the concept could centre on ways of improving the overall competitiveness of the constituent parts of the megacorridor actor network. Measures to optimise the use of infrastructure in a corridor benefits all concerned (Van den Berg & Van Klink, 1995) Second, the megacorridor concept could concentrate on ways of countering the adverse effects of territorial competition. The provision by Wallonia of opportunities for development along major infrastructure provides a good example. For reasons of competition, Flanders could allow the same development to take place, although this would clearly go against the aims of its spatial planning. Some sort of agreement could enable Flanders to follow its own agenda instead of being forced into a policy it does not support. The ability to learn from other experiences can be a third reason for participating actively in a policy network. Regions that are part of megacorridors are likely to experience similar problems, for example, as a result of ever increasing mobility. The ways in which different regions go about bringing together local interests of spatial quality and national interests of accessibility could be such a theme for mutual learning. It is argued below that this theme is central to corridor development.

7.4 Arguments for elaborating the megacorridor concept

It is argued that 'spatial policy issues' increasingly have to be dealt with in an institutionally fragmented context. Developing spatial planning concepts, as a form of capacity building, is a strategy that suits such a context. This section elaborates on the reasons for introducing the megacorridor as a spatial concept. We set out the reasons for improving the linkages between different stakeholders. Subsequently, we discuss the relationship between different tiers of government, between government and non-governmental actors, and between actors from different countries.

As a result of the scale of interventions and the costs involved, infrastructure development is often the responsibility of higher tiers of government (central government, for example). Spatial planning systems emphasise the role of local government authorities. While there are significant differences between countries, it is safe to say that spatial planning systems are more decen-

tralised than the planning of infrastructure. This decentralisation forms the basis of a conflict-ridden relationship that can form the basis of coalition formation between local government authorities on the one hand and national government agencies on the other.

Decision-making in the infrastructure sector is strongly focused on 'hard' technology and does not put great emphasis on 'soft' spatial effects, whereas local governments are geared towards safeguarding spatial quality. Barrier effects and the quality of residential areas are hardly ever used as criteria for infrastructure decision making at the top levels of the government pyramid (De Jong, 1999, p.113). Besides the often very fundamental spatial effects, uncertainty is another burden that local governments have to bear. Decision-making concerning infrastructure is known to be a time-consuming exercise. Decisions to build a train link, for example, may be postponed or revoked, or the exact course may be 'slightly' changed; all such factors have the effect that local spatial plans have to deal with uncertainty.

National government actors will emphasise the national interest. Representatives will define the resistance of local communities to the construction of a road or railway as a Nimby problem. National government actors will assert that, in the (national) public interest, they should have the power to overrule local interests. Hence, the increasing emphasis on infrastructure as part of national and regional economic development strategies has, in many countries and regions, initiated a debate on the length of decision-making procedures. In many cases legislation has been introduced in order to speed up decision making with respect to infrastructure. In the Netherlands, Nimby legislation has been introduced to limit the opportunities for appeal against the building of infrastructure. In Germany, the federal government has introduced similar legislation (De Jong, 1999, p.115). Representatives of local governments by contrast will similarly refer to the (in this case local) public interest, to claim that they need appeal procedures to defend the interests of their population adequately. If appeal opportunities cannot prevent the building of infrastructure, then they must be capable of ensuring that it is built in the least harmful way.

Regions with megacorridors passing through them will have to take particular care in balancing national versus local interests. These are densely populated areas where green areas are already scarce and where at the same time there is great pressure for building infrastructure. On top of the relationship between central and local governments, the increasingly important role of the EU also poses challenges to multi-level governance. The INTERREG-program, the European Spatial Development Perspective (ESDP), the European Spatial Planning Observation Network (ESPON), and various EU sectoral policy

initiatives (transport and environment) all have a disproportionate impact on megacorridor regions.

An increasingly important resource (in comparison with the classical financial and legal resources) can be described as communicative resources. This term refers among other things to the ability to influence public opinion. Actors with a certain amount of authority will have this resource at their disposal. This authority may be based on specific knowledge of a particular domain, or result from a certain actor being granted moral authority by the general public. Greenpeace, for example, is able to influence public opinion and as a result decision-making by responsible authorities. This actor is assumed to be a credible protector of the interests of humanity and supports its arguments by extensive scientific research.

In the debate in the Netherlands on corridor development, at least two coalitions can be distinguished in which government and non-governmental actors form an alliance. One coalition is in favour of corridor development as a means of facilitating economic development. Key actors are the Ministry of Economic Affairs, the Ministry of Transport, Public Works and Water Management, and the Association of Building Contractors (AVBB: Algemeen Verbond Bouwbedrijf). The other coalition is against any form of corridor development, because it is considered to endanger environmental quality. This coalition is constituted – we are speaking here of the situation in 2000/2001 – by the Ministry of Housing, Spatial Planning and the Environment and environmental organisations. When a strong consensus exists about the content of a planning concept, the political support stretches well beyond governmennt. The Randstad-Green Heart concept in the Netherlands and the concept of metropolitan greenbelts in the United Kingdom are examples of ideas around which there has been wide consensus involving many non-governmental agencies. This should be kept in mind in discussing novel planning concepts such as the megacorridor.

An important role in a future megacorridor policy network will be concerned with resolving the differences between actors from different countries. It is generally accepted that cultural differences are a relevant category in analysing the success and failure of cross-border cooperation. De Jong (1999, p.118) gives an account of the ways in which decision-making on the cross border Betuwe railway link was experienced in the Netherlands and Germany respectively. Dutch authorities find it difficult to grasp the minutiae of the federal system. The building of the link involves decisions by federal and state authorities. While German federal authorities have agreed to build the railway link, in 1999 the state authorities of North Rhine-Westphalia had still not agreed on an exact trajectory. According to the Dutch authorities “the

Germans speak with two mouths" (ibid., p.119). The German authorities, on the other hand, have difficulties understanding Dutch consensual politics. In the Dutch culture of decision-making, decisions are gradually shaped, which means that initial decisions are often adapted, or reversed. According to German officials "you cannot trust any decision because the difference between a 'real' decision and a causal remark is difficult to determine." While decision-making on infrastructure within countries is already a complex exercise, international infrastructure projects are often characterised by fierce and protracted negotiations. Establishing a context of good relationships, by improving knowledge about each other's policy cultures for example, could contribute to more efficient negotiations.

That good relationships are especially important with respect to megacorridor development can be illustrated by the building of two major infrastructural works connecting the Randstad and the Flemish Diamond. In the 1970s, the E19 motorway between Antwerp and Breda was built following fierce negotiations between the Belgian and Dutch authorities. The Belgian authorities and inhabitants of the border region felt that they were forced into a deal that optimised results for the Dutch and was not in their interests to an equivalent extent. The Belgian authorities and inhabitants had not forgotten this episode when, in the 1990s, a High Speed Train Link was planned in the same area. The historical baggage interfered seriously with the negotiations between the Belgians and the Dutch on the trajectory of this link. In regions where megacorridors cross frontiers, building good cross-border relationships is of great importance. It is likely that future initiatives to build cross border infrastructure will relatively often be aimed at these cross-border regions in megacorridors.

7.5 Conclusion

The aim of this chapter has been to provide a theoretical background for a further analysis of the institutional context of megacorridors. Spatial concepts have been introduced as a means of capacity building. The introduction of the megacorridor as a spatial concept could contribute to the creation of a network of actors from different levels of government, from different countries, and from inside and outside government. Establishing policy networks in which actors seek cooperation without sacrificing their independence suits the contemporary context in which governments operate. This context has been described as one of internationalisation, liberalisation of the economy, and increasing territorial competition. One of the consequences is that the integration of policies on one spatial scale is becoming more difficult to achieve.

Taking into account the results of the CORRIDESIGN projects, three major challenges to an improved governance of megacorridors can be identified (De Vries & Priemus, 2003). Following Gualini (2002), who singles out knowledge as a resource in capacity building, an improved understanding of megacorridor development has to be built up and the relevant information made available to stakeholders. This challenge can in fact only be taken up by the European Union, for instance through the current ESPON 2006 programme (ESPON: European Spatial Planning Observation Network). The underlying idea here is that exposure to new insights will change stakeholders' frames of reference. This is where spatial policy concepts come into play. By depicting a desired spatial structure of an area, such concepts can coordinate the frames of reference of stakeholders (Faludi, 1996). There is, therefore, much work to be done in developing and discussing spatial concepts, the second challenge for an improved governance of megacorridors. The INTERREG programme could facilitate such discussions. The third challenge is to enhance the quality of network relationships between stakeholders. The European Union could, for instance, require the spatial planning interest in general and local and regional interests in particular to be taken seriously. This recognition could be turned into a condition when applying for financial contributions from the EU in the context of, for instance, the Transeuropean Networks, or the Structure funds.

To conclude this chapter, two general remarks about the improvement of governance in corridors can be made. First of all, corridors as a policy topic should actively involve different government sectors. Second, reflection on corridor development provides a reason for advocating an area-based approach. If we consider the recent past, we have to conclude that most discussions on megacorridor issues have taken place in the context of either the ESDP, the Spatial Vision for North West Europe, or INTERREG programmes on transnational cooperation in general. Many participants in these discussions start with a narrowly defined notion of spatial planning. Consequently, some actors who play a pivotal role in spatial governance affecting megacorridor regions are not considered for the development of transnational and cross-border networks of policy actors. The departments responsible for planning infrastructure are the most obvious absentees. On the other hand, infrastructure and transport policy actors should be prepared to enter into a dialogue with other sectors. A precondition for becoming actively engaged in a communicative process on corridor development is for these actors to be aware of their technocratic legacy and be capable of distancing themselves from it.

An area-based approach that aims to integrate the interests associated with different policy sectors, different countries, and different scales in a specific area may be helpful in overcoming the problems associated with corridors. In

particular, such themes as cross-border open spaces, decision-making on cross-border infrastructure, and quality of life issues suggest the appropriateness of an area-based approach. The concept of 'beads on a string' could contribute to an area-based approach in areas where there is, or will be, strong cross-border cohesion of economic developments. The question of who to involve and the demarcation of the relevant area are key issues here. With respect to the latter, it is evident that the area should, by definition, be cross-border. It should cover parts, possibly the entire intermediary area, of mega-corridors. After all, actors are interdependent around a clear-cut set of issues within these areas. When a demarcation of the area implies too many different stakeholders and issues, the chances of success of an integrative area-based approach diminish.

Those involved in an area-based approach are faced with a complex task. A number of local government authorities, at least one province or region, and several sector departments on both sides of the frontier will be involved. Private parties often have to be brought in. A difficult task is ensuring the active involvement of citizens on both sides of the national border in the decision-making process.

8 Conclusion

Wil Zonneveld

In the course of the last dozen years or so, several spatial concepts have been introduced in discussions on the spatial organisation of the European territory. The fact that this discussion is taking place at all is in itself worthy of mention. Before the 1990s, in terms of spatial development, the international dimension was almost exclusively addressed from a comparative perspective. Making cross-national comparisons was often carried out to arrive at a better understanding of spatial development at a national or regional level. At that time, the idea of a spatial planning discourse at the transnational or European level would have bewildered most spatial planning professionals. But the idea was already being discussed, in the European Parliament for example as early as 1983. This is not the place to discuss the history of the European spatial planning discourse (see Williams, 1996, for example). What is nevertheless important here is the fact that a body of spatial concepts is gradually becoming rooted in academic and political discourse. Spatial concepts in general carry with them a clear danger of becoming general currency even before their content and underlying assumptions have been critically examined. An example is the idea that national and European politics should be directed at a polycentric development of the European territory. This idea had already become embedded in the content of the European Spatial Development Perspective Planning (CEC, 1999) before the likelihood was assessed of such a development taking place, that is, a development resulting in an organisation of the European territory characterised by multiple large-scale urban regions well positioned in the continental and global economic competition. And although definitions of clear targets connected to defined time horizons are becoming general currency in politics, the time frame within which European polycentricity could be reached (10 years, 20 years, 50 years?) is not given.

Obviously, the ambiguity of planning concepts has political reasons. Before the desirability of a polycentric development of the European territory became a political goal, discussions on the spatial-economic development of the territory were threatening to become deadlocked in a centre-periphery antagonism with (representatives from) northern and southern EU Member States having a stranglehold on each other. The distribution of the EU structure funds over the EU countries was the most sensitive issue by far.

Many of the new spatial concepts appearing at the transnational and European level serve two different objectives simultaneously: understanding the actual spatial organisation, including the trends having a major impact; and presenting a vision of the desired characteristics of spatial organisation. The

concept of the euro-, or megacorridor is a good example. The concept's first appearance at the European level in recent times was a report on spatial developments in North West Europe, defined at the time as the Central and Capital City regions, a much smaller area than what is currently understood as NWE, namely the South East of England, the central and southern parts of the Netherlands, Belgium, Luxembourg, and northern France plus the neighbouring *Bundesländer* in Germany, with Bonn still the official German capital. The main point of discussion during the making of the CCC study, in which academics, administrators, and politicians from the various regions participated, was the system of megacorridors. A main assumption was that the fortunes of an area were highly dependent on its location *vis-à-vis* the large European economic development corridors, having important 'heavy' infrastructure (motorways, major railways, and – in some cases – inland waterways) as their backbone. With regard to the fabric of megacorridors running through the CCC area, the agreement reached was that this system was incomplete and had to be extended in order to integrate large areas of Wallonia and northern France into the economy of the CCC area. This logic requires many thresholds to be crossed: megacorridors do exist. A location within a corridor is decisive for the economic development of a region; where no (mega)corridors exist, it falls within the sphere of influence of government politics (with a little help from the private sector) to bring them about. If we accept that discourse analysis – that is, what has been conducted above, albeit in a crude form – is more than mere textual analysis (Richardson & Jensen, 2003) we have to ask who is propagating what, and for what reasons. We have to conclude that there is a considerable amount of geopolitical thinking going on in the debate about megacorridors. Stakeholders, in particular government representatives from regions where economic fortunes look less than promising, have a tendency to identify existing or potential (mega)corridors in such a way that 'their' region falls within them and therefore provides a good point of departure for future (economic) development and inward investments.

This is the sort of reasoning that has become part and parcel of the megacorridor concept. Another dimension of its meaning is the potential impact that infrastructure might have on the location of future urban development. In Germany, for instance, in the spatial planning within Northrhine Westphalia, an important goal in the past has been to preserve a certain hierarchy between urban centres in terms of population size and services. The accepted growth level of urban nodes was made dependent on a location criterion, namely location vis-à-vis major infrastructure. Urban deconcentration and fragmentation that could not be halted has led to the decline of this *Leitbild*. In the Netherlands and Belgium, there have been discussions of a spatial policy to allow the creation of new urban areas outside the already existing

urban nodes based on the location of infrastructure, mainly the system of motorways. Although potentially such an urbanisation pattern would fit within the principle of concentrated deconcentration – 'if deconcentration is indeed inevitable let us find the least damaging patterns in terms of for instance landscape intrusion or levels of car mobility' – such an open discussion hardly took place in the Low Countries. The protagonists of this form of corridor development did not have the confidence of the planning professionals; indeed, some representatives from trade and industry were feeding this lack of trust by pleading for an abundant supply of new industrial sites right next to motorway exits and accusing spatial planning of being a barrier to economic development.

The CORRIDESIGN project was formulated against this background. A principal purpose was to disentangle the academic, professional, and political discussion on (mega)corridors and, building on that, to arrive at 'building blocks' for future policies. The project was put forward in the context of the INTERREG IIC programme for what was then called (end of the 1990s) 'The North West Metropolitan Area'. The CORRIDESIGN project received co-funding from the European Community, together with another project, EURBANET, which concentrated on polynuclear urban regions, some of them located on the intersections of the CORRIDESIGN megacorridors.

The CORRIDESIGN project did not commence with a precise definition of the megacorridor. The megacorridor is a relatively new concept, with fuzziness an unavoidable characteristic. A main part of the disentanglement of the megacorridor concept has been the identification of three spatial dimensions: infrastructure, economic development, and urbanisation. The distinction drawn between these dimensions proved to be quite fruitful in carrying out the project. So what have we discovered on the theoretical level? This book does not report the empirical research undertaken in the seven CORRIDESIGN megacorridors, with the exception of chapter 6, where we have presented stakeholders' views of the megacorridor and megacorridor developments, starting from the assumption that unravelling the concept entails the identification of relevant views 'in the field'.
The most important overall conclusion is that the megacorridor does not have a predominantly linear characteristic on any of the three spatial dimensions. On a sufficiently large scale level, it is appropriate to speak in terms of some bundling of main infrastructure and therefore of linearity. There is some path dependency at work here: the areas where the main routes were located historically are in many cases exactly the same as those areas where enlargement and additions to infrastructural systems, as well as totally new systems (the main glass fibre cables in present ICT networks for instance), will be located. But a more detailed consideration of the large bundles of

transnational and cross-border infrastructure at lower levels of scale reveals all sorts of different types of network. In addition, when seen from a macro-perspective, the large bundles of infrastructure are in some cases becoming wider and starting to overlap each other. This, for instance, is the case with the megacorridors running from the Randstad and the Flemish Diamond in the RheinRuhr direction. In other cases, the existing megacorridor is crossed by new important main traffic axes, the result of new infrastructure built to serve other spatial relations. The West Midlands-London corridor is an example here. Elsewhere, new infrastructure running roughly parallel, to but at a certain distance from an existing megacorridor might gradually turn into a genuine new megacorridor. This is the case in France, where the historic Nord/Pas de Calais-Paris corridor has some sort of parallel structure in the form of the Atlantique motorway. So when we combine theoretical insights with some empirical facts from the CORRIDESIGN project, the network characteristics of infrastructure form a kind of corollary to the megacorridor concept.

Turing our attention to the economic and urbanisation dimensions of the megacorridor concept, we can conclude that, in advanced economies such as those of North West Europe, a direct relationship between infrastructure on the one hand and economic and urban development on the other is unlikely to manifest itself. This is the conclusion we would like to draw on the basis of the main body of literature on this subject, a conclusion supported by the various CORRIDESIGN case studies. That is not to say that there is no interrelationship at lower levels of scale, but at the level of the megacorridor itself the interrelationship is very loose. There is a strong path dependency playing itself out as well with respect to the dimensions of economic and urban development. Those areas with high densities of infrastructural networks and urban and economic development are in most cases the same areas where new developments are taking place. There is a high persistency here. That is not to say that efforts made to bring about change would be fruitless. Individual regions and countries and also the European Union at large are, based on such fundamental political notions as territorial cohesion, carrying out programmes to stimulate the economic development of areas that are lagging behind. But the provision of new sorts of infrastructure is seldom crucial, since the effects are dependent on the economic phase in which countries and regions are situated. In the transition countries of Central and Eastern Europe, the underperformance of infrastructure is indeed a serious drawback for advanced economic development. But the situation is radically different in North West Europe, where often non-spatial factors such as the general level of education and training in society and, related to that, innovative capacities are more crucial for economic development. The carrying out of ‘soft’ policy measures is likely to have more impact. This is reflected in the

content of regional and local development plans, those carried out in the context of the European Structure funds for instance, which have seen a shift from hard measures (provision of infrastructure, the realisation of business sites) to soft approaches.

Shifting our attention to the institutional dimension, the fourth, but non-spatial dimension distinguished in CORRIDESIGN and crosscutting the other dimensions, we may ask what conclusions have we reached here? We can say that a main conclusion is that, in a time frame where the 'space of flows' becomes a dominant characteristic, leading to a scaling up of a host of spatially relevant processes, governance seems to be locked into traditional territorial divisions. Here the concept of the megacorridor probably has the highest added value. It stimulates thinking about the linkages between territories and the ways in which various spatial scales interact which each other. The (mega)corridor is a clear example of a planning concept as a spatial metaphor. It refers to quite a strong spatial image, a well-defined, linear space, its main purpose making physical interaction possible, a corridor as a space through which flows run. In reality, when it comes to the megacorridors as the object of this study, such a sharp territorial confinement is in most cases an illusion, the only exception being the main infrastructure linking urban areas quite far apart from each other while at the same time running through sparsely populated areas. This is the case with the Nord/Pas de Calais-Paris megacorridor. In North West Europe, with its overall high urban densities, this is rather rare. Researchers run into difficulties trying to delineate a megacorridor. For practical reasons, in a few instances in CORRIDESIGN, only a small part of a megacorridor has been studied in detail. Such a focus on the backbone of a megacorridor was the approach taken in the cases of the Randstad-RheinRuhr and West Midlands-London megacorridors.

So although the megacorridor has its limitations as a concept, it raises questions concerning current governance methods. By nature, a corridor cuts through territorial divisions, which makes it necessary for governance agencies, either public or private, to develop governance capacity capable of dealing with megacorridor issues. Some obvious issues are related to the construction of infrastructure. Nevertheless, it is not difficult to make a sad inventory of examples where cooperation has been extremely difficult, even when we restrict ourselves to the hard core of the megacorridor concept being physical infrastructure. The creation of new governance structures matching the territorial characteristics of the corridor would be, at first sight, a logical strategy. But this would merely add another territorial division and is unlikely to happen at cross-border and transnational levels of scale. Much would be gained if stakeholders were to integrate megacorridor issues in their current deliberations and decision-making procedures. Reframing cur-

rent definitions of the decision situation is the goal here; but this will not happen easily. One of the things that should happen, as is concluded in the chapter on governance, is the building up of an improved understanding of megacorridors developments. Here lies a clear task for the European Union, which would make all the more sense since the modern version of the megacorridor concept stems from the European level. The European Spatial Development Perspective does not define the megacorridor concept, nor does it try to identify actual megacorridors. Instead, the ESDP calls for the establishment of connections between sector policies and decision-making procedures. We can say that a procedural vision on megacorridor and megacorridor development is entailed rather than an interpretation of a megacorridor as a territorial category existing in the real world. Here, probably, lies the highest added value of the megacorridor concept.

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Appendix Questionnaire stakeholders survey

Chapter 6 gives an account of the mental maps stakeholders in the seven megacorridors forming the object of the CORRIDESIGN project have on corridor development in general and 'their' megacorridor in particular. The CORRIDESIGN partners followed the same format in questioning interviewees. This format contained the following topics (note that the specific questions being asked depended on the background of the interviewees).

Part 1 Present state and future trends
Perceptions (mental maps) and opinions about the present state of the megacorridor in its different dimensions (infrastructure, urbanisation, economic development and an institutional dimension).

Questions:
- How would you demarcate the megacorridor, how broad, how long, on what criteria?
- Do you think that the concept of a (mega-)corridor is an adequate term to be used for the area?
- Would you like to propose other concepts?
- Is the indication of … corridor geographically accurate or too small/too large?
- How do you view the macro setting (or spatial context) of the megacorridor?
- Which dimensions of linkage/coherence are relevant? (Infrastructure, flows, urbanisation, economic exchange, institutions, and so forth.)
- Do you think that the megacorridor/region is internally coherent and, if so, in what respect? Do you have information, facts, research reports and so forth., which ground this assumption of coherence?
- Are there developments in the region or affecting the region which undermine this level of coherence?
- How would you sketch the developments over time (the past 10 to 20 years).
- What are important trends in the future regarding both the macro context and the internal structure of the megacorridor?

Part 2 Desired state and policy issues
Visions on the desired state and development of the megacorridor and how to realise it: policy options regarding infrastructure, multi-modality, economic development, spatial planning, environment, housing, public-private partnerships, cross-border cooperation, institutional arrangements, possible role of the European Union, and so forth.

Questions:
- Do you think that the coherence in the megacorridor should be improved and, if so, in what way?

- What are the opportunities and threats of the megacorridor?
- Do you think it is important to cooperate across the national borders? Why? With which organisations? On which themes and projects?
- Has (cross-border) cooperation already started? Which themes? Which projects? Who are involved?
- Do you have some images of what a corridor could or should look like spatially/physically?
- Are there certain developments within the corridors that should be avoided 'at all costs'? Which developments? Why? How could this be reached?
- Do you think that some sort of institutional arrangement on the level of the corridor should be organised? Who should take part and for what reason?
- Do you think there is (or should be) a role for the European Union?
- What could or should be the role of private parties, private investments and public-private partnerships?

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This volume is based on a review and a survey among stakeholders which was carried out within the framework of the research project CORRIDESIGN. Starting from the observation that regional economies are intertwined on a European scale, CORRIDESIGN examined whether, to what extent, and in what ways this process towards a network society is spatially linked with the development of cross-border megacorridors between seven large urban regions in North West Europe – the Randstad, the Flemish Diamond, the RheinRuhr area, Lille, Paris, London and the West Midlands. This book makes clear that although the origins of the corridor concept lie in the domain of infrastructure, its meaning extends to such fields as regional economy, urban development and governance.

CORRIDESIGN was one of the projects for trans-national co-operation in spatial planning that were executed under the umbrella of the North Western European Area Operational Programme. This Programme was part of Interreg IIC, a Community Initiative co-financed by the European Commission to promote trans-national co-operation between public bodies and private parties from different countries through projects on both a regional and local level. Corridesign was carried out by a consortium of seven academic research institutes from the five countries where the megacorridors involved are located.

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