# 3 Cityports in the city-regions

## 3.1 Introduction

The analysis of the economics of globalising city-regions' development shows a variety of locations that are catching up and getting connected to the international network, and other locations that lag behind. The focus in academic debates on local development and local clustering in the 1990s, in order to make these places competitive, is increasingly criticized (Boschma and Kloosterman 2005). Martin and Sunley (2003) even argue that it is almost impossible to draw geographical boundaries for economic activities, since many different corporate inter-firm activities take place at different spatial scales at the same time, and the spatial range of these activities is unlikely to stay stable over time. In order to deal with this problem, the suggestion of Rutten and Boekema (2004) is followed to see spatial processes as the outcome of economic activities instead of starting with geography. In other words, the cityports, seen as a traffic node, place to stay, and port to the city-region discussed in this chapter is the outcome of the economic development of the city-region discussed in the previous chapter.

In this chapter the following question (1b) is addressed: '*which cityports can be distinguished inside the city-region and to what extent do these cityports contribute to the economic development of the city-region?* The concept of the cityport, her typology, and dimensions are introduced in section 3.2. The cityport should be seen as no more than a tool to understand and frame the increasing poly-centralisation of economic activities in the city-region. It therefore aims to provide insight into the complex relationship of transportation, urbanisation, and economic activities. In sections 3.3, 3.4 and 3.5, the cityports in the Randstad, Frankfurt Rhein-Main, and the Tokyo Metropolitan Area city-regions are analysed. In section 3.6, comparisons are made and conclusions are drawn.

## 3.2 Spatial economic dynamics and cityports in the city-region

Within the city-region economy, on different spatial scales, economic specialisation takes place when the market size increases by a higher critical mass or regional integration (see chapter 2). This specialisation is found on the individual level, on the level of economic clustering in the cityport, and on the level of cities as well. On the one hand, specialists cluster and benefit from agglomeration advantages. This can improve the quality and level of services towards an international competitive level. In addition, the diversity of economic activities in the cityports makes the city-region less vulnerable for economic changes and gives a broader basis for economic performance. This trend focuses on the position on the international market place and requires establishing new connections between actors on a variety of levels, or what Salet, Thornley and Kreukels (2002) call 'interconnectivity.'

On the other hand, decreasing transportation costs increase the size of the market, and makes cross-sector exchange of knowledge and information within the polycentric region possible. Bertolini and Salet (2003) therefore focus on the way new urban interactions are connected to the outside world and how these connections can be improved ('outside in') rather than appoint the suitable locations for urban expansion inside the city-region ('inside-out'). Within this context of changing economic and urban dynamics, both outside-in and inside-out imply that the traditional competitive disadvantage of polycentric city-regions in comparison to mono-centric city-regions decreases. The variety in the internal geography of the polycentric city-regions is an outcome of changing socio-economic patterns. The traditional downtown is therein no longer the only centre in the region, but one of the centres. Peter Hall (2001:73-4) categorises six different kinds of locations in the polycentric network, here referred to as types of cityports, to understand the internal geography of the city-region: traditional downtown centres, new business districts, internal edge cities, external edge cities, remote edge cities, and specialised subcentres. Although Hall's overview is ideal-typical, it is useful for a better understanding of polycentric regional economic dynamics in the city-regions.

*Types of cityports*

As argued above, traditionally the face-to-face contacts for businesses were limited to downtowns or central business districts (CBD). The *traditional downtown centre* is within walking distance to public transportation, and in Europe often near central train stations. The infrastructure dimension is therefore predominantly transit-oriented. The downtowns include the oldest informational services as banking, insurance, and government. These traditional centres show, depending on the location, a high level of inhabitants and labour force (European downtowns) or economic activities (American CBD's). Examples are London City, Lower Manhattan in New York, and Marunouchi in Tokyo.

Economic activities that expanded in the 20th century, such as corporate headquarters, media, and new business services (advertising, PR, design), cannot afford the high prices of the traditional centres, do not fit in the CBD, or needed more working space, can be found in new business districts or *new business district* (NBD). The NBD is often located near prestigious residential quarters and depends more on car accessibility and less on public transportation than the downtown centres. Examples are London Westend, Midtown Manhattan, and Roppongi in Tokyo.

The pressure of space in the traditional centres can also lead to a speculative redevelopment of older industrial or transportation sites, which Hall defines as *internal edge city*. London Docklands, Paris La Defence, and Tokyo-Shinjuku are outspoken examples. These internal edge cities have been recently redeveloped and offer a mixed and progressive urban environment with good car accessibility for a variety of economic service activities.

The *external edge city* is often located on the axis of the airport or new high-speed train stations. Therefore, the economic dimension of this cityport is internationally oriented without the need to be located in traditional downtown. Furthermore, in locations as London Heathrow, Amsterdam Schiphol and Paris Charles de Gaulle, a concentration of jobs and inhabitants is required on calculable driving distance, not on walking distance to the neighbourhood as in the standard business centres.

Economic activities that are more standardised cannot afford the locations in the city itself and do not need the urban dimension of the city directly. At 50 kilometres distance, often located

near train stations, *outermost* or *remote edge city* complexes are found for back offices, and research and development. Examples of remote edge cities are Reading in England, and Shin-Yokohama and Omiya (currently Saitama City). The urban dimension is with the economic dimension here less developed.

The sixth type of cityport that can be distinguished in the internal geography of city-regions are *specialized subcentres*. These locations are centres of education, entertainment, sports, shopping, and conventions. They have in common that they tend to function more independently from traditional centres and attract customers by their unique specialisation and convenience in economic activities. The locations are often affordable and well accessible by car and range from reclaimed or recycled land to traditional centres- for instance Tokyo Waterfront and Harvard and Cambridge campuses in Boston. Furthermore, specialised subcentres do not require a concentration of jobs or inhabitants in the direct environment; however the specialized centres do require a metropolitan market within driving distance.

In the polycentric structure of the city-regions, all of these locations are accessible, are more or less close to urban centres, and show a variety of economic activities. According to Hall (*ibid.*), the specialisation of economic activities is through the polycentric pattern increasing, where cityports develop a profile that is suited to the location. Of course, a typology is a simplification of the spatial economic realities, but offers a basic insight into the dynamics of locations in the globalizing city-regions. Second, it is important to be aware of differences in scale. For instance, the 50 kilometres norm for remote edge cities is understandable for Tokyo standards, but these locations might be found to be on a smaller scale of ten kilometres distance in the Randstad.

It is remarkable that all of these places focus on the service economy sectors. For the Randstad, Frankfurt Rhein-Main, and Tokyo, we will test the case studies based on these six types of cityports and see whether a further differentiation is necessary. First, however, it is necessary to take a closer look at the cityports' characteristics by focussing on the economic activities, infrastructure accessibility, and urbanity.

*The node-place model*

The course of life, careers, and daily activities such as care taking, shopping, and leisure keep citizens increasingly on the move in the city-region. Before, the socioeconomic patterns (or *civitas*) were within the same place or city (*urb*) (Bertolini and Dijst 2000). Nowadays, these socio-economic and physical dimensions are disconnected, and socio-economic activities take place in a variety of places, and are not limited to meetings in traditional centres. During a day, these environments show a certain amount of diversity, intensity, and volatility of visitors and visits. Major examples of these locations are airports, railway stations, and urban squares on the local level or the mobility environments of intensively used cities compared to rural villages on a regional level. Bertolini and Dijst (2000) therefore use a wider definition of accessibility of nodes or centres: it is not only the number of locations that are able to be visited at the transportation node, but also the diversity of activities at the location, and the final group of costumers as end-users. This background is part of the node-place model and needs further elaboration.

The model introduced and elaborated by Bertolini contributes to understanding the relationship of urban planning and transportation, which fits in the general trend of regional planners to re-emphasize the importance of infrastructure as structuring and generating urban developments

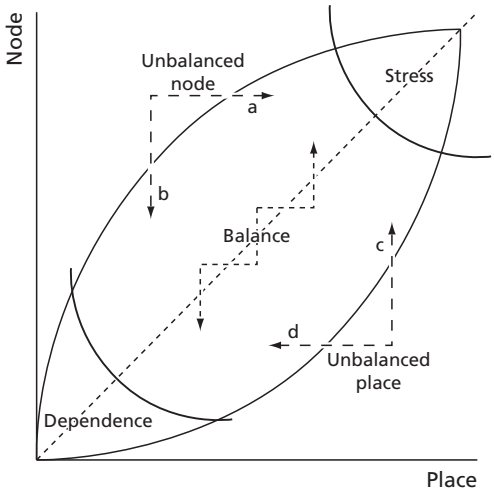


*Figure 3.1* The node-place model (Source: Bertolini (2005))

(see WRR 1998). In his node-place model (see Figure 3.1), Bertolini (2000, 2005) argues that the accessibility of the node needs to be in balance with the activities that take place at the node. In this manner, activities are well accessible and transportation networks are frequently used. The accessibility of the centre is expressed by node value, and the activities taking place at the node is expressed by place value.

Figure 3.1 shows five ideal-typical situations, with a balance between node and place around the diagonal line, and locations that have a lack of balance between node and place outside of the balloon area. First, along the middle line are balanced locations, where node and place values are equally strong. Second, in the left bottom, there are a lack of activities and infrastructure due to a general lack of demand, e.g. the countryside. Third, in the right top, locations are under stress due to a combination of heavy infrastructure at the node and many activities that take place at the place. These locations are, for instance, important railway stations in downtowns. The other two ideal-typical situations show imbalance between node value and place value. The locations left in top suffer from an overkill of infrastructure in relation to the limited number of activities taking place. The right-end bottom of Figure 3.1 includes locations with a large number of activities and an insufficient supply of infrastructure. Bertolini's idea is to balance the locations that have an imbalanced node value and place value. Either investing in infrastructure (in the case of lacking infrastructure), or reducing or increasing the number of activities by planning regulations (in the case of investments or disinvestments in the unbalanced locations (*ibid.*) can achieve this.

Here we use the node-place as well as a tool to explore the internal geography of the city-region. It offers the opportunity to go further and deeper than the characterisation of types of locations in the polycentric city-region seen by Hall. Groenemeijer and Van Bakel (2001) have already applied the model to the Randstad city-region, and later the model was applied to Basel (Bettler 2005).

In the cityport model (Figure 3.2), the node value is seen as the infrastructure dimension of the cityport. It expresses the accessibility of the cityport in the city-region. In addition, the

place value is seen as the urban dimension of the cityport. The urban dimension expresses the concentration of citizens and jobs in the cityport. Since this thesis emphasises the importance of economic activities as the starting point of urban and regional developments, we extend the cityport model with the economic dimension. This economic dimension expresses the space productivity of the cityports: in other words, not the number but the added value of the economic activities taking place in the cityport. These three dimensions will be further introduced below.

*The infrastructure dimension of the cityport*
As chapter 2 has shown, infrastructure is an important element in the quality of the business environment, and co-determines the investments of entrepreneurs. The infrastructure dimension of the cityport model is based here on the node value. In order to make the case studies comparative, the model as developed by Groenemeijer and Van Bakel (2001) is taken as a starting point and adjusted.[1] In their application, the node value is the sum of modes of transportation and directions, respectively 'connecting value' and 'unlocking value'. The availability and types of connections – cars, trains on different service levels, calculate the connecting value. The unlocking value is calculated on the number of unlocking connections within three kilometres.

*The urban dimension of the cityport*
The second element of the cityport model is the urban dimension, expressed by place value. The place value is ideal-typically based on the number of citizens and the number of jobs within 3 kilometres radius of the location. The number of citizens and employees have a considerable contribution to the development of activities at the place and therewith the development of the cityport. Unfortunately, in the case studies, these jobs and inhabitants densities are only available on the local level in the Randstad city-region, and turns out to be impossible to collect in the other case studies. Therefore, in the case of the urban dimension as a condition for urban development in cityports, the municipal level is chosen.[2] The urban dimension then expresses the density of citizens and workers.

*The economic dimension of the cityport*
Adding the economic dimension of the cityport has two main purposes. First and most importantly, it administers justice to the focus of a more important position of the economy, as argued in chapter 2. The economic dimension is seen as a crucial condition for spatial developments and is therefore central in the cityport concept. Second and more practically, it can relieve the problem of lacking data to determine the place value that expresses the urban dimension of the cityport. This needs further explanation.

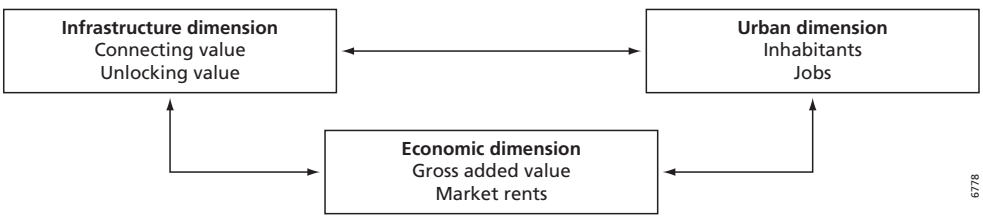


*Figure 3.2* The cityport model

The economic dimension of the cityport can best be expressed by 'space productivity', i.e. the added value per square kilometre at the cityport. These values for the Netherlands' main towns and cities have been calculated and published in Elsevier (2002). For Frankfurt, these data is only available on the municipal level. The tool of space productivity disadvantages cities and towns with larger non-urban surfaces. Furthermore, such an attempt does not administer justice to the variety within the city's territory. For tax-privacy and legal reasons, in Japan there is no local data on labour productivity.

For theses reasons, additional indicators might provide a better comparison of the economic dimension of the cityports in different city-regions. In economic geography and urban planning, analysing real estate developments provides insight in local and regional concentrations of economic activities. In general, higher demand and higher added value activities can and often will afford locations with higher rents. There is however no one-to-one relation between space productivity and rents since densities might vary.[3] Another objection is that other factors other than added value contribute to the price setting of the location: specifically, oversupply or undersupply and planning regulations. Despite these problems, analysing the real estate market will help to determine the place value and to understand the phenomenon of established and new large-scaled polycentric development in the globalizing city-region.

## 3.3 Cityports in the Randstad

In the analysis of the spatial and economic dynamics of the Randstad, we will explore the city-region's cityport development. First, the internal geography of the Randstad is introduced by analysing the types of cityports. This offers a rough overview of the locations that are of strategic importance for the economic competitiveness of the city-region. Then, these locations are analysed by the dimensions of the cityport model. Therefore, the economic dimension of the cityport, with real estate market developments and space productivity are explored. International real estate agencies provide comparable data for the case studies. In the Netherlands, it is common to distinguish the office market, industrial locations, and retail as commercial real estate markets. Measuring the productivity of economic activities in the city-regions will follow this. The second dimension of cityport development is the accessibility of locations in the Randstad. Third, levels of densities of jobs and inhabitants will provide insight to the urban dimension of the cityport. Finally, a synthesis is made of the dimensions and types of cityports in the Randstad. In 3.6 comparisons with Frankfurt Rhein-Main and the Tokyo Metropolitan Area are made and conclusions reached.

*Types of cityports*

Holland's rapid economic development in the Golden Age era (17th century) can be ascribed as the success of cities such as Amersfoort, Amsterdam, Leiden, Den Haag, Utrecht, and Rotterdam, which acted as individual merchant city-states, separated by the polder wetlands. These cities have sustained their merchant downtowns with canals running through the cities. Rotterdam, bombed during the Second World War and rebuilt in post-war modernist style, is a notable exception. Skyscrapers in downtown Rotterdam are rent by accountants and financial services. Furthermore, Rotterdam has a concentration of architecture firms and related industry in the downtown area (Kloosterman and Stegmeijer 2004).

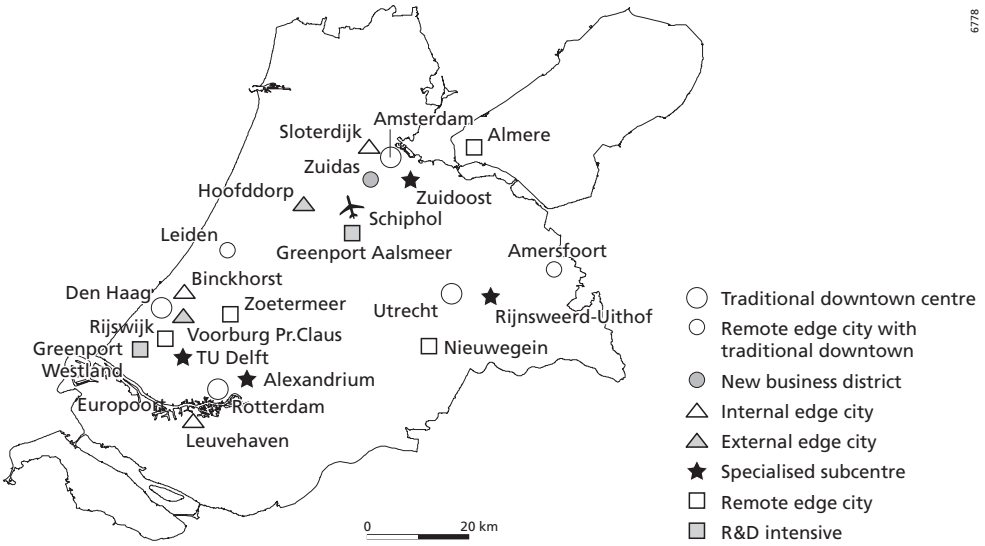


*Figure 3.3* Cityports in the Randstad city-region

Den Haag remained the classic 17th century downtown that currently accommodates the government, international organisations, and embassies. The downtown expanded with high-rise offices buildings in a new centre for telecommunications and insurance companies, as well as ministries, due the limited locations for development at the cities' borders.

Utrecht's 1960s and 1970s experiments with modernist high-rise in the downtown area were limited to Hoog-Catherijne, the shopping and convention centre near the railway station with the most transfers in the Netherlands. The geographical centre of the Netherlands makes the city attractive for corporate headquarters that only operate in the Netherlands (NEI 2001). Leiden and Amersfoort are smaller in size and the stations area redeveloped, and the cities' central location and lower prices make them especially attractive in the economic booming period of the 1990s (Elsevier 2002). Therefore, these cities can be categorized as remote edge cities with a traditional downtown.

Amsterdam protects her *traditional downtown* as national monument with strict planning regulations, and high-rises are limited to the area where the subway is constructed. As a consequence of the downtown protection, car access is poorly developed in the downtowns of Amsterdam and Utrecht and industries that are car-based fled the cities or settled in the city's surroundings. Knowledge-intensive activities and face-to-face contacts in the media sector and other creative industries, as well as knowledge-intensive services remain of continuous importance for the downtown centre of Amsterdam (Kenniseconomie Monitor 2003). Currently, a quarter of all jobs in the creative industries are clustered in the greater Amsterdam region, mainly in the downtown and southern ward.

The Amsterdam downtown still includes the national stock exchange and smaller banks, but financial and legal services increasingly leave and cluster at the southern ring road, near the railway station and close to the airport, or even leave for London (Engelen, unpublished). This

Zuidas area develops as a new business district between city and airport, close to an attracting living environment. The airport area is attractive for international services such as European headquarters and distribution, and therefore in the 1980s and 1990s showed a rapid development of the *external edge city* in Schiphol and Hoofddorp in the Haarlemmermeer, and on the main corridor of the airport and seaport at the Voorburg-Prins Claus Plein highway intersection.

Business services and back offices that are related to the main economic sectors such as finance, follow the leading corporations to the outskirts of the city or establish independently in other parts of the city with better highway access. The redevelopment of locations at the highway and rail infrastructure intersections as new nodes of the cities' development led to *internal edge cities* in Amsterdam-Sloterdijk, Den Haag-Binckhorst, and Rotterdam-Leuvehaven. Combinations of office development, large retailers or offices, and education at campuses can also be found on these kinds of locations. Amsterdam Arena-Duivendrecht, Rotterdam Alexandrium (Capelle), and Den Haag HS are major examples of *specialised sub-centres* of commerce and offices (Metz 2002). Utrecht Rijnsweerd-Uithof with the University of Utrecht, Delft Technical University Campus, and Den Haag HS are examples of knowledge-intensive specialised subcentres in the Randstad city-region. These locations are not centres of (technical) research and development, but centres of business innovators and knowledge workers (Van Oort and Raspe 2005).

Back offices that cannot afford the rents of the central locations establish as well in the outskirts of the city and are well accessible by car. The *remote edge cities* are not the spatial distance to the major centres as Hall describes, but fulfil within Dutch distances a similar function. Remote edge cites for these back offices can be found in the new towns Zoetermeer, Nieuwegein, Rijswijk, and Rijnsweerd as well. These locations rapidly developed in the 1990s due to high prices and scarcity of business expansion space in more traditional centres. The city of Almere in the reclaimed Flevoland, has a similar function as remote edge city; economic activities that lack space or cannot afford prices of Amsterdam, and move to the spacious and cheaper area in times of economic growth. In combination with large-scaled housing construction, however, Almere continues to grow in economic hard times too (Ecorys-NEI 2001).

In describing and analysing the internal geography of the Randstad city-region, we should add the *harbour*, *greenports,* and *cargo centres* as major centres of spatial-economic dynamics to the cityport typology of Peter Hall (2001, see Figure 3.3). In terms of gross added value, jobs, and urban dynamics, these areas of more traditional industries should be addressed. The harbour of Rotterdam, until recently the largest port in the world, creates 63.000 jobs at the port itself and 276.000 jobs indirectly furthering into the city-region (Stevens 1997). The port of Rotterdam is moving out of the downtown towards the sea for larger and deeper ports, with continuous expansion plans with Maasvlakte II (Van Gils 2005).

The horticulture of the Westland area is located north of Rotterdam's harbour area. The Westland area is suffering from monoculture, lack of space, and needs sector restructuring, but is still internationally competitive (Elsevier 2002, Janssen-Jansen 2004). The greenport Aalsmeer and vicinity faces similar challenges, with a shift from production towards sector innovation, auction trade, and distribution in the flower trade (Flower Mainport Aalsmeer 2004). Nevertheless, this greenport is highly competitive on the international market (Elsevier 2002, VNO-NCW 2001). These greenports developed near the harbour and airport areas or

Dutch mainports: locations that are increasingly filled in with cargo distributions centres. These locations are included in the overview of types of cityports in Figure 3.6.

In interviews conducted for a Zuidas market consultation (Rotimex and Kolpron 2001), business leaders expect a continuation of specialisation and sorting out of cities in the Randstad. In their opinion, Amsterdam Zuidas will become the cluster of international business services, absorbing these activities from other cities.[4] The area includes and merges with the airport area on the west side, and Amsterdam Duivendrecht/Arena area on the east side, with links to downtown Amsterdam and rising Almere. Den Haag and Utrecht lack space for expansion, and ability and capacity to develop major urban projects as subways (*ibid.*). On the other hand, the high education level, productivity, and continuous economic growth in these two cities do not show this constitutes a major problem.

*The economic dimension of Randstad cityports*

The previous section offered a descriptive introduction of the internal geography of the Randstad. The importance of infrastructure and the access to the urban centres for economic dynamics is therein pointed out indirectly. The overview of the spatial and economic dynamics can be further analysed with the economy, infrastructure, and urban dimensions of the cityport. Here, we start with the elements of the economic domain of the cityports.

One profound way to determine the economic performance of a location is to measure the added value or regional product on the location level. For benchmark studies this is an increasingly important tool of analysis, but in practise toilsome. Research bureau Louter has in Elsevier (2002) measured the space productivity of locations in the Netherlands. The space productivity is therein the gross added value per square kilometre and led to a selected number of locations of high economic and spatial dynamics. These dozen locations overlap with the types of cityports introduced above.

The highest productivity as gross value added per square kilometre is in the traditional central business districts of Rotterdam and Den Haag, and to a lesser extent in Amsterdam and Utrecht. The higher densities of the high-rise downtowns of Rotterdam and Den Haag new centre, and the low-rise historical downtowns of Amsterdam and Utrecht explain this high productivity per square kilometre. The most rapid growth of space productivity in the period 1996-2001 however, is found in new centres around these main cities, in the airport area, and in medium-sized towns. Figure 3.4 shows this trend in the space productivity of Rijnsweerd near Utrecht, ArenA-Duivendrecht, Schiphol, and the medium-sized towns Leiden and Amersfoort. The Figure 3.4 also shows that the relation with office rents cannot directly be seen. In general, the Randstad's office rents are relatively equal; class A locations range between over €100 and less than €400 per square meter. Below €100, the office location market approaches the industrial sites' market with maximum rents of €80 for distributors near Amsterdam airport Schiphol.

Figure 3.4 does not show a relationship between office rents and space productivity. This can be explained by densities and heights of buildings that are strictly government regulated in the Netherlands and therefore are quintessential in understanding the space productivity and rents relationship. Office rents are, as an outcome of supply and demand on the real estate market, in general a good indicator of the (expected) space productivity of the cityport. In the Randstad

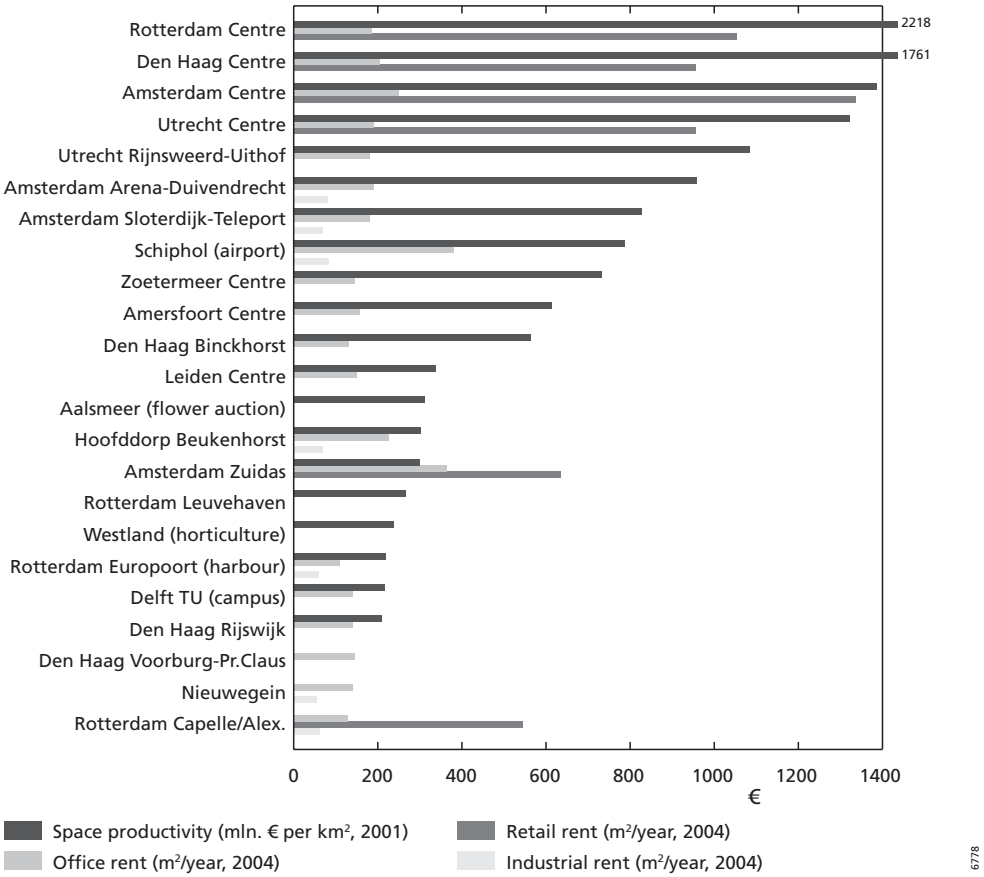


*Figure 3.4* The economic dimension of cityports in the Randstad (Source: DTZ (2005), Elsevier (2002), FGH (2000))

this lead to the highest rents paid at Schiphol airport and Amsterdam Zuidas. The low average direct return on investment in these real estate market hotspots are one percent lower than the common 7% and underlines this argument (cf. IVG 2003). In 2001, the added value per square kilometre might have been still limited for these locations, but with the headquarters of ABN-AMRO and ING banks, and WTC, the productivity is currently much higher.

A closer look at the real estate market shows a differentiation in the office market between the markets of Amsterdam, the Randstad, corridors to the east, and the rest of the Netherlands in terms of price and market (DTZ 2005, Dynamis 2002, see also Figure 3.5). Rent levels in the Amsterdam capital, in particular Amsterdam-South, East, and Schiphol, are on internationally competitive levels of €300 – €400 per square meter per year. It is striking in the Randstad city-region that not traditional downtown centres but Schiphol airport demands the highest rent for offices and industrial sites. Other locations in the Randstad have lower rent levels, under €200, attracting a different market niche: the national companies. Due to market pressure and higher

costs, trends in 1999-2001 show a rise of new locations at the edges and suburbs of the main cities, thus within their own local market. For instance, the largest increase in office space use is found east of Rotterdam (Capelle aan den IJssel, 27% of the local market in 2001), near The Hague (Rijswijk, 25%), and Utrecht (Nieuwegein, 23%) (Dynamis 2002).[5]

These new towns along with Hoofddorp, near Amsterdam Schiphol, have leading positions at the market for industrial sites. For industrial sites, rent levels are relatively equal with a maximum of €80 near Schiphol Airport. For the retail real estate market, Figure 3.4 only includes the locations with rents over €1000 per square metre: rents only paid in the downtowns of the cities. Nevertheless, large scaled shopping malls in the edge cities of Amsterdam (Arena), Rotterdam (Alexandrium), and Den Haag (Laakhaven), are new and successful (Figure 3.3). Here, shops pay half the rent of the traditional centres.

The relevance of the space productivity indicator returns in the case of the Aalsmeer flower auction and Westland horticulture, where relatively low rents are paid for agriculture land, but in these greenports internationally competitive products are developed. Aalsmeer (€311 million added value per square kilometre in 2001) and Westland (€228 million added value) have a considerable contribution to the productivity of the Randstad city region (see Figure 3.4).

*The infrastructure and urban dimension of Randstad cityports*

The economic dimension of the cityport is related here to the infrastructure and urban dimension of the cityport. Due to a lack of data, in particular for the place value of the case studies, we cannot draw conclusions in terms of balanced and unbalanced nodes and places in the node-place model of Bertolini. Figure 3.5 however provides insights in the spatial and economic development of cityports in the case study city-regions. Densities are drawn from local statistics. Details for node value calculations can be found in the appendix.[6]

Schiphol Airport and Amsterdam Zuidas have by far the best access, or highest node value, in the Randstad city-region. Figure 3.5 furthermore shows the importance of the connectivity of the downtown centres of Amsterdam, Leiden, and Amersfoort in relation to public transportation. Light rail infrastructure and airport access, in combination with the ring road, leads to the high node values of Amsterdam's subcentres in Duivendrecht, Sloterdijk, and Zuidas. Greenports have the worst access to infrastructure amongst the selected cityports in the Randstad city-region.

Figure 3.5 shows furthermore the positive relationship between the rents and the accessibility in general. It is not remarkable that locations with better access are more expensive, but it is not a necessity. For instance, there are some exceptions of relatively low rents for well accessible locations. The centres of Duivendrecht, Leiden, and Amersfoort have relatively low class-A office rents compared to the accessibility. This might explain the rapid development of these locations in the past decade in terms of space productivity under growing economic pressures (Elsevier 2002).

The urban dimension of the cityport is the density of jobs and inhabitants. In international comparison, this can – different from the economic and infrastructure dimensions – only be measured on the city level. There is no direct relationship between the former dimensions and the urban dimension since the spatial scale of measuring is different. Groenemeijer and Van Bakel (2001) measured the density or place value on the local level (although with different definitions) and came to a stronger correlation between 'place' and 'node' in the Randstad.

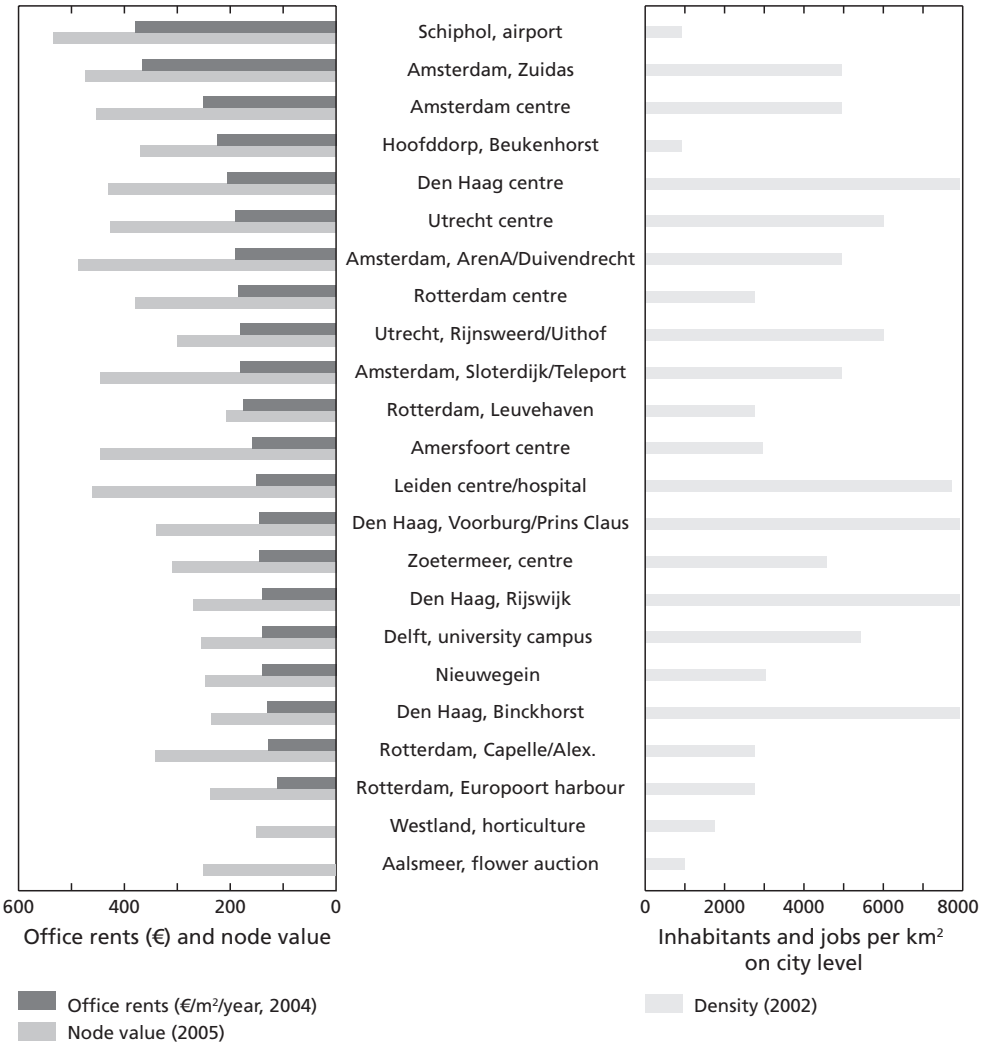


*Figure 3.5* Cityport dimensions in the Randstad (Source: DTZ (2005), CBS-Statline (2005) and Appendix II)

The density problem is closely related to the city borders defined, and the ability of surrounding territories' annexation to create space for development. Den Haag and less profoundly Leiden and Utrecht have dealt with this problem for a long time (Janssen-Jansen 2004), but more recently could expand their territories. Rijswijk, Voorburg, and other cities surround Den Haag, leading to nearly 8.000 inhabitants and jobs per square kilometre (Figure 3.5). Leiden is surrounded by the Green Heart, and Utrecht by bothGreen Heart and Utrechtse Heuvelrug national parks. In general, densities in the largest cities Amsterdam and Rotterdam are lower than in these towns, but the total number of jobs and inhabitants are higher.

In sum, the analysis of cityports offers a mixed picture of spatial and economic dynamics in the Randstad city-region. There is no dominant centre in the city-region and the polycentric development of the Randstad has historical roots with many traditional downtown centres that are becoming leisure centres (Amsterdam) and remote edge cities (Leiden, Amersfoort). The traditional downtown centres of Amsterdam, Rotterdam, Den Haag, and Utrecht remain dominant in terms of productivity, but a significant shift towards medium-sized towns and edge cities is found. In terms of accessibility, office rents, and growth of added value, these new cityports show a better performance. The development of internal edge cities within the cities' domain with better car access can in this regard be seen as successful.

It is remarkable that not the downtowns but the external edge city Schiphol and new business centre Zuidas show the highest office rents. For business and knowledge workers, the high densities of the major cities are an important condition for the business environment. R&D is less developed and concentrated in the Randstad, and is less dependent on this urban factor in the Randstad city-region. In the remote edge cities of Rijswijk, Nieuwegein, and Zoetermeer, car access is a major quality of the business environment, and public transport is less well developed. In specialised subcentres, both public transport and car access are well developed. Finally, despite white-collar workers' dominance in globalizing city-regions, trade and distribution in cityports as greenports, airports, and harbours continue to be important and internationally competitive sectors.

## 3.4 Cityports in Frankfurt Rhein-Main

In this section, the internal geography in terms of cityports in the Frankfurt Rhein-Main city-region is introduced for a rough outline of the current economic and spatial dynamics. The branding of names as city marketing is in this region is interesting issue to observe. The typology of cityports is followed by an analysis of these locations in terms of cityport dimensions. Therefore, the real estate market is framed for the economic dimension. Then, the analysis of the infrastructure dimension (accessibility of the places) and the urban dimension (densities) are added. Finally, a brief synthesis of types and dimensions of cityports is made.

*Types of cityports*

The downtown of Frankfurt is the main CBD of the region: the economic nerve centre, with a slightly decreasing concentration of inhabitants and jobs, and an outstanding accessibility. The nicknames *Mainhattan* for the banking district and *Messestadt* for the convention centre's importance are common in Frankfurt am Main. Frankfurt's centre was destroyed during World War II and parts of the *traditional downtown centre* were rebuilt in the traditional 'Römer' style on the east side, which is currently the major commercial shopping centre. The west side of the former downtown developed as a modern skyscraper district.

Darmstadt also suffered from destruction in 1945, but the other cities stayed relatively intact and remained traditional downtown centres. Despite the image of Darmstadt as *Wissenschaftstadt* (science city) with a large share of R&D, the city copes with slow growth Figures and the second highest job loss in the region. The direct neighbouring county Darmstadt-Dieburg is benefiting in the mean time. In Wiesbaden, the focus on quality dates back to the time the city was a spa resort for the rich and famous (Freund 2002). The commercial centre and business services

continue to aim at high-profile citizens and workers, with luxurious shops, business consultants, and international conventions in the capital or *Landeshauptstadt* Wiesbaden. Another older European downtown centre is Mainz, a main shopping centre.

It is not well known, but the city-region is also a major concentration of the media sector in Frankfurt and *Mediastadt* Mainz (Freund 2002). In Mainz, ZDF television headquarters and related media are concentrated in the Mediaviertel Lerchenberg as a *new business district*. The new business districts for service sectors are also found in Frankfurt-Westend, which could relieve the pressure of the CBD (Ploeger 2004). These are also typical new business districts that are located near prestigious residential areas with better car access than the downtowns. For journalists and other knowledge workers, the proximity of the downtown of Frankfurt is of major importance.

On the edges of Frankfurt's downtown *internal edge cities* are emerging phenomena as cityports. Due market pressure of the banking and insurance sectors in the economic nerve centre, former distribution and manufacturing sites are redeveloped. Examples are internal edge cities as City-WEST on a former manufacturing site, and Hanauer Landstrasse or City-East in the former docklands and manufacturing area. Where the City-WEST is a planned urban redevelopment project, the Hanauer Landstrasse is currently in a natural transition process from manufacturing and car dealers, to showrooms and business services, with infrastructure as an incentive for further investments here (Ploeger 2004).

The second best accessible location in the region is the airport, with *external edge city* development at the airport, in office city Niederrad and cargo distribution in Kelsterbach. Niederrad was planned to attract financial services to relieve pressure in the downtown, but the office city attracted services and trading companies instead (Freund 2002). Cargo and manufacturing locations are not addressed in the typology of internal geography of Peter Hall (2001) and due to their importance are added here. The *CargoCity* cityport can be found in

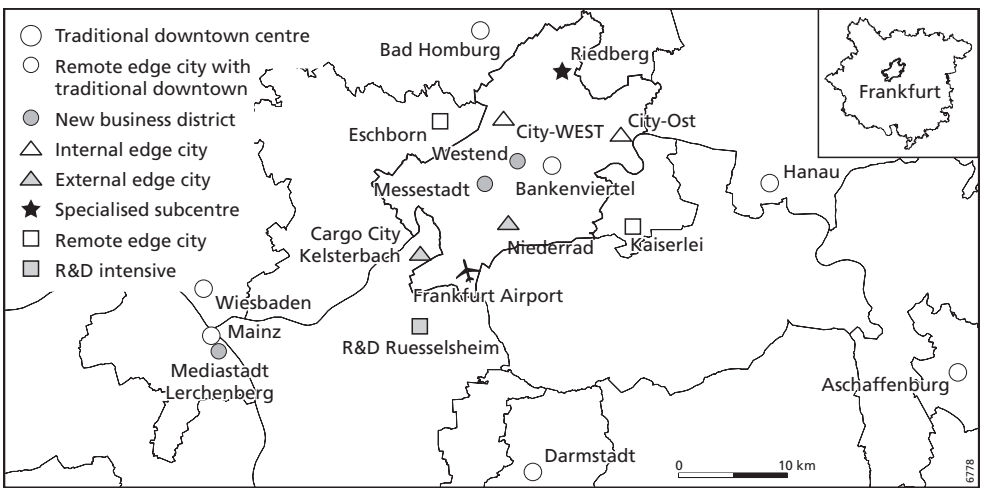


*Figure 3.6* Cityports in Frankfurt Rhein-Main city-region

the smaller municipalities near the airport, but are mainly concentrated near Kelsterbach. The nearby industrial site of General Motors' Opel plant in Rüsselsheim shows a loss of jobs, but is still competitive (see chapter 2). Manufacturing in Höchst and Hanau (the city of a former nuclear plant), has had a hard time transforming into competitive new industries is part of the *Produktionsgürtel* in the southern axis of the Rhein-Main region. A transformation process into new R&D is essential in the area: activities that are less focussed on the city.

The economic underperformance of the former leather producing city Offenbach am Main is improved due better highway connections to Frankfurt and the airport. In addition, the light rail connection is another condition for the development of Kaiserlei at the Offenbach-Frankfurt border. Offenbach-Kaiserlei and Eschborn are the regional centres of back offices or *remote edge cities* (Figure 3.6). These office locations have lower rents, corporate tax advantages, and can predominantly be found in the smaller centres in the Taunus *Speckgürtel*, in Niedereschbach, and Mertonviertel. Business innovations and knowledge workers are concentrating near the university campus in Riedberg and are developed recently as *specialised sub-centres* and in the region's style with S-Bahn light rail.

The Speckgürtel along the north side of Frankfurt Rhein-Main as well as the airport will continue to be the most important economic development locations of the region. These locations are not only well accessible by car, but also ready for development, offer good conditions, are less expensive, and have lower corporate tax. In the interviews with the regional actors, however, the continuous importance of the city is addressed for the younger and higher educated employees who prefer urban life with all her facilities and multi-modal accessibility. There are enough possible top-locations available for "recycling": for instance the eastern harbour, the former freight railway tracks in the Europaviertel near the central station, and the former military settlements Gateway Gardens, CargoCity-Süd, and Zeppelinheim near the airport.

*Economic dimension of Frankfurt Rhein-Main's cityports*

Space productivity is measured for the Frankfurt region on the municipal level, not on the local level (Gutberlet 2002). In Frankfurt, €179 million per square kilometre is added to the economic value every year, in contrast to cities like Offenbach (€86 million) and Mainz (€84 million). Because of this high spatial scale of measuring, it makes no sense to use these indicators here for further international comparison. Therefore, we will directly focus on rent levels in the cityports of Frankfurt Rhein-Main (see Figure 3.7).

In Germany's real estate market it is not common to distinguish office locations from industrial sites; therefore a complete picture of these locations cannot be given here. Industrial sites are predominantly distribution centres near the airport and manufacturing sites in the southern ring of the Rhein-Main regions, with similar rent levels as industrial sites in the Randstad. Retailers' shop rents vary in the Rhein-Main area. Frankfurt's main shopping street Zeil costs up to €2500 per square meter: almost double the rent of old shopping areas in Wiesbaden, Mainz, and Bad Homburg downtowns.

In Frankfurt's CBD, banks and insurers are able to pay up to €645 per square meter in 2002. The centre and Westend areas located nearby require €550 office rent for class A locations. This recently dropped in a period of economic downswing and higher vacancy rates, but is still high for German standards. Despite economic problems, the airport's office locations, limited

in volume, continued to grow to €300 per square meter per year. Other major office locations fluctuate around €200, including the Mainz, Darmstadt, and Wiesbaden downtowns, and the Niederrad and Kaiserlei office cities.

Direct returns in real estate investment are in München (5,25%) and Frankfurt (5,50%), which are the lowest of Europe.[7] This shows a high confidence in the office market, quality, and expected value increase of the real estate in future. Considering the letting in 1999, not the rent levels, but the lack of office locations was the main problem of the office market. Particularly new offices in Frankfurt West, including the City-WEST project, could bring relief the office market. The recent 2001 economic downfall of the real estate market is in contrast to the offices that are planned and will be completed between 2002-2004The current vacancy rate of 14% in 2003 is all-time high, but large market completions will continue.[8]

The economic cores are locally embedded in the Frankfurt Rhein-Main region; on the one hand sprawling over the region, and on the other hand concentrating in cityports. The continuous suburbanization of companies in Frankfurt Rhein-Main can be described as a 'centrifugal process' from the centre of Frankfurt further outside.[9] The centrifugation geared at the end of the 1980s with a diversity of back offices in the Taunus Mountains: isolated office locations, modern business parks, and office cities (*Bürostadt*) as edge cities. Amongst them particularly credit and insurance companies, and research institutes left the downtown of Frankfurt and settled in Niederrad, Offenbach Kaiserlei, and Eschborn-Süd.

*Infrastructure and urban dimension of Frankfurt Rhein-Main's cityports*

The accessibility of Frankfurt Rhein-Main has three main assets: it is the centre of air transport in Germany and a central node in the train and highway infrastructure. High speed trains in all directions and airplanes to 117 destinations contribute considerably to the region's accessibility (see appendix). Furthermore, the German regions are famous for the widely developed *Schnellbahn* and *Untergrundbahn* light rail and subway systems that connect centres in the city-region. Finally, major international highways of European countries cross at Frankfurt.

The centre of Frankfurt has the best accessibility of the region, followed by the airport (Figure 3.7). High economic dynamics are however found in less accessible locations such as Kreis Offenbach and the towns Bad Vilbel and Eschborn, where rents are lower and tax conditions favourable. Spatial-economic development is more spread over the Frankfurt Rhein-Main region and it not limited to the best accessible cityports. Figure 3.7 also shows the relationship between access and office rents in the city-region in general, where cities such as Mainz, Wiesbaden, and Darmstadt have surprisingly low rents compared to the excellent infrastructure access.

For future spatial and economic development, Frankfurt airport is the most important business location. The connection to the airport improves the position of Mainz, Wiesbaden, and Frankfurt. In particular the new high-speed train connection of Wiesbaden will improve the accessibility of the state capital and is an incentive for economic and spatial dynamics. Freund expects future economic development in Niederrad, despite the scarcity of locations; that Eschborn can expand in the direction of the former airport area; Bad Vilbel has a resource of locations near the Frankfurt ring road; and Offenbach-Kaiserlei will soon be better connected to the Taunus region where managers live (Interview Freund 2003). All of these locations show the increasing importance of the road infrastructure in the Frankfurt Rhein-Main city-region.

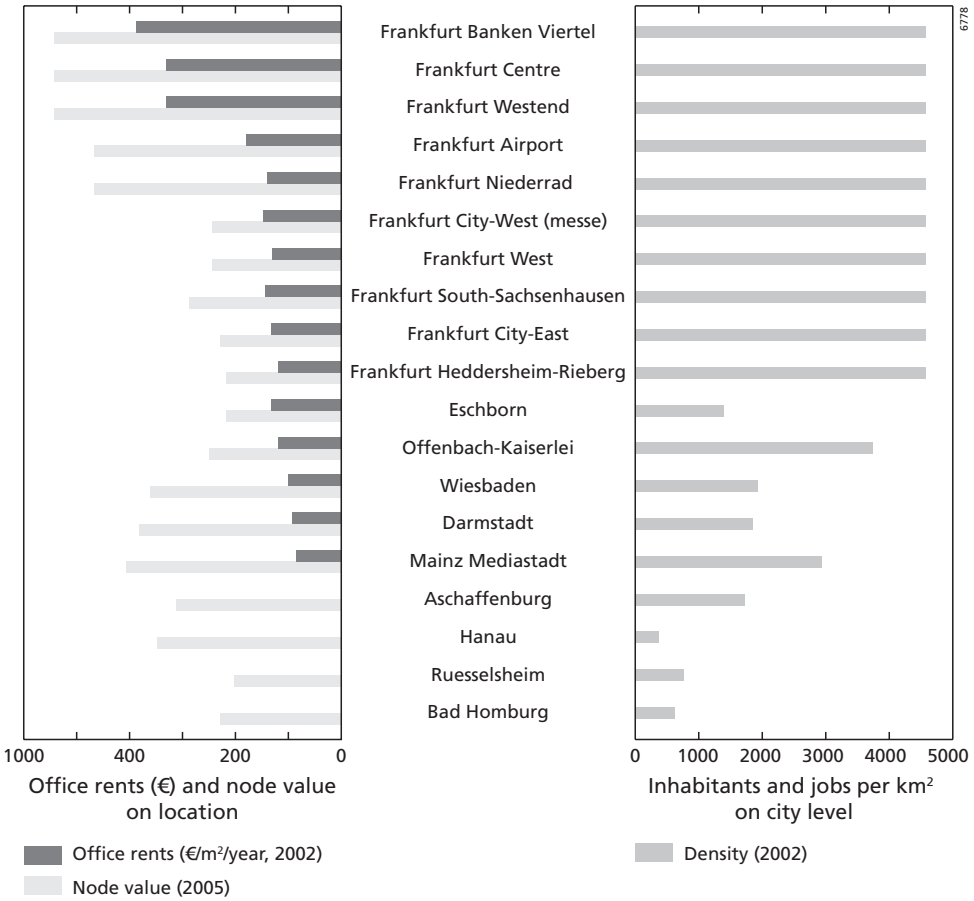


*Figure 3.7* Cityport dimensions in Frankfurt Rhein-Main (Source: CWHB (2002), SBA (2005), Appendix II)

Figure 3.7 also shows the urban dimension of the city-region's cityports. The urban dimension expressed by the number of jobs and citizens per square kilometre, is measured on the municipal level and therefore shows no variation between the cityports of Frankfurt. The misbalance of a relative high number of jobs and a relative small number of inhabitants makes the average number of jobs and citizens on a square kilometre in Frankfurt limited to over 4500. Offenbach am Main comes close with a reverse balance of jobs and citizens compared to Frankfurt.

Since the urban dimension is measured on the city level it cannot be directly compared with the economic and infrastructure dimension of the cityport. Therefore, it is most interesting to look behind the Figure at the trends in the region's labour market. Despite the average slight decrease of employment in Frankfurt itself (-811 jobs between 1996 and 2000), a steady growth can be found near the airport in the county Groß-Gerau (Kelsterbach, Mörfelden-Walldorf), and the county Offenbach (Neu-Isenburg, Langen). Locations with average densities are growing faster here, in particular in times of economic pressures such as in the 1990.

In sum, Frankfurt Rhein-Main has a wide variety of cityports, with a strong local identity. This identity is not only marketed successfully with labels such as *Wissenschaftsstadt* or *Messestadt*, but is deeply rooted in the economic sectors and social traditions. Although Frankfurt is the nerve centre, the quality is mainly hidden in the variety of cityports in the region. Frankfurt is, unlike the other cities in the region, not a typical European downtown centre, but a combination of rebuilding the traditional downtown with an American high-rise-style CBD. That centre benefits from good infrastructure on the one hand and the geographical position as the urban core on the other hand. The other cities with older centres choose their own market within the regional profile, and have good infrastructure access. Spatial and economic dynamics near Frankfurt have led to a development of a variety of edge cities near the downtown, in new business districts near attractive housing areas for newer economic activities (Frankfurt-West, Mainz), and redevelopment of older industrial sites (City-West, City-East). These urban dynamics also led to sprawl into the Rhein-Main region. Examples are the edge cities that are more car-dependent, have lower taxes, and demand lower rents. These external and remote edge cities can be divided in the back offices in the northern rim, and distribution and R&D-intensive manufacturing at industrial sites and cargo centres in the southern rim. With the latter category we add two types of cityports that are competitive and of strategic importance to the original model: the CargoCity distribution near the airport in Kelsterbach and the R&D-intensive industrial production site in Rüsselsheim.

## 3.5 Cityport in Tokyo Metropolitan Area

By introducing the types of cityports in the Tokyo Metropolitan Area, difference in size and intensity of spatial and economic dynamics compared to the previous case studies should be considered. In the world's largest city-region, two dozens locations are distinguished as centres of spatial and economic dynamics. In Tokyo, some of the town-in-town are branding their names with the English additive '-City.' The 25 locations in the Tokyo Metropolitan Area are selected by a variety of indicators: the type of cityport, and the dimensions of the cityport: economy, infrastructure, and urbanity.

*Types of cityports*
In the analysis of the polycentric structure of the Tokyo city-region, it becomes clear that the types of cityports, based on Hall's typology, are not sufficient yet. A highly urban and economically profound area such as Tokyo develops a variety of locations as cityports that need to be added. In particular here, commercial centres, leisure centres, and culture centres need further analysis, in addition to the business centres, edge cities, and subcentres.

Tokyo's central business district is situated around Tokyo Station. Urban dynamics spread into Marunouchi, Otemachi, Yeasu, Nihonbashi, Kasumigaseki, and Ginza as the *traditional downtown centre* (Figure 3.8). Marunouchi is Tokyo's premier office location, conveniently located between Tokyo Station and the Imperial Palace (Cybriwsky 1998). The Mitsubishi Group owns most of the land here and the corporate headquarters are concentrated in this CBD of 10 stories. The area is mainly for offices; shops and restaurants are rare, which will change after the completion of the redevelopment plans.[10] The newer Otemachi district, north of Tokyo Station,

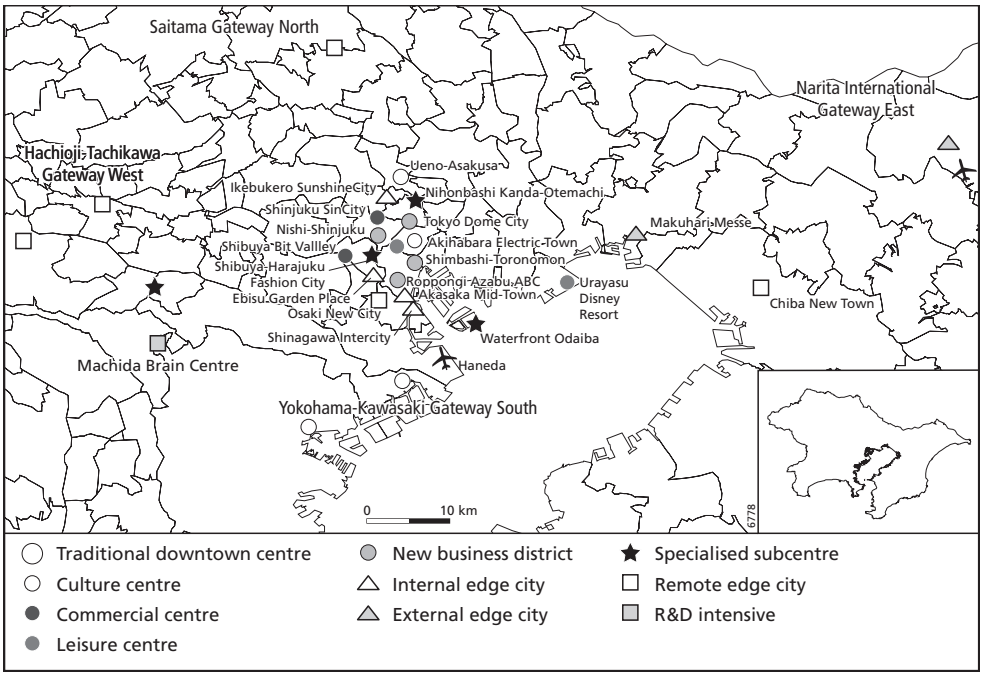


*Figure 3.8* Cityports in Tokyo Metropolitan Area

is the spillover area of Marunouchi for banks, publishers, and telecommunication. Here is also Akihabara, which developed from 'Electric Town' into subculture centre. Ginza is the most famous upper-class shopping district in Japan. Its fame dates from expansion and sale records in the heydays of the bubble-economy.[11] South of the Imperial Palace is the Kasumigaseki district, where most ministries and *Diet* (national parliament) are concentrated.

Nihonbashi is the oldest part of Edo-Tokyo and the location where national banks, stock exchange, and many hotels are concentrated. However, the area is more a *new business district* than a traditional downtown due to the dominating back offices and business hotels after drastic modernist redevelopment in the 1970s (Cybriwsky 1998). This area is the subject of Mitsui-Fudosan's recent redevelopment plans as a major landowner. Nihonbashi did not offer enough space to accommodate all dominant economic and political management functions. Therefore, *new business districts* developed in Hamamatsucho, and recently Shiodome, with a concentration of headquarters for newer business activities such as computers. These locations are also well accessible by the Yamanote loop line that shapes the polycentric network of the city-region. On the west side of Tokyo's central 23-wards, the Tokyo Metropolitan Government has established another newer business district. Since the end of the 1980s, Nishi-Shinjuku has accommodated the City Hall, hotels, banks, and corporate headquarters high-rises. It strategically shifts the development of Tokyo into the western direction (*ibid.*).

The corporate headquarters, related offices, restaurants, and hotels replace manufacturing, transportation, and warehousing during and after the bubble economy in the centre of Tokyo. The redevelopment of industrial sites led to the rise of *internal edge cities*. Shinagawa's Intercity, a new mixed-use but predominantly office location is connected to the high-speed train station, but turns the back to the harbour and fish market on the east side. Ebisu Garden Place is a redevelopment project on the site of the former Yebisu beer brewery, and has a mixed-land use, fashionable, and international character, currently attracting investment bankers.

The 1980s waterfront development in the Tokyo Bay was Tokyo's answer to plans of relocating the capital to a safer and less-dense area (Saito 2002, Sorensen 2002). On the reclaimed islands in the Tokyo Bay, a variety of land uses are located, varying from public facilities of power plants, gas, and sewerage disposal, to a heliport, factories, golf parks, and entertainment, making the waterfront development in the Koto ward a major *specialised sub-centre*. The most profound development is Tokyo Teleport. Teleport was initially planned as a futuristic telecommunication centre, but after the collapse of the bubble economy and a lacking market interest, it changed ambition but kept the name. Currently, real estate in the waterfront area is slowly recovering.

South of Teleport area, Haneda airport is built on reclaimed islands and will be re-expanded. Near Haneda, Kawasaki currently enrols plans for redeveloping the factory sites in the Kanagawa river delta. Yokohama redeveloped in the same period the futuristic port area Minato Mirai 21. MM21 has a broad range of commercial, cultural, and residential land uses, and amongst others the Landmark Tower, Japan's highest office building.

The *external edge city* is highly dependent on international connections, often located at axis of the airport or newer high-speed train stations. Funabashi-Makuhari is a new town of office development; IBM's offices, Asia's largest convention centre (*Messe*) and a business research park are located here. Makuhari Seaside Park is Chiba's competitive answer of leisure waterfront developments in the Bay area. It can be seen as a cluster with Tokyo's Disneyland, in Urayasu, a main *leisure centre*. The airport area of Narita is the main other external edge city in the metropolitan area of Tokyo. In particular, hotels, distribution centres, and airport services are attracted to the international airport and established along the motorways in the Narita area.

Parts of the Tokyo CBD spillover can be found more west in the Minato ward in Aoyama, Azabu, and Roppongi, where Mori Building redeveloped amongst others Ark Hills (1986) and Roppongi Hills (2003). These are located near the expatriated residential area of Azabu, embassies and corporate headquarters, and therefore can be categorized as a *new business district* of the expatriate communities (Mitsui-Fudosan 2002).

These 'Hills' are connected to the *commercial centres* of Shibuya and Shinjuku on the west side. Shibuya is mainly developed by Tokyu Corporation, which runs railways to Yokohama and established fashionable department stores near the station. The link of Shibuya with the international community is closely related to the flag stores of international fashion leaders in the Omotesando Street in Harajuku. Shibuya is also the city's main concentration of software and entertainment and is nicknamed 'Bit Valley.' Nearby Shinjuku, the busiest train station of Tokyo, is another major *commercial centre,* and is also called 'Sin City,' an area attracting salary-men late at night (Cybriwsky 1998).

Seibu Corporation has been of historical importance for the development of Ikebukuro as a *compound internal edge city*. High rents pushed the company's workers tot the west of Tokyo. Seibu's railways connected them to the Yamanote loop line at Ikebukuro. The railroads end underground, where Seibu built department stores on top of the station. Sunshine 60, Tokyo's largest building complex of a hotel and shopping malls were build near Ikebukuro in the 1980s, makes Ikebukuro a major commercial area.

The Tokyo Metropolitan Area is not limited to the traditional core (first rim) or centres in and near the Yamanoto loop line (second rim). More recent spatial and economic development is due to urban pressure concentrated in the new towns and has attracted economic activities. The appointment of Tachikawa and Hachioji as growth poles of urban development in the west has made these centres of department stores, hotels, and other services near the station. A similar pattern of economic dynamics with more production and distribution can be found in Saitama and Chiba. Because of the convenient suburban life style with car accessibility and less crowded centres, the centres of the new towns have developed in the 1980s and 1990. Recently, however, due to land price drops and the focus shifts to housing in the central ward again, in particular harming the new towns with low urban qualities and bad access.

Cybriwsky describes the 'other side' of Tokyo as "*the foundation for the rest of the Tokyo economy*" (1998:168). The areas on the north-eastern side of Tokyo are the home of taxi drivers, fish markets, media, printing, and manufacturing, but is also the place where poorer people and homeless live. Ueno and Asakusa are the main *cultural centres*, with more variety and differences in product and service quality and prices than Shinjuku and Shibuya. The exodus of manufacturing out of Tokyo has affected the economies of these areas mostly in the Taito and Ota wards. Due to planning policies and urban pressure, manufacturing, R&D, and small enterprises have in the last decades been shifting to Kanagawa prefecture and beyond, making that area the *brain centre* of Japan (Cybriwsky 1998:121), joint by Tsukuba Science City in Ibaraki prefecture, north of Tokyo. These brain centres can be seen as a particular type of specialised subcentre development in the Tokyo city-region.

*Economic dimension of Tokyo's cityports*

Since data is not available to determine the space productivity in the Tokyo Metropolitan Area cityports, here we will focus on office rents as a relatively reliable indicator for the economic dimension in cityport development.[12]

Highest rents are paid in the Tokyo station area of Marunouchi and Ginza (over €1100, Figure 3.9), where redevelopment plans are made to increase the remarkably low number of high-rise towers. Nevertheless, less than ten percent are class-A offices.[13] Rents for these offices of €950 are paid in Minato ward. Minato has the largest concentration of international corporations and embassies and is therefore the favourite location for living and expatriates. This ward has three main office concentrations: Akasaka-Roppongi, Shiodome-Shimbashi, and Shinagawa Intercity. After Ropongi Hills and Shiodome's recent completions, the office market of Minato has made a leap forward in terms of quality. More new offices in Mid-Town and Shimbashi are to be completed in the coming years.

Nishi-Shinjuku, the area between Shinjuku station and the Tokyo Metropolitan Area has the highest concentration of skyscrapers, with rents near €835 per square meter in 2003. Shinjuku is also a popular area for high-tech firms and hotels. New buildings will add 137,000 square meters of office space to the Nishi-Shinjuku office market through 2008 (CBRE 2004, Colliers Halifax 2003, Mori Building 2004).

The airports Narita and Haneda have low concentrations of establishments and high-rise buildings, but demand respectively €935 and €830 per year in rent for offices directly at the airport (Figure 3.9). It is remarkable that Haneda, Tokyo's busiest airport near downtown Tokyo, is cheaper than Narita. This can be explained by the added value of economic activities at an international airport compared to a mainly domestic airport – issues that are discussed in chapter 4. The average rents at Haneda are still €130 higher than the high-end offices in neighbouring Kamata in Ota ward.

Concentrations of high-rises and office rents for locations in the polycentric rim are unknown but likely to be considerably lower in remote centres such as Tachikawa, Hachioji, Kawasaki, and Chiba. The recent trends show a further concentration in the central ward area.[14]

*Infrastructure dimension of Tokyo's cityports*

Tokyo's spatial and economic development is closely related to infrastructure planning (Hack 2000). Figure 3.9 offers a similar perspective on the Tokyo Metropolitan Area; most locations have a node value near 400. This means that whether the cityports are located in the older downtown area of Tokyo's central wards, or are part of the Yamanote loop line centres further in the Kanto plain, all locations have good public and road infrastructure. Even the locations with the worst accessibility from this list have train stations and highway access. Ueno, Kanda, and Marunouchi have the best access due to the Shinkansen high-speed trains that run from northern Kanto to Kyushu in the west. Locations in southern Tokyo and Kanagawa benefit from the access to Haneda airport, where Chiba and eastern Tokyo have good access to Narita airport in return. Western Tokyo (Hachioji and Tachikawa) lacks Shinkansen trains and has poor airport access, leading to a lower node value in Figure 3.9. Due to the overall infrastructure facilities, there is no significant relationship between the access of the 25 centres and office rents in the Tokyo Metropolitan Area. Nevertheless, in Tokyo office rents are still strongly related to the walking distance to the nearest subway or train station.

*Urban dimension of Tokyo's cityports*

In Tokyo, inhabitants and jobs per square kilometre is measured on the ward and city levels. The findings of this urban dimension are presented in Figure 3.9. The highest concentrations are found in Chuo (80.119 inhabitants and jobs per km2) and Chiyoda (79.452). Tokyo is known as an 'urban donut' (Cybriwsky 1998; see previous chapter), with many jobs and few inhabitants in the traditional downtown areas. These are almost double the densities of the other wards of the central 5-ward area with Minato, Shinjuku, and Shibuya wards. Other major, but considerably lower concentrations of jobs and inhabitants can be found in the south (Yokohama, Kawasaki, Ota), west (Tachikawa), and east (Funabashi-Makuhari). The correlation of density and infrastructure is obviously the case in Tokyo, as can be seen in Figure 3.9, where the relation with office rents cannot be found on this spatial scale.

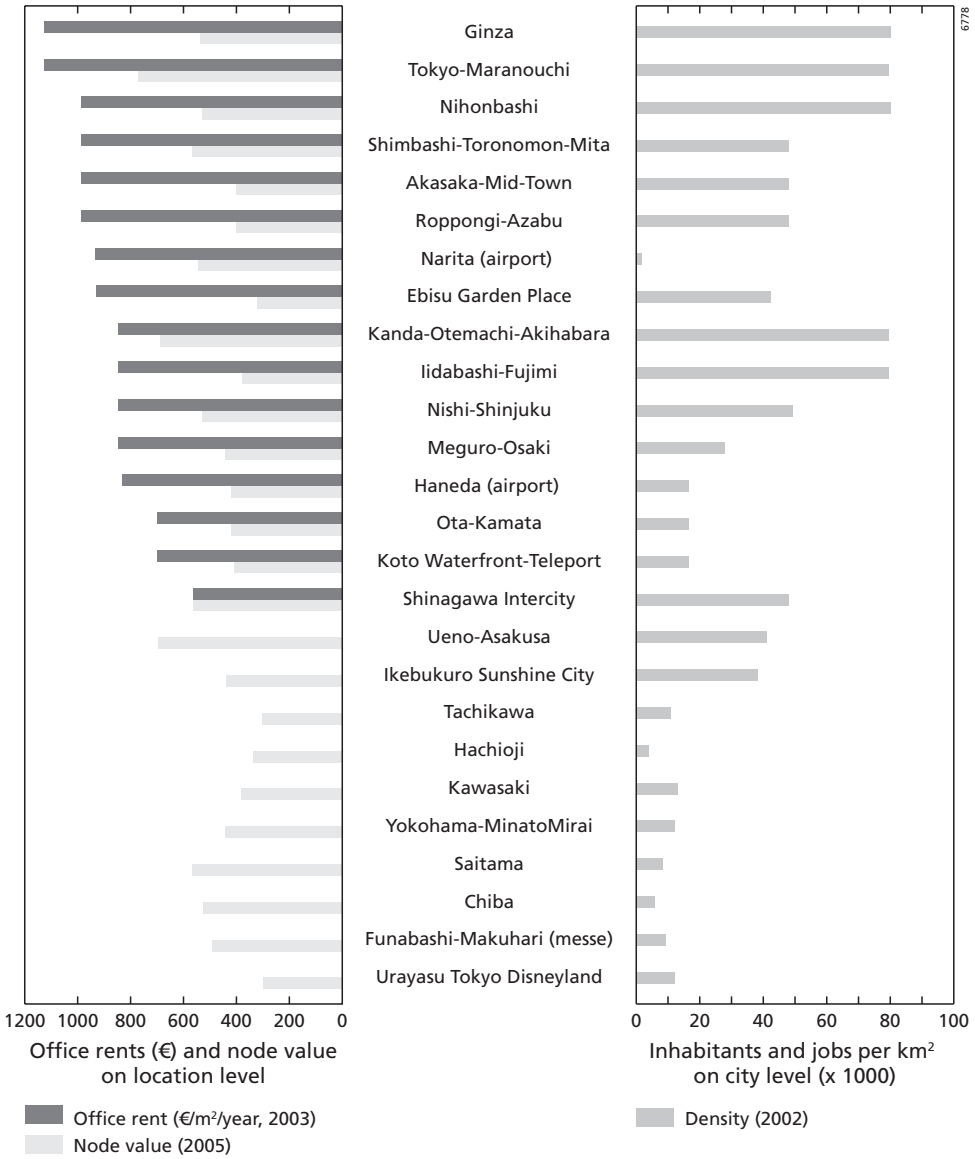


*Figure 3.9* Cityport dimensions in Tokyo Metropolitan Area (Source: CBRE (2004), Colliers Halifax (2003), Establishment Census (2001), Mori Building (2004), Statistical Bureau Japan (2004), Tokyo Statistical Yearbook (2003), Appendix II)

In sum, a combination of the best-developed public transport system in the world (Takeuchi 2000), with nearby highway access, make most centres and subcentres of Tokyo conveniently interconnected in the polycentric city-region. The node values of these cityports are high and in balance with the many economic activities it attracts. In addition, the size and high densities of

the market force locations to compete and specialise. These cityports contribute to establishing the metropolitan economy. A variety of specialised cityports is found: from fashion streets and entertainment centres to electronics districts and Disney resorts. Due to this specialisation, we added new types of cityports to the original model: leisure and commercial centres. The locations develop their own profile, for instance as the 'Beer Garden Place' or 'Tokyo Dome City'. Places that lack a clear target group or profile, such as the 'compound' internal edge city Ikebukuro, or a backward economic structure such as Kawasaki, have difficult times to reinvent themselves.

In Tokyo, the traditional downtown area and new business districts are partly overlapping. The CBD has the best infrastructure access and high densities, and requires the highest rents. Urban pressure forces urban redevelopment in other centres, especially along the Yamanote loop line in internal edge cities such as Shinagawa, Ebisu, and Ikebukuro or new business districts such as Nishi-Shinjuku and Shimbashi-Shiodome. This trend of internal edge city formation can also be found in the waterfront development shore from Yokohama, Kawasaki, Haneda, Shinagawa and Makuhari. The third ring of spatial economic dynamics has lower urban densities but is well accessible, with concentrations in new town or remote edge cities such as Saitama, Hachioji, and Tachikawa. External edge city formation and R&D-specialised subcentres are even further into the Kanto region, with rapid developments near Narita airport and R&D-intensive production and research in Kanagawa and Ibaraki prefectures.

## 3.6 Comparison and conclusion

The aim of this chapter is to understand the internal geography of the quintessential polycentric city-region case studies in terms of multi-nodal development of cityports. It therefore crosses the bridge of the economic analysis of the city-region in chapter 2 and the position of the airport as a cityport in chapter 4. Two methods of cityport analysis are used to understand the internal geography of the city-region: the types of cityports (downtowns, new business districts, edge cities, and subcentres) and the dimensions of the cityports (economy, infrastructure, and urbanity). In a comparative perspective, conclusions will be drawn on the regional economic geography. This comparison is particularly relevant for understanding similar kinds of new urban concentrations between the case studies, including the airport areas.

*Types of cityports*

After the internal geographies of cityports in the city-regions are analysed separately and comparatively, general conclusions can be drawn on the emerging phenomenon of cityports in the Randstad, Frankfurt Rhein-Main, and the Tokyo Metropolitan Area case studies. Peter Hall's (2001) classification of the locations used here as types of cityports proved to be useful for understanding the spatial and economic dynamics in the city-region, but need further elaboration. Hall distinguishes *traditional downtown centres, new business districts, internal edge cities, external edge cities, remote edge city complexes,* and *specialised subcentres*.

First, R&D-intensive manufacturing sites need to be added. In Frankfurt, the highest added value is created in these places. In the Randstad, vegetable horticulture and flower auctions are strategic cityports in the city-region with high productivity levels too. Therefore, *greenports, cargo-cities,* and *R&D-manufacturing sites* are added as types of cityports.

Second, locations specialise more and more in a high-urban economy such as the Tokyo Metropolitan Area. Therefore, the category of specialised subcentres need further differentiation in *leisure centres* (Disney, Odaiba), *science cities* (Tsukuba), *commercial centres* (Shinjuku, Shibuya), and *culture and subculture centres* (Ueno, Asakusa, Akihabara). Within the polycentric city-region, branding the names of the locations, as done in Frankfurt Rhein-Main and the Tokyo Metropolitan Area is useful and is a self-fulfilling prophecy for the specialised development of locations, in particular science centres, leisure centres and commercial centres. These conclusions can be illustrated with the following major findings on cityport development in the case studies.

The traditional downtowns of the polycentric regions remain the centres with the highest space productivity due to a combination of density and high productivity per square meter of jobs in the service sector. The strategic economic sectors of finance, insurance, and legal services can be found here, such as the stock exchange and central banks. In Tokyo, Frankfurt, and Rotterdam, the downtown centres offer space for redevelopment, where the Amsterdam downtown is lacking behind in terms of infrastructure and real estate development opportunities and losing position to new business districts. In general, the downtowns of Tokyo and Frankfurt Rhein-Main have a much more dominant position in the city-region, with higher office rents and lower direct returns on investment, where Amsterdam has a more equal position amongst Rotterdam, Den Haag, and Utrecht. This underlines the longer polycentric roots of the Randstad without a dominating centre, and a natural hierarchy in the city-region.

Less traditional economic activities that are closely related to the cities are found in the newer business districts, and nearby attractive residential areas. In the Randstad this is limited to Amsterdam-Zuidas. The other city-regions have more opportunities with Frankfurt-West, Wiesbaden, and Mainz in Rhein-Main, and Shiodome, Roppongi, and Nishi-Shinjuku in Tokyo. These locations have, besides good public transportation, better car access than the traditional downtowns. Real estate market confidence for these locations are reflected in relatively high office rents and lower expected returns on investment for project developers and investors.

Internal edge cities are the redeveloped sites for economic activities in the services sector that is currently pushing aside manufacturing and distribution. Economic activities need the urban environment, but the larger space that is required pushes companies out of the traditional downtowns. Furthermore, added value is not high enough for the clustering in downtowns or new business districts. In these locations car access becomes more important. The best examples in the case studies are Hanauer Landstrasse in Frankfurt, and Ebisu and Shinagawa in Tokyo.

Not only in the internal edge cities, but also in particular in the remote edge cities, rents are considerably lower. In both kinds of places, back offices and research centres are established. Examples of remote edge cities are found in all cases on different spatial scales. In times of economic growth, real estate market pressure boosts these locations. However, when the economy weakens, the quality of location and the poorer access hits locations such as Osaki, Kaiserlei, Eschborn, and Duivendrecht-Amsterdam Southeast, with higher vacancy rates and lower rents.

There are various reasons that contribute to the development of specialised cityports in the city-regions. The natural process of specialisation of locations in integrated metropolitan economies such as Tokyo is a major incentive. The well-developed regional transportation network stimulates this process in Tokyo and Frankfurt Rhein-Main. Furthermore, branding names contribute to the image and development of the cityport: Dome City, Garden Place, Science City, Messe, and Sin

City are the often used English adjectives, or non-existing English adjectives such as mainport and greenport. Despite it's smaller size, Frankfurt has based on history and regional competition developed specialised cityports. Scepticism on metropolitan ambitions and downsizing the socio-economic markets to sub-regional levels are in the Randstad hand in hand with an equalization and lack of specialisation of locations. The 1990s have shown some signs of greater differentiation between the Randstad cities, however.

*The cityport model*

In order to have a better understanding of the economic geography of cityports in the city-region, the cityport model with economic, infrastructure, and urban dimensions was constructed and tested in the case studies. The cityport model is based on the node-place model of Bertolini; the focus was more on economic factors. Because of a lack of comparable data, the densities and added value in the city-region could not be explored as intended. First, the relationship between office rents and accessibility is rather complicated and related to planning regulations and real estate market fluctuations. Second, data on inhabitants and jobs densities were not available on the local level. Therefore, the balance and imbalance of place and node of the cityports could not be determined exactly. Nevertheless, the comparison of cases at first and relations between cityport dimensions second show some first noteworthy results.

For the analysis of cityports in the city-regions the differences in scale are remarkable and should be noted. If we compare the city-regions, the rents paid in central Tokyo are over €1100: much higher than central Frankfurt (€600) and downtown Amsterdam (€250). After these central business districts, highest office rents, and high productivity are found at and near the airports as external edge cities: Frankfurt airport costs €300 per square meter, Narita International Airport €935, and Tokyo Airport at Haneda €835. In the Randstad city-region, Schiphol airport is even the most expensive office location (€400).

Furthermore, there are major differences between the cases in terms of accessibility. In general, cityports in Frankfurt Rhein-Main (score range of 400-900) and the Tokyo Metropolitan Area (300-800) are much more easily accessible than cityports in the Randstad (200-500). Frankfurt's downtown (score of 904 points) and Frankfurt Airport area (778) as well as Tokyo Station area (773) have the highest node value of the cases. The far distance to the airports explains this difference. Schiphol has the best access in the Randstad (535). The harbour of Rotterdam has the lowest accessibility score; this is explained by the fact that access over water is not included in the accessibility.

Jacobs (2000) explains the weak accessibility in the southern Randstad compared to Frankfurt Rhein-Main by the weak integration of the urban economies in the Randstad on the one hand, and the role of planning in the Netherlands on the other hand. Easily accessible locations develop in Rhein-Main in a natural manner and with less governmental intervention, where national and local governments in the Randstad appoint locations for development and prohibit development in other locations, but the appointed locations do not necessary have to be the best accessible locations.

In the urban dimension of the cityport, Rhein-Main and Randstad have comparable densities with respectively 2.500 and 3.500 jobs and inhabitants per square meter, versus Tokyo's 30.000 double digits densities in the major cityports. In the downtowns of Tokyo and Frankfurt, this is mainly jobs and relatively few citizens: the so-called urban donuts. Since densities are by

a lack of data measured on the municipal and not the place level, it turns out not to be a useful indicator for the place value in relation to the node value of the location.[15]

*Airports*

It is remarkable for a city-region such as the Randstad that highest office rents are not paid in the CBD, but at Schiphol airport. Productivity is high and there is a considerable economic spin-off. Furthermore, Schiphol and Frankfurt Airport are the most accessible locations in their city-region. The opposite is true for Tokyo's airports. Despite the high office rents for the airports, these locations are less important for the regional economy, are less accessible, and further from jobs and citizens.

Airports as external edge cities turn out to be a peculiar type of cityports. The airport as an external edge city cityport is the physical and direct switch between the cityports in the city-region and the global connection to other city-regions. Airport areas are an interesting case here at the crossroads: international businesses at conference rooms, offices, and hotels at the airport on the one hand, and cost-sensitive distribution centres and warehouses on the other hand. A further focus to understand the spatial and economic dynamics in the competing city-regions with an institutional perspective is quintessential.

A variety of cityports as emerging phenomena are worth further analysis, but for the reasons mentioned above the airports as cityports in the city-regions are the most complicated and promising ones, and have been selected as a specific kind of cityport to be analysed in the next chapter.

## Notes

1 Airport connections are nowadays for businesses an important condition in the investment climate (see previous chapter) and therefore added to the model. Although there can be discussion on the values of the model split, airport infrastructure has a similar importance here as high speed trains. Chapter 2 also learned us about the importance of road access and therefore relative importance compared to public transportation is upgraded. Waterways infrastructure is addressed as an important positive characteristic of the Randstad's investment climate, but due to the limited number of users it is, in succession of Groenemeijer and Van Bakel (2001), left out the infrastructure dimension of the cityport model.

2 We acknowledge that this way of determining the urban dimension blurs the actual intent of the place value. Since not only the location, but also the wider city and city-region's critical mass of citizens and employees contribute to the development of locations, this is considered as second best. The urban dimension of the cityport therefore express the number of inhabitants and workers on the city level divided by the size of the city and express the urban density of the location.

3 For example, GDP per square kilometre in the Randstad is highest in the skyscraper district of central Rotterdam, but rents are lower than in the low-rise centre of Amsterdam.

4 De Brauw Brownstone Westbroek as a major legal service company recently clustered the Den Haag and Rotterdam offices in one Amsterdam office. Royal Dutch Shell chooses not Den Haag, but London for the corporate headquarters (Rotimex and Kolpron 2001).

5 However, the current economic downswing hit these new towns locations harder due to their uniformity and lack of quality, with high vacancies in the new town areas (DTZ 2005). In the early recovery stage, it is the traditional centres and higher quality locations that are leading the real estate market.

6 The infrastructure dimension's node value consists of the connection of the location and the number of directions. Calculations of node value are based on the appliance of Groenemeijer and Van Bakel (2001). However, more than in their research, the importance of road and airport infrastructure is valued higher in the calculations. See appendix for details. In the computations of the node value in the Randstad, the future access to high speed trains heading for Brussels and Paris are not included, as well as the improvement of the A4 motorway to an international corridor in the same southern directions. This will further improve the accessibility of Schiphol, Zuidas and Rotterdam in the near future.

7 Germany's largest real estate company IVG sees an important stabilizing trend in the European office market: the direct return of real estate investors balances between 6 and 7% in general (IVG 2003). This percentage is common for the Dutch real estate market; in Germany's major city-regions expected return are one percent lower.

8 The 2003 completions in the City (160.000 $m^2$), City-west and Niederrad (both 145.000 $m^2$) and the 2004 completions in west (230.000 $m^2$), Messe (125.000 $m^2$) and Frankfurt Airport (145.000 $m^2$) are substantial (CWHB 2002).

9 Freund (2002) shows in Hessen's profile a full list of suburbanization of urban functions in the Rhein-Main region, a tradition starting in 1936 with the construction of the airport and the airport workers village Zeppelinheim until the 1998 move of the Dresdner Bausparkasse bank to Bad Vilbel (Freund 2002:256). This has led to a stabilization of job growth in the Rhein-Main core cities and a growth of almost 20% in the suburbs between 1980-1999.

10 The redevelopment by Japan Railways (JR-East) and Mitsubishi Estate Company of the relatively small-scaled area is delayed after severe criticism that the classic Tokyo Station, a copied variant of Amsterdam Central Station, will be overbuild by new offices. The station is one of the very few older buildings and part of the cultural heritage.

11 After the 1980s, Ginza lost some of it's glance, but recent new planning laws that allows higher building in exchange for more housing in the CBD area in combination of architectural highlights support the current revival of Ginza.

12 The information on companies and locations is tax-sensitive and the added value of companies is measured on the place of the head office – this would over emphasize the importance of head offices concentrated in Chiyoda and Minato wards. Office rents of prime locations are framed by international real estate companies – it turned out to be impossible to find rent levels of industrial sites or shopping areas.

13 Class A buildings are in Japan the most competitive buildings, built after 1990, larger than 200 *tsubo* and have due intelligent physical features (cables, A/C and 24 hours use), convenient transportation and earthquake prevention beyond current codes, therefore a high value for money pricing (CBRE 2004).

14 In the 1990s, over 50% of the buildings were completed outside the central 5 wards. In the 2001-2005 period, less than 20% is build outside the central wards and completion concentrates for 70% in Chiyoda, Chuo and Minato only (Colliers Halifax 2003). Even more remarkable is the fact that the completions outside Tokyo's 23 wards (the western cities) have been minimized from a stable market size of 15%-20% to less than 5% after 2001, a trend expected to continue until 2008 (Mori Building 2004).

15 The cityport model therefore needs further elaboration. There is not always a one-to-one relationship between rents and node values. One of the unanswered questions is what explains the wide range of node values in the Randstad although there is relatively little difference in office rents. Answering this is most likely related to the different economic sectors in the city-regions. Furthermore, more comparable data is required on the number of jobs and citizens on the cityport level. These issues will be discussed in chapter 10.