

5. Territorial Trends

A Southern Scandinavian Perspective on the “Metropolitan” Level

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There is no easy way to obtain comparable data on large European cities. National statistical offices delimit units by different philosophies; postal organizations do not deliver lists of place names or postal numbers clustered to comparable functional urban units. A series of attempts to construct a European counterpart to the metropolitan region concept used in the United States are yet to bare results that can be used to effectively compare large European cities. The NUREC organisation (1994) works on such questions, as do others such as the Reclus-Datar group (Reclus-Datar, 1989 and Cattani et al, 1994). Indeed this French group undertook the original work on categorizing and analysing the urban system of the European Union. In general, the closest one comes to a generally accepted definition of the urban unit is the United Nations urban area concept, though this is purely physical and based on distance between buildings. The widely used UN-definition is actually an anachronistic delimitation of greater urban units, particularly when it comes to comparative studies, because distance between buildings does not determine function, although distances do influence function. The extension and density of urban regions differ due to tradition, legal factors, physical layout, and stages of development.

Despite the lack of a general formal or functional definition, a spacious physical concept as the basis for identifying a borderline for each large agglomeration conceptualised as a “greater”-urban region, has been used (Matthiessen & Schwarz, 1999). Matthiessen and Schwarz used the NUREC-concept and thus added neighbouring local units to the urban area defined in the UN-method, and further added local units if densities of urbanized areas on detailed topographical maps indicated suburbanisation. They checked this with population figures to find an acceptable extension of the single agglomeration. Outside the NUREC-atlas area (NUREC 1994) delimitations are estimates. The homogeneity of estimates has been given priority though no precise method has been used. Matthiessen & Schwarz have further combined neighbouring agglomerations to units if transport times between city centres (defined as municipalities) are below 45 minutes. This way of delimiting units in a

rather spacious manner and using a strict rule to unite such established units, combines similar cities with functional connections (for example the units of the Rhine-Ruhr area), but also puts together dissimilar cities of little interplay (for example Oxford and Reading).

Metropolitan Europe

Europe has around 500 urban agglomerations of more than 100,000 inhabitants (estimated). In table 1, the largest European urban agglomerations are listed. Four very large centres, the national capitals of the old European empires, Moscow, Paris and London together with the largest German agglomeration, non-capital Dortmund-Düsseldorf-Cologne, head this list.

Three other types of size indicator have been selected to demonstrate the structure of the upper level European urban system. Gross agglomeration product illustrates economic performance, international air traffic measured by passengers indicates high quality accessibility, and research output is used as a measure of creativity.

The “gross agglomeration product” figures listed in table 2 are estimates based on population data and gross national and regional products. The five economic performance heavy weights of Europe present a very concentrated location pattern within the European centre. Compared with the ranking of agglomerations according to population size, many of the Eastern and Southern European cities demonstrates lower ranks, and many Northern European cities higher ones.

Air traffic is a fundamentally important linkage or enabling mechanism bringing together important international activities. Besides tourists, important users of the air network are decision-makers, knowledge handlers, administrators, and other advanced personnel. Table 3 outlines international passenger traffic flows measured in terms of embarking and disembarking persons. The urban agglomeration is the unit of measurement so if there is more than one airport in a city (as for instance in London) all figures are totalled. The figures indicate the level of potential accessibility to the important decision making network. London has a significant lead, with traffic twice the size of the second placed city. Three cities follow namely, Paris, Frankfurt and the Dutch agglomeration (Amsterdam-Hague-Rotterdam-Utrecht). A third level consists of 7 units, Zurich, Manchester-Liverpool, Rome, Brussels-Antwerp, Copenhagen, Mallorca and the Rhein-Ruhr area. East European centres are almost totally absent from the list while Northern Europe is well represented.

More and more urban activities can be described as being knowledge and information-based. Investment and employment

increasingly reflect the transformation of the economy from being capital-intensive to that, which is information-intensive. An increasing number of activities are now associated with the production, collection, manipulation, storage, and distribution of information. Innovation is a strategic resource for firms and is closely connected with urban growth. Andersson & Strömquist (1989) has given the label “creativity” to this growing base of wealth production. Creativity is defined as the production and handling of technical, cultural, social, and organizational innovations. Communication capacity, cognitive skill, knowledge availability, and the supply of creative and cultural capacities are important development factors in this regard. Excellence in all areas is a principal growth factor. Rapid development is supported through the universities and other research facilities, and also by advanced and efficient telecommunication networks, other information technology equipment, and fast passenger transport systems. The increasing importance of the creativity sector is associated with the renewal of the economic system in Europe towards that of a system of dynamic product competition. Andersson and Matthiessen (1993) undertook the first study of the creativity base of large European agglomerations and this study has been further developed by Matthiessen and Schwarz (1997, 1999), see table 4. The data refers to papers from the most cited refereed scientific periodicals within natural science, medicine and technical science, 1994-96, registered by the institutional address of author. Four urban regions present themselves as mega-cities when it comes to research output. London is again in a commanding position and constitutes – together with Paris, Moscow and the Dutch agglomeration (Amsterdam-Hague-Rotterdam-Utrecht) – a small super-league, to use current sports terminology. The next layer could be named premier league and contains 19 large research centres lead by the two major Scandinavian centres, Copenhagen-Malmö-Lund and Stockholm-Uppsala followed by the major German centre, Berlin. In the middle of this premier division lie four British centres followed by Madrid and two German regions. The premier league is rounded out by two Italian cities, Milan and Rome. A third group of 16 cities form a secondary league of 16 small research centres. This league is also dominated by north-western European cities. Only St. Petersburg finds its place in the upper half of this division and only Warsaw, Prague and Budapest represent other East European centres. Barcelona is the only representative from southern Europe. Concentrations of research output form a distinct pattern, with the north-western part of Europe in a commanding position.

The principal competitors on the North European urban scene are the *metropoles* of Berlin, Hamburg, Copenhagen and Stockholm, though Warsaw, St. Petersburg and Helsinki also play significant roles in this metropolitan competition. The *metropoles* compete with other European metropolises, with the European centre, with important cities such as Oslo, Gothenburg and Riga, and with centres of minor importance.

The present European urban scene is one of both growth and decline. It is a scene of turbulence and of changing potentials. Some of the old growth patterns are broken down and new patterns are evolving. The future of Europe combines well known development issues with alternative scenarios, new policy actions, and thus presents new possibilities, bottlenecks and barriers. Large-scale investment in infrastructure projects is changing the geography of the continent and this interacts with the new growth patterns as such investments alter the scene of urban growth by establishing new potential qualities and new characteristics.

Southern Scandinavian “missing links”: The Öresund case

Out of the 14 European missing links identified around 1990 by the European Round Table of Industrialists three were found around the Danish island of Zealand (see figure 1). Southern Scandinavian geography thus represents a veritable crossroad scene. The straits between the Baltic Sea and the oceans of the world delimit the Danish islands and the peninsulas of Jutland and Scandinavia. Seagoing traffic is intense and is expected to increase further as the East European nations catch up in terms of international trade. Three of the Scandinavian straits were considered as missing fixed links, of which one still now remains. The missing links – former and actual – present different barriers. Storebelt was, until 1998, a time and price barrier of a magnitude which could be compared to a road distance of about 120 km. By 2000, it remained only a price barrier on traffic. The two other links also function as national borders, marking linguistic, cultural, legal, technical and economic differences. The Öresund used to present an effective hindrance to the integration of the Danish capital (Copenhagen, 1.6 million inhabitants) and the Malmö-Lund agglomeration (0.7 million inhabitants) on the Swedish side of Öresund although ferries cross the water at very high frequencies. Moreover the two urbanized areas have been – and are – functionally disintegrated and actual interaction remains at an extremely low level. Commuting between Zealand and Scania totals for example 1950 persons out of a total number of commuters close to 1.2 million. (Bacher et al., 1995). Invoiced trade is only around 7% of the volume expected if no barriers existed (Madsen & Pødenphant, 1996). An

older survey (Batten & Törnquist, 1990) described the contact patterns across the Sound in 1989. For each personal business contact between Zealand and Scania there were 15 contacts between Scania and the Swedish capital Stockholm, which is located 600 kilometres away. Although the figures are outdated it is still clear that geography (or distance) plays a marginal role for the actual interaction pattern.

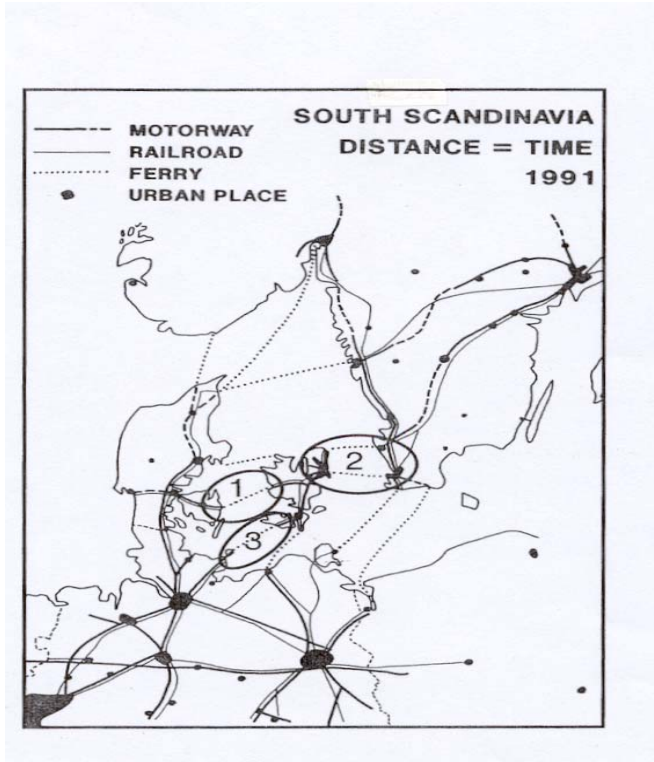


Fig. 1. A section of northern Europe, with the island of Zealand at its centre. Distances between the island and the European continent measured as pre-fixed link time.

1. The Storebelt link (opened 1998).
2. The Öresund link (opened 1st July 2000).
3. The Femerbelt link (discussed).

The first fixed link to the already interlinked Funen-island and Jutland-peninsula connected Zealand with the European continent in 1998. The second fixed link between Zealand and the continent between Copenhagen (Denmark) and Malmö (Sweden) has been open for rail and motorway traffic since mid-2000. The third link is still missing, but

bridging the Femerbelt and thus connecting the Zealand group of islands with Germany remains high on the agenda.

The Öresund narrows at Elsinore where the distance to Helsingborg is only 5 kilometres (sailing time 25 minutes). Three high frequency ferry routes sail day and night here, with a total of 160 departures in each direction every 24 hours in 1999. The pre-fixed link number of passengers per year was 13 millions and the number of cars per day was 6000. One of the lines carried freight trains, and a small number of international passenger trains. Forty-five kilometres south of Elsinore, between Copenhagen and Malmö hydrofoil passenger boats from two companies cross the 30-kilometre route in 45 minutes with close to 50 daily departures each way. Strangely enough however the boats of the two shipping companies both depart on the hour so the frequency pattern was not optimal. The pre-fixed link number of passengers per year was 6 million.

The fall of the iron curtain, the opening up of east European markets, Swedish entry into the European Union in 1995, combined with the long running South Swedish de-industrialisation crisis were the main factors behind the decision to build the bridge and to build it at the location between the population centres of Copenhagen and Malmö-Lund and not at the site where the Öresund narrows. The decision was taken almost overnight and was confirmed by the governments in 1991, and by the parliaments in 1992/93, gaining final approval by Swedish court decision in 1995 only weeks before construction was due to begin. Since then a series of analyses have been presented on traffic issues, regional development questions and strategic perspectives (see for example Öresundskonsortiet, 1999a & b).

The construction of the 18 billion Danish kroner (1 ECU equals 7.4 Danish kroner) fixed Öresund link was a major event in itself. It is expected that this project will itself change North-European traffic flow patterns. It is also an investment in regional productivity, economic growth and competitive vitality. The fixed link opens up the possibility of developing the first cross-national border integrated conurbation outside of the core European zone. The integration of the Greater Copenhagen and Malmö-Lund agglomeration gives the two independent urban systems access to more specialization and enables the possibility of future cooperation. The emergence of certain synergies will thus be one of the consequences. The development of this large cross-boundary infrastructure will alter the spatial organization of the territory. This will activate creative and innovative new arrangements with regard to industry, institutions, procedures, management and/or any public action

tool. The principal investment decision has been followed by a series of other investment decisions totalling 125 billion Danish kroner. Most of these projects are public works such as the new mini-metro, intra urban motorways, railroads, an airport railroad station, a new university, and significant investment in the cultural infrastructure. Private investment has also taken place such as the financing of the new airport terminal, with more to come. The dynamics of the new situation are clear. Building the fixed link is a major event in itself, but using the event as a tool in strategic planning is a challenge. The setting of the Öresund scene is presented in Andersen & Matthiessen (1994) and in Matthiessen (1998a & 1998b) and the Öresund Area is presented in figure 2.

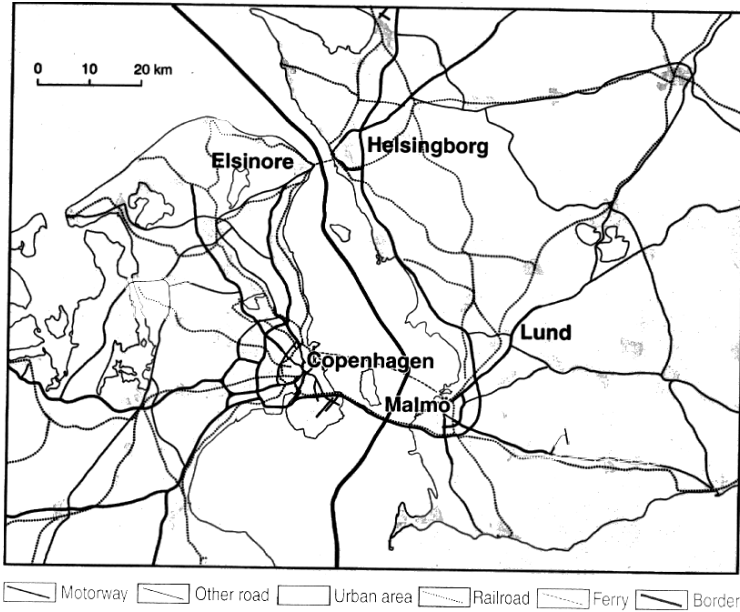


Figure 2. The Öresund Area 2000.

Towards the establishment of a new cross-national integrated metropolitan region

With the opening of the fixed link the fundamental barrier of distance is reduced and regional activity patterns are expected to change from low to high cross-Öresund interaction. The growth potential is evident, and is backed up by new infrastructure projects and strategic urban development plans on both sides of the Sound. The Danish and Swedish governments who have committed themselves to the task of barrier demolition further threaten the numerous barriers to integration. Another indication that a new cross-border development will take place is to be found in public opinion and the attitude of the business world towards the Öresund regional development project which is more positive than ever before. Companies in the Öresund Area have great expectations of increased network cooperation and a building up of cross-border strategic alliances. Based on interviews with 350 Danish and 300 Swedish companies located in the Öresund Area in 1998, it is found that around 56% of the companies in the Öresund Area are involved in some kind of cross-border business activity. This percentage is expected to reach 65% in the years to come (Mandag Morgen, 1998).

The price barrier will however continue and may even be reinforced in relation to some of the highly differentiated fares on the ferry routes, where one day return trips for cars often cost 300 Danish kroner, and where passengers pay a modest 15 kroner for a trip between Elsinore and Helsingborg. The standard price on the fixed link is 230 Danish kroner for cars, 600 to 850 for trucks, and 60 for a train passenger each way (source: Öresundskonsortiet, direct information). The standard prices are lower for frequent travellers, students and seniors. Frequent car-travellers pay for example 85 Danish kroner per trip (by smart chip linked to car license number). The price barrier on the fixed link is widely disputed as the level is considered to be too high to allow maximum integration, and it is suggested could even prove to be a fundamental hindrance to initial integration due to the actual low level of current integration. The traffic forecast of the entrepreneurial group (Öresundskonsortiet, 1999b) discusses different segments and types of traffic taking the continuation of the price barrier for granted. The complicated forecasting model predictions can be summarized as anticipating a doubling of traffic within a few years. The number of cars crossing the Öresund was 6000 per day in 1999, while the entrepreneurs and owners of the bridge estimate numbers for the post-link traffic to be around 12,000.

The fixed link opened for traffic on July 1st 2000, and traffic counts for that year show an increase of 22% measured by passengers crossing the Sound. The routes between Elsinore and Helsingborg have lost 7% of their passengers, and traffic between Copenhagen and Malmö has doubled to 10 million passengers per year, of which half travelled by car, 25% by train, and 25% used the city to city hydrofoil boat. At the end of 2000, 6-7000 cars crossed the fixed link every day. This figure is significantly lower than the estimated flow, though train passengers are on the other hand more numerous than predicted.

It is not just new interaction that is on the table, but a new location decision pattern is also evident. For example Mercedes Benz has decided to move its Swedish headquarters from Stockholm to Malmö, and its Danish headquarters to a position near the fixed link in the Copenhagen Area. Mercedes Benz expects more cooperation between the two relocated headquarters in the Öresund Area (Copenhagen Capacity, 1999).

On the European ranking lists Copenhagen is ranked 35th by agglomeration population. The city is 19th when size is measured as gross agglomeration product, and it is 10th in Europe in terms of international air-passenger traffic. When measuring creativity however, Copenhagen ranks 21st. By adding figures from the Swedish side of the Sound to those of Copenhagen, the ranks shift dramatically. Altogether, the towns within a radius of 50 kilometres from Copenhagen Airport represent one of the major population concentrations of Northern Europe, being in fact 27th on the European list. To find larger neighbours you have to move beyond the Nordic countries. In addition, Copenhagen, Malmö, and Lund are high-income cities in comparison to the European average, and the new rank for the Danish-Swedish agglomeration measured as gross agglomeration product is 11th. When international passengers departing from the airport of Malmö are added to the Copenhagen figures, the total increases, but only enough to lift it to the rank of 9th. As regards creativity however, the effect of this change, in respect of the European ranking list, is much more significant. The South Scandinavian centre then becomes the fifth largest European centre of scientific output. (See Matthiessen (2000) for detailed documentation).

With the change in rank comes an increasing potential for growth. Copenhagen is the centre of Denmark (5 million. inhabitants). At the beginning of the 21st century, the new Danish-Swedish agglomeration could be the centre of South Scandinavia (8-9 million. inhabitants). The consequence will be a large-scale re-assessment of dominance on the Copenhagen – Stockholm level, for example when it comes to the use of

international airports, business services, and retail and cultural activities. The integration of Greater Copenhagen and the Malmö-Lund agglomeration gives the two hitherto non-interdependent urban economies access to more specializations and opens them up to new areas of cooperation. New specializations based on the combined mass will increase the level of specialization currently enjoyed by Copenhagen. Greater synergy will again be an obvious consequence of this. Added to this change in growth potentials are the effects of a new optimism and of a rise in world interest. Large-scale engineering and construction have been of international interest, and an integration of the two agglomerations, where at present cooperation is very limited, is a significant event. In many respects therefore adding Copenhagen to the South Swedish centres is expected to increase economic growth when regional organization is integrated. The arguments are illustrated in figures 3 and 4.

More and more national and local actors desire to change the Öresund Area into an Öresund Region in which two balanced systems (Southern Sweden and Zealand), establish themselves as one. Five phases can be identified in the development process:

- Phase 1: Visions and analyses.
- Phase 2: Large scale investment decisions. Project.
- Phase 3: General shift in attitude from negative to positive (population, politicians, market).
- Phase 4: Identification and neutralization of barriers to integration. Establishment of organization capacity
- Phase 5: Regional integration.

Phase 1 commenced around 1990 although the actual effort was modest in comparison to the rather grandiose initial presentations. Phase 2 took place with extreme speed, and the decision to build the fixed link was taken almost overnight by the two governments. Phase 3 was a lengthy process where resistance toward the whole project was activated in courts (by environmentalists), in the public debate (with a great variety of viewpoints from nationalistic to anti-growth), and even behind closed doors (Stockholm based fear of metropolitan competition). The shift in attitude from a large negative majority to an equally large positive majority took place again almost overnight in 1998 for two reasons the first was due to an outburst of pride over the Storebelt fixed link. The second related to the construction on the Sound itself. The bridge was no longer a “fata morgana” but became real, and people reacted positively. Phase 4 began in 1999 with a series of analyses and reports from various

ministries where numerous legal, cultural, technical, financial and organizational barriers to integration were identified. But little action to

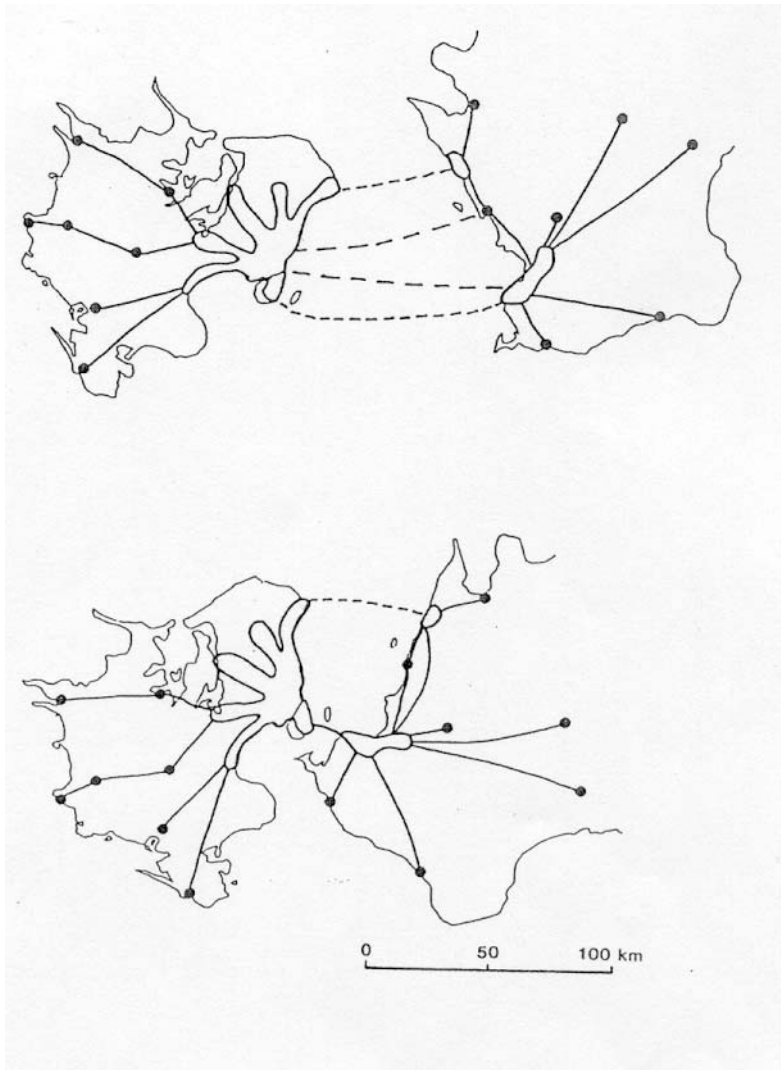


Figure 3. The Öresund area pre- and post-fixed link. Urban areas indicated. Urban dominance within the island of Zealand and within the peninsula of Scania marked with straight lines. Ferry lines crossing the Öresund marked with dotted lines. Distance in time.

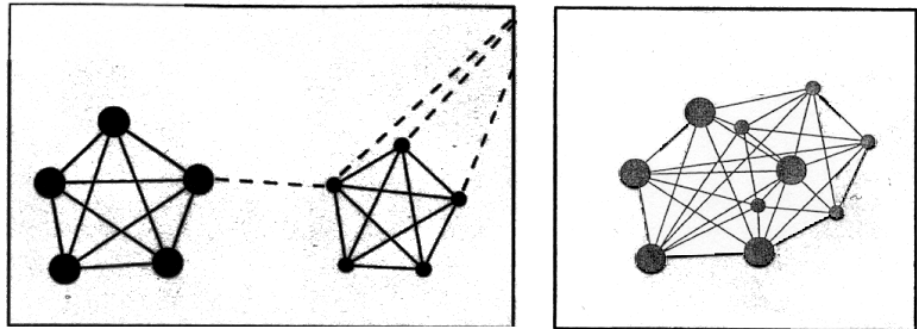


Figure 4. The Öresund area before, and after, system integration. Dots represents activities, lines major links. Scaling indicates the large Copenhagen system versus the smaller Scanian one, but no precision is pursued. Enlargement of symbols from pre- to post-situation illustrates synergetic effects. From Matthiessen (2000).

eliminate the barriers was subsequently taken, and no organization established in order to reduce such barriers. Phase 5 remains on the horizon, although the market has changed the process of divergence into one of convergence.

Post fixed link: examples of new regional coordination

In 1993 the Öresund Committee was founded. It consists of leading politicians from the regional and local authorities on both sides of the Öresund Area, as well as Danish and the Swedish state representatives (see below). The Committee functions as a regional forum for cross-border cooperation. A major task of the Committee is the administration of the INTERREG II programme. The programme includes cross-border projects concerning culture, education, infrastructure, the environment and the labour market. The Öresund Committee is the only current example of a cross-regional authority based organization. The committee itself is innovative, even though it operates concurrently within two different national domains, and has no real political legitimacy. Contrary to developments inside the administrative sector, innovation in terms of institutional coordination arrangements is more obvious in ongoing cooperation projects in the Öresund Area. Various forms of project management are in fact currently in use. As such, the institutional coordination arrangement used depends on the purpose of the project and on whether the project is in its initial phase, or has existed for some years.

In 1996 a regional labour market conference was held in Copenhagen, where the Danish and Swedish prime ministers, signed a joint-letter requesting the European Commission to make the Öresund Area a Model Region for Employment. At the same time the EU Commission unveiled the Territorial Employments Pacts (TEP) initiative. On this basis the Öresund Area was appointed as one of 89 TEP's around Europe. The Öresund TEP aims at coordinating and developing education and competence within industry and the labour market. The objective is to reduce barriers between the two countries and to ensure the free movement of the workforce. The Öresund Committee handles the educational part of the Öresund TEP (The Öresund Committee et al., 1998b).

Closely connected with this ambition of creating a common labour market is a project aimed at establishing an integrated public transport system. Official cooperation between the four traffic authorities represented in the Öresund Area has been ongoing since 1997, when an agreement of intent was signed (Danske Statsbaner et al 1997). The four authorities are the national Danish and Swedish Railways, and the regional traffic authorities, viz. the Metropolitan Transport Company and Scania Traffic. Cooperation between the national railway companies was focused on the planning of a cross-border railway system, while cooperation between the regional traffic authorities was oriented towards bus services. By the year 2000, the Öresund trains were running across the Sound. Although the trains run from Malmö Central to Copenhagen Central (35 minutes), the establishment of an integrated public transport system, which transcends national borders and the different technical, price, VAT, and ticket systems, is far from completed and dialogue between the four public transport companies seems far from easy. Two different transport systems are to be harmonized. Which standards and systems are to be used – Danish or Swedish? In order to try to solve these questions, different working groups have been set up. No collective project management has however been established, and cooperation between the four transport companies is in no way binding.

In 1996 the Danish and Swedish prime ministers presented a common strategy for the Öresund Area and its future role. It included political commitments concerning the Öresund Area's political and economic role in the Baltic Region, but it was also concerned with environmental questions. A vision of the Öresund Area as best metropolitan region, environmentally speaking, in the world was presented (see Matthiessen, 1997; Tingvar, 1998). On the basis of this an agreement for the cross-border programme entitled, The Environmental

Programme for the Öresund Region was signed in 1997. The objective being to set common goals and guidelines for environmental policy in the Öresund Area. The environmental programme was divided into four primary steps (The Öresund Committee, 1998a):

Step 1: Survey.

Step 2: Goal formulation, debate.

Step 3: Planning and monitoring model.

Step 4: Action strategy and programme.

In principle the Ministries of Environment in the two countries are responsible for carrying out the programme. In practice the Öresund Committee is in charge of the administration of the environmental programme. The first and second phases have been completed and presented. In the next step, working groups of planners from the local, regional and national levels have been established and are now required to present ideas and new working methods for cross-border planning activities on the Öresund Area and its environment.

A history of success is represented by the university sector. Within a radius of 50 kilometres from the fixed link there are 11 universities. In all, 120.000 students are enrolled and 7500 researchers are employed. Measured by bibliometric indicators the area ranks as number five in Europe (see table 4), a fact that underlies the overall ambitions of the wider project. Strong points in the research profile are for example biotechnological research, medical technology and pharmaceutical research. The universities within the Öresund Area initiated cooperation in 1994 concerning student and faculty mobility, IT-communication, networks, joint courses, research programmes and projects. This multi-disciplinary activity was formalised in 1997 through the founding of “Öresund University” with its own constitution, governing body, modest budget and small administration. The institution is one of the largest university confederations in Europe. The Öresund University focuses on medical and biotechnology, food, the environmental industry, and communication. One ambition is to create a regional university based on network technology and on “person to person” contact. This process of university cooperation interacts with the “Medicon Valley” programme which was founded in 1997 in order to achieve potential synergies through cross border cooperation between the health sector, academia and private enterprise on a regional scale. The Medicon Valley Academy is founded by public and private funds of around 50 million kroner per year and is further backed up by other sources of risk finance. The academy is an active player initiating conferences and workshops, publishing research data and promoting the capacity of the Öresund Area

internationally (this section is based on the “City of Copenhagen and City of Malmö”, 1999).

It is expected that the fixed link will bring about radical changes in the regional activity system in the Öresund Area. When it comes to the institutional coordination arrangements for planning activities, however it should be noted that changes so far have been modest at best. The organizational structure is not geared to ensuring the implementation of planning strategies throughout the administrative hierarchies. The Öresund Committee should however be considered as a step towards cross-border regional management, though it is still without real political authority. Currently only limited action has been taken to establish the arrangements for management and planning that will control the spatial effects of the fixed link. Such effects are however likely to transcend administrative and national boundaries. The barriers for coordination of planning activities relate to institutional differences in the formulation, and implementation of planning policies. As such there is no strategic leadership with the political legitimacy to implement such cross-border and cross-sectoral decision-making processes.

In order to create a more solid basis for cross-border planning the following steps should be taken. The demolishing of barriers to the coordination of cross-border planning activities must be carried out. Strategic networks between the planning authorities must be established in order to strengthen the organizational basis for cooperation and coordination. A forum with representatives from planning authorities, regional and local authorities, research institutes, Chambers of Commerce, the universities and others could facilitate the process. On this basis, a platform for strategic leadership which has a mandate to formulate and develop visions and strategies, and which has the power and legitimacy to implement planning policies could follow. Organizing capacity for the Öresund Area must be based on the following elements: regional management and planning founded in legally binding agreements and political support, the consistency of strategies and policies, the institutionalisation of network relations and the establishment of a leadership capable of developing and implementing cross-sectoral and trans-national decisions.

Metropolitan competition – The changing Northern European scene

The Southern Scandinavian scene represents an area beyond the European centre where developments towards a cross-border region are moving apace. These trends encompass a capital city that is also among the major metropolitan units of the continent. It is in many respects an

interesting laboratory for integration and changes in the major units of an urban system. Change in Southern Scandinavia is further accelerated by the new political geography of the Baltic Sea Area, where east European nations have suddenly emerged as neighbours, and where recent European Union extensions have included East Germany, Sweden and Finland, and entrance negotiations with Poland and Estonia are now in progress. Improvement in the area of metropolitan competition is thus to be an expected consequence for Copenhagen and the south Swedish centres. Two *metropoles* within the Baltic Sea Area seems thus to have the chance to improve their position markedly in the near future; Berlin by becoming the German capital, and Copenhagen via a process of successful integration with the large agglomeration on the Swedish side of the Sound, following the establishment of the fixed link. Such developments do not however guarantee success rather they simply provide opportunities. It is up to local governments and business to exploit these opportunities. (The potentials for a change in their roles with regard to the North European urban scene are illustrated in figures 5 and 6).

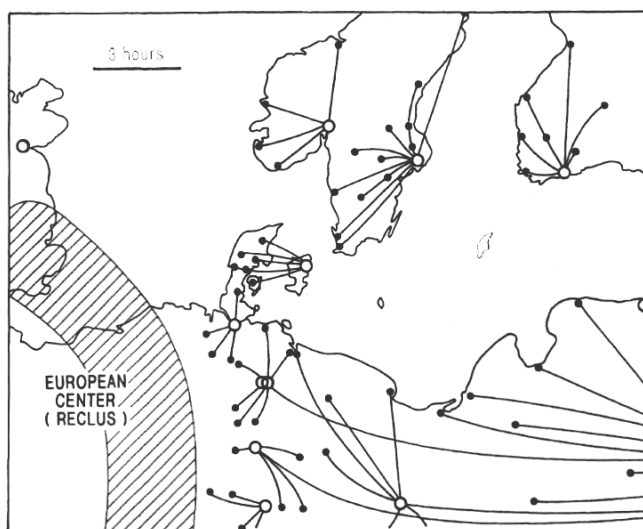


Figure 5. A snapshot of the North European urban scene in 1991, at a point in time when the Soviet Union still existed. Distance measured in travel time by car, train or ferry. Rough estimates are based on the fastest mode of ground transport. The European centre is indicated). Dominant urban units outside the centre are shown with an open circle. Other urban units are indicated with a dot. Dominance is illustrated by a line.

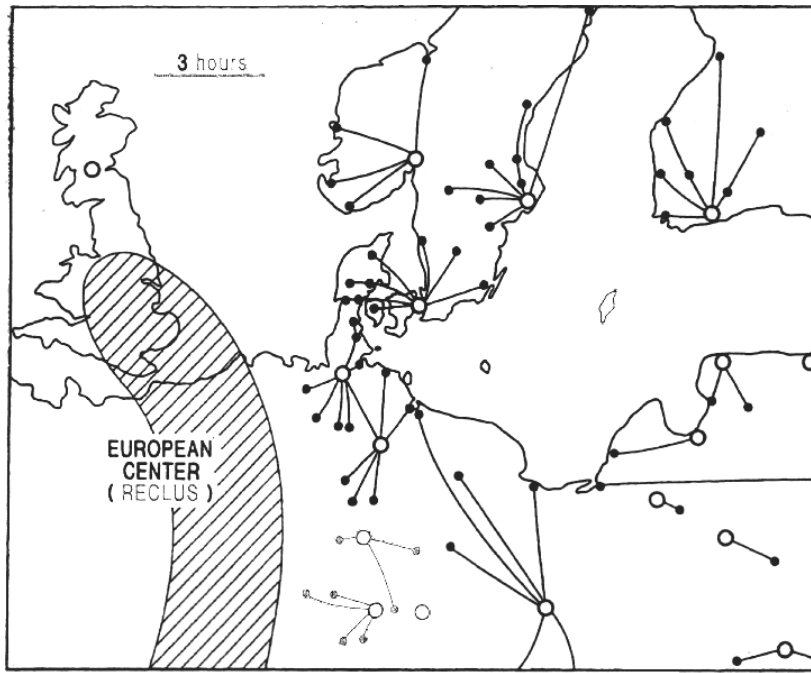


Figure 6. The potential North European urban scene some time in the future (2018?). See figure 5 for explanations.

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Table 1. Large urban agglomerations in Europe. Measured by population. Top-30 list

<i>Metropolitan region</i>	<i>Population around 1995 million inhabitant</i>
Moscow	11.9
Dortmund-Düsseldorf-Cologne	10.8
Paris	9.6
London	9.6
Amsterdam-Hague-Rotterdam-Utrecht	5.6
Madrid	5.0
S:t Petersburg	4.8
Milan	4.6
Berlin	4.3
Manchester-Liverpool	4.0
Rome	3.8
Frankfurt-Mainz	3.5
Katowice	3.4
Naples	3.2
Athens	3.1
Hamburg	3.0
Barcelona	2.9
Birmingham	2.6
Kiev	2.6
Stuttgart	2.5
Brussels-Antwerp	2.5
Budapest	2.4
Warsaw	2.4
Sheffield-Leeds	2.4
Vienna	2.3
Bucharest	2.3
Copenhagen-Malmö-Lund	2.3
Munich	2.1
Aachen-Maastricht-Liége	2.1
Lisbon	2.1
Copenhagen	1.6
Malmö-Lund	0.7

Estimates based on the NUREC method (NUREC 1994) and national yearbooks

Table 2. Large urban agglomerations. "Gross agglomeration product". Top-30 list

<i>Metropolitan region</i>	<i>Gross agglomeration product bio US \$ 1995</i>
Dortmund-Düsseldorf-Cologne	292
Paris	278
London	221
Amsterdam-Hague-Rotterdam-Utrecht	151
Frankfurt-Mainz	125
Hamburg	105
Berlin	95
Milan	92
Rome	84
Madrid	80
Copenhagen-Malmö-Lund	77
Stuttgart	75
Brussels-Antwerp	75
Manchester-Liverpool	72
Vienna	69
Munich	63
Moscow	60
Aachen-Maastricht-Liége	59
Stockholm-Uppsala	50
Birmingham	49
Mannheim	48
Zurich	45
Naples	45
Barcelona	44
Sheffiels-Leeds	43
Athenst	37
Glasgow-Edingburg	32
Geneva	30
Hannover	30
Marseille	29
Copenhagen	58
Malmö-Lund	19

Estimates based on the NUREC method (NUREC 1994), national statistical and international statistics

Table 3. Large urban agglomerations. International air traffic. Top-30 list

<i>Metropolitan region</i>	<i>1000 embarked plus disembarked passengers 1994</i>
London	66 461
Paris	36 834
Frankfurt-Mainz	27 546
Amsterdam-Hague-Rotterdam-Utrecht	22 943
Manchester-Liverpool	12 064
Rome	11 609
Brussels-Antwerp	11 237
Copenhagen-Malmö-Lund	11 505
Mallorca	10 609
Dortmund-Düsseldorf-Cologne	10 347
Madrid	8 965
Munich	8 219
Vienna	7 159
Athens	6 813
Dublin	6 557
Stockholm-Uppsala	6 510
Moscow	5 083
Geneva	4 960
Berlin	4 632
Helsinki	4 594
Oslo	4 555
Hamburg	4 383
Barcelona	4 202
Birmingham	3 946
Stuttgart	3 616
Larnaca	3 415
Faro	3 192
Glasgow-Edinburgh	2 871
Copenhagen	11 091
Malmö-Lund	414

Source: ICAO Statistical Yearbook 1995 (1998).

Table 4. Large research centers in Europe measured by output. Top-30 list.

<i>Metropolitan region</i>	<i>papers 1994-96</i>
London	64 742
Paris	45 752
Moscow	39 158
Amsterdam-Hague-Rotterdam-Utrecht	36 158
Copenhagen-Malmö-Lund	21 631
Stockholm-Uppsala	20 195
Berlin	19 872
Oxford-Reading	18 876
Edinburgh-Glasgow	18 688
Manchester-Liverpool	18 653
Cambridge	17 764
Madrid	16 230
Munich	15 947
Dortmund-Düsseldorf-Cologne	15 716
Milan	15 120
Rome	15 088
Frankfurt-Mainz	14 512
Basel-Mulhouse-Freiburg	13 918
Sheffield-Leeds	13 484
Geneva-Lausanne	13 405
Mannheim-Heidelberg	12 289
Zurich	11 951
Brussels-Antwerp	11 786
S:t Petersburg	11 506
Barcelona	11 467
Vienna	10 882
Bristol-Cardiff	10 633
Helsinki	10 287
Birmingham	9 882
Aachen-Maestricht-Liége	9 705
Lyon	9 175
Copenhagen	13 091
Malmö-Lund	8 540

Source: Science Citation Index (se Matthiessen & Schwartz 1999)

