Urban Regions in the Delta

The hard and soft side of European knowledge regions

Bart Sleutjes

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Index

1. Introduction to Higher Educated Location Preferences (HELP)

1.1 Background of the HELP-project

This report contains the end results of the first work package of the Higher Educated Location Preferences (HELP) project, which is part of NWO's Urban Regions in the Delta programme. In this project, the preferences and behaviour with respect to the residential location of highly educated workers, or knowledge workers, will be analyzed. The attractiveness of cities to these workers is widely regarded as a key factor for the flourishing and growth of urban areas in the coming decades.

Urban regions are regarded crucial for the economy, since high density facilitates the interaction between economic actors. Despite decreasing transportation costs and the rise of ICT, the role of cities has not diminished. Rather, E-mail and mobile telecommunication are complementary, rather than a substitute to face-to-face contacts. The importance of cities lies both in the field of Pecuniary externalities, as was stressed in Krugman's (1991) core-periphery model, and in their possibilities for formal and informal personal contacts between workers. The current economy is characterized by a high degree of globalization and a strong emphasis on human capital. Highly educated workers play a key role in this knowledge economy, and since the knowledge-intensive and often highly specialized jobs they qualify for are only available in a small number of larger cities, knowledge workers tend to be more mobile than others. Strategies to attract and retain these workers are therefore of crucial importance for cities' competitiveness (Ter Weel et al., 2010).

In this respect, high value is attached to the quality of urban areas as places to work, live and recreate. Although their job is of primal importance for present-day workers, they also tend to have clear preferences with respect to other aspects of life. These concern not only the quality of the house and the accessibility of employment from its location, but also the characteristics of the neighbourhood, such as safety and the identity of place, the presence of shops and recreational facilities. Highly educated workers are believed to have relatively strong preferences for urban amenities, such as a diversified supply of restaurants, theatres and concert halls. Recent research by the Netherlands Bureau for Economic Policy (De Groot et al., 2010) has shown that the market area of these amenities is typically much smaller than spatial labour market areas, which explains the much higher level of house prices in neighbourhoods with good accessibility to concentrations of consumer amenities. The price differences indicate the importance attached to them, but high house prices also signal scarcity and cause workers to look for other places to live. Although the supply of land is limited in any urban area, there are many different ways in which it can be used. Real estate is an extremely durable commodity and decisions taken now can have consequences for decades. The strong relationship between skills and flourishing cities makes it important that

urban land use policies keep a clear eye on the consequences of current measures for the present and future inhabitants of the city.
Urban amenities are also important for facilitating the face-to-face contacts that are considered important for modern societies. Interactions between skilled and creative people appear to be crucial for continued economic growth in a dynamic setting in which today's production techniques may be outdated tomorrow (Storper & Venables, 2004) and cities regularly have to 'reinvent' themselves to continue their existence (Bontje et al., 2011).
Therefore, the main issue to be addressed in this research project is: *"How can we keep our cities pleasant and productive places in the near and further future?"* In order to answer this main research question, the project is split up in four parts:

I) A meta-analysis of the role of knowledge and skills in urban development that uses the US and European literature as a background, aims at policy relevance for the Netherlands and Europe and concentrates on four city-regions: Helsinki, Copenhagen, Amsterdam en Eindhoven. Expert knowledge from these city-regions will be used through the involvement of local stakeholders.

II) An extensive stated choice study that focuses on the preferences of highly educated Dutch workers with respect to residential location, paying special attention on urban amenities. The focus on highly educated workers implies also an interest in the differences between their preferences and those of other workers. This study will be done in the city-regions of Amsterdam and Eindhoven and be compared to similar research outcomes from Helsinki.

III) The development of a model structure that can be used to analyse actual choice behaviour of workers in various urban areas. The model will be applied to the Netherlands as a whole, using municipalities as the basic geographical area, and to three specific urban areas, Amsterdam, Eindhoven and Copenhagen, using smaller spatial entities.

IV) The project will culminate in the development of final versions of the models that integrate results from stated choices as well as revealed preferences studies, and their use in the analysis of a series of policy scenarios that will be formulated in discussions with local stakeholders. Dissemination of the results will be facilitated by the use of GIS and a connection with the Land Use Scanner. The ultimate product of the research can be used as a decision support system for 'gebiedsontwikkeling'.

The remainder of this report will deal with the first part of the project.

1.2 Introduction to the first work package: meta-analysis

Urban economists have always understood cities as concentrations of jobs, but the interest in cities as concentrations of consumer amenities is of a more recent date, the important early work of Christaller and Lösch notwithstanding. The importance of the subject is generally recognised in the US (e.g., Glaeser et al., 2001), but the phenomenon does not seem to be of less importance in Europe. One of the reasons why highly educated workers play a key role in economic and urban development is that they may be more mobile than others, though evidence for this so far comes mainly from the US and not from Europe. They can choose a different city in the same country, but the possibility to move to a different country, in Europe or even in another continent, becomes increasingly relevant. As mentioned before, highly specialized skilled jobs may only be located in a limited amount of locations per country, most often in or near the largest cities. The direct competitors of Amsterdam and Eindhoven in knowledge-intensive sectors are probably ra-

ther foreign cities than other Dutch cities. It is therefore important to investigate the preference for Dutch cities in comparison to relevant alternatives in other countries and also here stated choice techniques provide a useful addition to information about actual migration behaviour. The international perspective is of key importance here.
It is mainly for this reason that the project will start with a comparative study of urban development in European cities. The first work package, which is central in this report, involved a general meta-analysis that sketches the main insights from the existing literature, while paying special attention to Helsinki, Copenhagen, Amsterdam and Eindhoven. This meta-analysis consists of a general literature review of national and international literature on knowledge workers' residential preferences, as well as a descriptive study of the project's four case studies: Amsterdam, Eindhoven, Copenhagen and Helsinki, respectively. The existing international literature, in which the US also figures prominently, will serve as a useful background, but a major purpose of this exercise is to get insights into the strengths and weaknesses of European cities. Particular attention will be paid to the role of historical and cultural amenities that are considered a main resource for European urban policy. This descriptive study has been based on existing literature on the regions' strengths and weaknesses as knowledge cities, their current economic profile and, insofar available, findings from previous studies on the residential preferences of knowledge workers in the respective city regions. In addition, detailed information on the city regions' strengths and weaknesses as knowledge cities has been gathered through 22 in-depth interviews with local experts in the four case study regions.
The choice for Amsterdam. Eindhoven, Copenhagen and Helsinki as case studies was based on their similarities. In all these four city regions, human capital is an important driver of the local economy and natural amenities (like a subtropical climate) do not play an important role. All four cities have flourished in the 1990s and early 2000s. Eindhoven differs from the other three cities in a number of aspects. Whereas the other three cities have a comparable size (around 600,000 to 700,000 inhabitants) and are the largest cities in their respective countries, Eindhoven is much smaller with only 220,000 inhabitants and is the fifth city of The Netherlands. Also, Eindhoven is the only of the four city without a capital function, and does not have prominent role of water. However, Eindhoven's important position in terms of economic output, certainly in terms of the knowledge economy, justifies its inclusion.

1.3 Relevance to society and policy

Despite the rapid development of ICT and a substantial decrease in transportation costs, cities have become more and more the centres of economic development in modern economies. Skilled workers and their interactions with similar and other workers play an important role in the functioning of these urban economies. An attractive city with many skilled workers has better possibilities to react flexibly to changing circumstances in a globalizing world, and is also a good place to be for all kinds of other people. While the academic debate on whether or not highly educated workers are increasingly mobile is still on-going, it is of great importance to ensure that Dutch urban centres stay or become competitive in the sense of attracting and retaining skilled workers and the companies they work for. There is thus a substantial social interest in knowledge about the functioning of cities and the effectiveness of various possible policy measures that attempt to shed more light on appropriate ways to react to these challenges. This is the main purpose of the research proposed here.
As noted, skilled workers are key in providing an answer, but they are of course not the only persons inhabiting the city. Their central position justifies the special attention given to them in this research, but cities must of course be attractive and productive for all. To investigate the main

research question, we have to consider the preferences of workers, but also consider the constraints. Many things that are appreciated by inhabitants of urban areas are costly. Climate change calls for attention, and policy reactions will have important consequences for land use that have to be taken into account. Money and space are scarce and in densely built areas like the Dutch cities, land uses compete with each other for these scarce resources. In urban land use, real estate is often involved and long term consequences are therefore important to take into account. Information about the preferences of those concerned is crucial for making the right choices. What are important aspects of modern urban life and if not all desires can be realized, which tradeoffs can be made?
The main goal of this report is to present an overview of the main determinants of location choice, focusing specifically on the European context. The aim of doing so is that many European urban policies are based on theories that have only been tested –and contested- in the US context. Since the European context differs considerably from the US context, in terms of cultural and institutional barriers (e.g, language) and levels of commuter tolerance, workers in Europe generally relocate across smaller distances than their counterparts in the US (Martin-Brelot et al., 2010). Investigating the main pull-factors of European city-regions for knowledge workers, with a specific focus on the value attached to urban amenities and historical factors, will lead to a better understanding of why highly educated workers choose a certain region over another. The eternal goal is to optimize the urban policy agenda by constructing a trade-off between the relevance of soft conditions and the relevance of hard conditions for attracting and retaining knowledge workers.

1.4 Structure of the report

The rest of the report is built up as follows. In the next chapter, a literature review is presented, which first provides a short overview of the literature on the development of knowledge cities and a description of different and contrasting views—mainly US-centered— on the factors and policies that are necessary in order to attract knowledge workers. Then, a number of studies will be summarized which have dealt with the residential preferences of knowledge workers in other contexts than the American, with a specific focus on European city regions.
The rest of the report will deal with detailed descriptions of the four case studies. Chapter 3 will provide a detailed description of Amsterdam’s development path, economic profile and strengths and weaknesses as a knowledge city, based on literature, statistics and interviews with local experts. Chapters 4,5, and 6 will provide similar information for Eindhoven, Copenhagen and Helsinki, respectively.
Finally, in Chapter 7 some conclusions will be drawn regarding the importance of hard and soft factors for attracting knowledge workers, based on the literature review and the experiences in the four case studies. These conclusions will be followed by a number of recommendations for policymakers and scientists active in the field. The conclusions of this report should also be considered as input for the empirical studies and modeling in the following work packages.

2. Knowledge cities and residential preferences: a literature review

2.1 The rise of the 'new economy' and knowledge-based urban economic development

The emergence of knowledge cities

A new type of economy has emerged over the past decades, which is no longer dominated by Fordist production, but by post-Fordist service delivery. Three main shifts illustrate this 'new economy': a shift in geographic scale from cities to polycentric urban regions, a shift in economic specialization from manufacturing to services, and a shift in the composition of the labour force from blue-collar workers toward high-skilled labour (Phelps & Ozawa, 2003). Because of the increasing focus on skills and qualifications, the new economy is also referred to as the 'knowledge economy', defined by the OECD as "economies which are directly based on the production, distribution and the use of knowledge information" (Van Winden, 2010, p.100). Rather than physical assets and natural resources, human capital, or the quality and size of the knowledge base, determines cities' economic potential and competitiveness (Bontje & Musterd, 2009). Therefore, an important part of cities' competitiveness strategies is the attraction and retaining of 'knowledge workers' or the 'creative class'.

Although the term 'knowledge worker' is rather fuzzy, the following definition by Horwitz et al. (2003) covers most possible interpretations: "Knowledge workers have a high level of skills/education, with technological literacy, high cognitive power and abstract reasoning. This includes the ability to observe, synthesise and interpret data, and to communicate new perspectives and insights to lead to more effective decisions, processes and solutions for the organisation. The knowledge creation process is part of the organisation's competitive strategy, characterised by information/ knowledge sharing and team collaboration to produce more effective actions and solutions" (Horwitz et al., 2003, p. 31). However, there has been a debate in the literature on how best to measure human capital, suggesting that it is more important to measure what people actually do than what they studied. Therefore, rather than skills and the level of education, occupation, i.e. being active in creative class occupations, is considered a better measure of human capital (Mellander & Florida, 2006). In his study on the rise of the creative class, Florida (2002) divided them into two –still rather large- occupational sub groups. First, the 'super creative core' consists of persons occupied with computers, mathematics, architecture, arts, science and education. Second, 'creative professionals' include workers in management, business and finance legal issues, health care and high-end sales.

The shift toward the knowledge economy in many city regions across the world has two major objectives. Apart from being a way out of a path-dependent development trajectory dominated by manufacturing, the creative economy is also seen as a way to escape from the recession and to become less vulnerable (Romein & Trip, 2011). With respect to the first objective, over the past decade, several theoretical and empirical studies suggested relationships between a highly skilled workforce and regional economic growth (e.g., Lever, 2002; Lambooy, 2002; Audretsch & Dohse, 2007; Boschma & Fritsch, 2009). Since knowledge and creativity are regarded as the engines for economic growth and competitiveness, investments in human capital and R&D have been strongly emphasized in economic theory and policy: the 'economisation' of knowledge (Cooke, 2002; Van Winden, 2010). A city's knowledge base may progress through the development of human capital, either by improving the qualifications of the existing population or by a migration surplus of more highly educated workers, and through the (further) development of knowledge-based industries (Van Winden et al., 2007). Because of their assumed function as incubator for knowledge production, institutes of higher education and knowledge institutes obtained a prominent role in urban development and planning (Van Winden, 2010). According to Helbrecht (2004), knowledge production can be strengthened in two ways. On the one hand, through local specialization, which increases competition, concentrates competences and leads to innovation and growth, and on the other hand, through local diversity across various economic sectors.

Regarding the second objective, an increased emphasis on creative and knowledge intensive sectors might make the economy less vulnerable in times of economic crisis. A large part of the creative sector is made up of micro-entrepreneurs and freelancers, who are relatively vulnerable to economic downturns, but also show a higher elasticity and flexibility to (re)start business or combine activities (Felton et al., 2010). Furthermore, creative companies are innovative and consumer-oriented, and are therefore the most likely to benefit when economic downturn lead to changes in demand. Therefore, the intensification of policies targeted at the most promising creative sectors, as well as creating the corresponding types of creative consumption milieu, are considered important for cities' competitiveness (Romein & Trip, 2011). Whereas many creative city policies are diffuse and general, it may be more successful to focus specifically on supporting particular niches within the creative industry (Jarvis et al., 2009). Also, spill-over effects of the creative economy are assumed for the wider economy. According to Florida (2010), a 'chain reverse' from a supply to a demand driven model of consumption has taken place, in which perceived status and 'experiences' play an important role. In other words, the 'symbolic value' of cities and places has become an important factor of urban competitiveness, and the cultural capital of specific locations is exploited for economic benefits (Zukin, 1995). The creative scene in cities often exists of a formal 'upperground', consisting of theatres and galleries, knowledge-intensive industries and formal boards and partnerships, and a more informal 'underground' that includes online blogs, communities of practice in squatted warehouses, and informal bars and cafés as popular meeting places (Granger and Hamilton, 2010). Whereas the upper ground is most likely to be hit by economic downturn, the underground, is much more resilient and its persistence may lead to new creativity and innovativeness. However, once vanished, the underground is very hard to restore, which makes the fostering of its enablers of crucial importance (Romein & Trip, 2011).

The 'urban turn' in policy making and the resurgent city

The continued or decreasing importance of the local level has long been a point of discussion in spatial sciences. Scholars like Castells (1997) have argued that place has become less important as a result of advances in telecommunication. This improved connectivity also enables outsourcing of economic functions, particularly to low-wage countries (Scott, 2006). However, the other side of the coin is more intensified urban agglomeration, since large city regions offer favourable externalities and economies of scale and scope. Although economic relations are becoming increasingly globalized, the local level remains important for the transfer of 'tacit' knowledge through face-to-face interaction and for identity-making. This paradox is referred to as 'glocalization' (Swyngedouw, 2004). Musterd & Murie (2010) described a number of studies in which it was shown that local aspects have become more prominent. Malecki (2000) stated that local qualities have gained importance as a means for cities to distinguish themselves from others. In this respect, cities that are able to connect local 'tacit knowledge' and 'buzz' with 'codified knowledge' through global pipelines and nodes offer the most innovative and successful local environments (Lambooy, 2002; Storper & Venables, 2004; Helbrecht, 2004; Amin & Thrift, 2007; Musterd & Murie, 2010). An example of a sector with a clear on-going importance of the local level is the media sector. This sector has a become a global business but tends to cluster strongly in a selective group of global media cities (Krätke, 2003). For book publishers, historically grown localized networks and aspects of place continue to be important as identity markers and as enablers of knowledge transfers (Heebels, 2012; Deinema, 2012).

The emerging knowledge economy has reinforced the role of cities, both in terms of economic importance and in the policy realm. In the EU, urban agglomerations and metropolitan regions are considered the engines of economic development and the prime nodes of European integration in the global economy (Krätke, 2007). Cities are seen as hubs where knowledge processes start and flourish. Because of their combination of social capital (networks) and geographical capital, including place-specific qualities, Helbrecht (2004) referred to cities as 'complexcities'. Urban areas enable faster diffusion of new knowledge and technology and are generally specialized in sectors that show high rates of growth in the knowledge economy: creative industries and knowledge-intensive services. Furthermore, because of economies of scale, cities offer large and specialized labour markets, as well as the luxury consumer goods and amenities that are assumed to be highly demanded by high income groups (Van Winden, 2010). The larger size of cities is attractive to both knowledge-intensive companies and knowledge workers, as it enables the establishment of facilities and amenities they are looking for. In an era of globalisation, cities with strong creative sectors, such as high-tech production, business and financial services, media and cultural industries, have the most favourable conditions (Scott, 2006).

This renewed importance of cities is reflected through an 'urban turn' in the European spatial policy agenda. Rather than reducing regional inequalities, spatial policies focus on (further) strengthening the comparative advantages of regions, and investments focus on a small number of promising urban regions. Marketing and branding techniques are generally adopted as ways to promote urban regions and to distinguish them from their competitors. The basis for this urban turn in policy-making was the European Union's *Lisbon Agenda 2000*, which stated the ambition for Europe to become "the most competitive and dynamic global knowledge economy" by 2010. EU member states were stimulated to formulate their ambitions with respect to the knowledge economy, and demanded to increase investments in knowledge, education and R&D in order to raise productivity and create economic growth. As a result, a growing number of European cities started to market themselves internationally as knowledge cities (Van Winden, 2010). An example is the *Peaks in the Delta* (PiD) policy in the Netherlands (2004). Previously, Dutch economic policy focused mainly on reducing regional inequalities and relocating public sector institutions to peripheral regions, such as Limburg, Friesland or Groningen. On the contrary, the PiD policy increased spending on a small number of strong economic hubs: the Northwing of the Randstad, the port of Rotterdam (Mainport Rotterdam) and the high technology hub of Southeast Brabant (Brainport Eindhoven) (Geerdink et al., 2010; Van Winden, 2010).

One of the main components in knowledge city policies is the import role of networks and public-private partnerships. The cooperation between regional universities and the business sector is stimulated and supported through subsidies and networking events. These local knowledge networks are assumed to reduce the chance of firm relocation. The role of universities is recognized by urban planners, because of their supposed effect on the regeneration of urban areas, their central role in new mixed knowledge districts, and because of the economic significance of the student population as both potential knowledge workers and consumers: the 'economisation of higher education'. Knowledge strategies sometimes involve the attraction of knowledge institutes from other cities (Van Winden, 2010).

Another main component of European urban policies is their focus on 'soft conditions', such as residential amenities, aesthetics and cultural amenities, tolerance for alternative lifestyles and ethnic diversity, lively (sub)cultural scenes, and meeting places for business and leisure purposes (Florida, 2002), in order to attract knowledge workers and the creative class. The underlying assumption is that knowledge workers are attracted by a good 'people's climate'. Rather than work opportunities alone, 'urban attractiveness' is considered a key to attract and retain the supposedly highly mobile group of knowledge workers. Cities that score high on diversity and social equity are said to have the best profile to attract the creative class. Urban diversity promotes creativity through the facilitating of interaction (Jacobs, 1961), which in turn stimulates new ideas and innovations (Van Winden, 2010). In addition, a high degree of social equity reduces tensions and is generally associated with a safer living environment (Van Winden et al., 2007). Consequently, public investments in quality of life are often justified in economic terms (Musterd & Murie, 2010). Highly-skilled and creative workers are believed to be attracted by 'impulse-rich and attractive urban environments' with low levels of segregation and a high degree of social and cultural integration (Musterd, 2006). Urban planning, the design of public space and architecture have obtained a central role in policies related to the knowledge economy, resulting in the fostering or creation of many 'knowledge quarters' or 'creative quarters' throughout Europe (Helbrecht, 2004).

Cities that successfully managed to attract new and growing activities and to offer attractive and vibrant living environments are referred to as 'resurgent cities' (Musterd, 2006).

A typology of knowledge cities

Not all cities have been able to successfully adapt to the new economy and to become resurgent cities. Instead, a large number of cities is still struggling to escape a development path dominated by declining industries, and face high unemployment and low scores on quality of life. Particularly cities with a legacy in manufacturing, such as the steel industry in the German Ruhr area (Grabher, 1993) and the well-known example of the car manufacturing industry in Detroit (Klepper, 2002), face difficulties with developing a knowledge-based service economy. Although the European context is in many respects different from the US context, European city regions show a similar development pattern in terms of economic development to regions in North America. On both continents, knowledge-intensive economic activities show a selective pattern of concentration and cities with a strong formal knowledge base and cities specialized in advanced services, creative industries or innovative manufacturing sectors appear to be the most successful knowledge cities (Van Winden et al., 2007). European agglomerations and metropolitan regions show different sectoral profiles and development paths. The increasing concentration of knowledge-intensive services and research-intensive industries in dynamic urban agglomerations and metropolitan regions, referred to as 'service metropolises', has resulted in increasing regional disparities within Europe. Underdeveloped rural areas, as well as less dynamic urban regions threaten to stay behind in terms of economic competitiveness (Krätke, 2007).
Several studies have presented typologies of cities based on their knowledge potential. Glaeser et al. (2001) distinguished between three types of cities. First, 'resurgent dense cities' successfully adapted their economies to the post-industrial service economy. Examples of resurgent dense cities are New York, San Francisco, Boston, Chicago in the US, and London, Paris and Barcelona in Europe. A second type of cities concerns 'older dense cities with little change for growth and a traditional manufacturing profile without political functions'. Examples are Philadelphia, St. Louis and Detroit in the US, whereas well-known European examples include the Ruhr Area in Germany and several large cities in northern England, such as Manchester and Liverpool. The third type of cities is the 'edge city', characterized by decentralized employment, lower density and high levels of car dependence. This type of urban sprawl has occurred especially in the US, with Los Angeles being the best-known example, and is also found in Australia and New Zealand. In Europe, subsidizing of public transport and higher gas taxes have prevented the development of edge cities (Glaeser et al., 2001).
Krätke (2007) identified four different path-types for European agglomerations. In the first type of urban regions, knowledge-intensive industries, including both manufacturing activities and related services, are shaping the development path to the knowledge-intensive economy. The second type of urban regions consists of urban regions dominated by knowledge-intensive services. Third, there are urban regions whose development path is marked by combined growth of knowledge-intensive industries and services. The fourth type of urban regions do not have a recognisable main focus of their development direction (Krätke, 2007). Interestingly, some cities successfully

transformed to the knowledge economy, whereas other cities with similar circumstances did not (Martin & Sunley, 2003).
Also within the group of human capital driven city regions, several types of city regions can be distinguished. In their comparative study on European cities, Van Winden et al. (2007) distinguished a number of structural characteristics of the knowledge economy. The knowledge base of cities consists of universities, polytechnics and other public and private R&D activities. The industrial structure is made up of the city region's economic base, its degree of economic specialization and the innovativeness of local firms. In this respect, a diversified economy offers advantages, since it makes cities less vulnerable in rapidly changing economic circumstances and offers more scope for incubation and cross-fertilisation between sectors, leading to innovations and new business opportunities. Urban amenities and quality of life are seen as structural characteristics, since they determine a city region's attractiveness as a place to live. Finally, accessibility is crucial for a city's ability to acquire, create, disseminate and use knowledge effectively.
Based on these foundations, a typology of European cities that successfully and unsuccessfully adapted to the modern service economy has been formulated. First, 'stars' score high on nearly all foundations and progress indicators. These cities have both a strong economy, high-standard knowledge institutions and high scores on quality of life. Examples are Amsterdam and Munich. Second, 'metropoles in transition' are generally characterised by lower scores on quality of life indicators and are struggling with a legacy of declining sectors and lower performance. Examples are some of the former industrial cities in Great-Britain, such as Manchester, Liverpool and Leeds, and also the Ruhr Area in Germany. Third, 'knowledge pearls' are smaller cities with a high score on virtually all foundations, which are located near a large agglomeration. An example of a knowledge pearl is Leuven, a Belgian university city located close to Brussels. Fourth, 'star niche players' are specialized cities in terms of their knowledge and economic base. These cities perform well in terms of progress indicators and have excellent co-operation between business, university and local government. An example is the Dutch city of Eindhoven, which is only the fifth city in the Netherlands, but one of the most important hubs in terms of economic output due to successful high-tech clusters. Fifth, 'niche players in transition' are characterised by some degree of specialization, but are still dealing with a legacy of declining industries. Generally, they perform less in terms of quality of life but are characterised by high quality knowledge institutes. Examples are Enschede in The Netherlands, and the German city of Aachen. Finally, 'intellectuals' are dominated by a strong university, but lack a knowledge-intensive business sector. An example is Münster, Germany (Van Winden et al., 2007).
In order to become or remain a knowledge city, companies and talents have to be attracted and retained. The literature is divided when it comes to the aspects that are important for the attraction of both skilled employment and knowledge workers. Broadly, there is one strand that believes that people follow jobs and classic or 'hard' factors are the main drivers of economic development (classic location theory), and one strand that believes that jobs follow people and 'soft' conditions such as amenities are most important growth determinants (people-based perspective). More or less in-between, and related to both strands, there is a strand that emphasizes the

role of social capital and personal networks. The following two sections will deal with these strands of literature.

2.2 Classic location theory: the role of 'hard' location factors and networks

Clusters and agglomeration advantages

In classic location theory, traditional economic aspects, also referred to as 'classic' or 'hard factors' are the main determinants of location choice. Hard factors include the availability of capital and of a skilled labour force, an institutional context with favourable regulations and tax regimes, the right infrastructure and good accessibility, and the availability and affordability of (office) spaces. In development strategies in which these factors are central focus on improving the infrastructure and realizing monofunctional business parks (Musterd & Murie, 2010).

The economic qualities of a location depend on a 'holy trinity' of regional economics: technology, organization and territories (Storper, 1997). The most important location aspects determining economic quality of regions are infrastructure, accessibility, connections, the availability of affordable (office) space, labour availability, wage policies and tax arrangements (Sassen, 2002; Musterd & Kovács, 2013). Proximity to global financial centres, an international airport, telecommunication and business services and the availability of an international labour pool have determined the strong position of 'global cities' (Sassen, 1991) or 'world cities' (Derudder et al., 2003; Taylor, 2004). In addition, areas with a high population density offer bigger market potential and therefore better market conditions for companies than sparsely populated districts (Davidsson et al., 2010).

As was already brought forward by Marshall (1890) and Porter (1998), the concentration of firms within a certain geographic location leads to so-called 'agglomeration advantages' such as the availability of skilled and specialized labour as well as intermediary goods and the possibility to quickly exchange ideas and innovations. Clusters of related firms and institutions contribute to growth creation an innovation (Porter, 2000). An agglomeration of pooled resources accounts for low entry barriers for firms, shared positive externalities and firm rivalry that stimulates innovation (Krugman, 1991; Saxenian, 1994; Porter 1998). Clusters often developed out of processes from the past, which continue to shape development prospects in the present and future. This is referred to as 'path-dependency' (Kloosterman & Lambregts, 2001; Bathelt & Glückler, 2003), implying that the current economic developments of cities should always be linked to cities' or regions' historic developments and place-specific assets. Through face-to-face contacts, both 'codified' and 'tacit' knowledge can easily be transmitted from one firm to another (Storper & Venables, 2004). Geographical proximity also strengthens competition through a common market and enables the sharing of suppliers (RPB, 2006).

The positive effect of clustering on firm success is, however, disputed. Firms do not necessarily have to be co-located in order to benefit from knowledge and resource spillovers, since most firms are 'embedded' in relationships with suppliers, customers and institutions (Bathelt & Glückler,

2003), which are not by definition located within close proximity (RPB, 2006). In addition, Van Oort et al. (2010) showed that at the Dutch regional level, there is little empirical evidence of a positive relation between industrial clustering and regional employment growth. Furthermore, clustering leads to strong levels of competition that may decrease a firm's survival prospects, especially when there is a large concentration of similar firms (Sorenson, 2003). A distinction is made between 'localization economies', which involve a clustering of similar firms, and 'urbanization economies', referring to the co-location of different types of firms (Malmberg et al., 2000). In this regard, Neffke (2009) found that diverse economic clusters are most beneficial to start-ups, whereas in specialized clusters, older firms are more likely to survive.
Particularly the importance of educational facilities is highlighted in literature on hard conditions, since these facilities ensure the availability of highly skilled labour. Cities with high levels of high skilled labour have grown more quickly than comparable cities with lower levels of human capital (Glaeser & Saiz, 2003). Similarly, firms depending on highly-skilled labour have higher growth probabilities in city regions with a high skilled labour force (Audretsch & Dohse, 2007). In addition, firms located in an innovative environment have a larger chance of productivity growth than firms in non-innovative locations (Raspe & Van Oort, 2011).

The role of social capital and personal networks

Some theories stress the importance of social capital and personal networks for making location choices (Grabher, 2002; 2004), rather than clustering as such. Clustering and networks cannot be seen independent of each other. Location choices of firms can in this light be explained by networks that were established in the past, whereas location choices of individuals are generally steered by existing relationships and personal life trajectories (Musterd & Murie, 2010).
Economic geography has borrowed insights from sociology, particularly from 'social capital theory' (i.e., Coleman, 1990), which emphasises that relationships between individuals may produce mutual social, psychological, emotional and economic benefits. Since Granovetter's (1985) argument that economic action is embedded in social relationships, a growing body of literature in the field of 'relational economic geography' acknowledges that firms are not fully independent but, rather, are interconnected through relationships with other actors, including firms, individuals and institutions (Bathelt & Glückler, 2003). Firms', entrepreneurs' and workers' strong (e.g., family and friends) and weak ties (e.g., business contacts) lead to the acquisition and sharing of knowledge and (financial) resources (Uzzi, 1997; Davidsson & Honig, 2003) and thereby influence firm success (Watson, 2007). Entrepreneurs tend to prefer to settle in regions they are familiar with (Van Dijk & Pellenbarg, 2000; McCann, 2001; Brouwer et al., 2004), especially because of the presence of social networks (Dahl & Sorenson, 2009).
There is, however, also a downside to strong social capital, known as 'over-embeddedness' (Uzzi, 1997). Whereas 'over-weak' links lead to heterogeneity with a high risk of disintegration, 'over-strong' links create homogeneity and, as a consequence, inflexibility and resistance to change (Grabher, 1993; Westlund & Bolton, 2003). This phenomenon implies that strong trust relationships between entrepreneurial network members result in networks becoming closed and inward looking, meaning that crucial information from outside the network is ignored (De Carolis &

Saparito, 2006). The most favourable conditions for firm success and strategy are created when entrepreneurs have the right combination of strong (or social) and weak (or strategic) ties (Lechner et al., 2006).

2.3 A people-based perspective on economic growth: talent, diversity, tolerance and amenities

The third view on urban transformation is a 'people-based perspective', emphasizing a good people's climate as the most important factor steering location choices of firms and, indirectly, urban development. Human capital, or the presence of high-skilled workers (Glaeser et al., 2001), is the main predictor of competitiveness and productivity growth at both the city and metropolitan scales. But also within the people-based perspective, there are different streams of thought regarding which factors are crucial for attracting talents. One approach is focusing on creativity, one is focusing on skills and amenities, and one regards amenities as the principal drivers of economic growth (Storper & Scott, 2009).

The Creative Class Theory: diversity and tolerance

The first stream of thought, which has dominated urban economic and cultural policies for years, is Florida's (2002) 'Creative Class Theory'. This theory suggests that economic growth is spurred not only by individuals' level of education, but rather by creativity, which results from social interaction, authenticity and identity. Inspired by Jacobs (1961), Florida considers cities the ultimate location for innovative industries, since cosmopolitan cities are characterized by heterogeneity, which in turn drives creativity and innovations (Florida, 2002; Helbrecht, 2004). Companies agglomerate in large cities because of their large concentrations of talented people. The ability to rapidly mobilize talent from such large talent pools is regarded an important source of competitive advantage for companies and regions.

The Creative Class Theory is built around the so-called the '3 T's': Talent, Technology and Tolerance. According to Florida (2002), talented and creative people congregate together in metropolitan areas because of tolerance and diversity, which are therefore regarded the keys to success. Rather than 'Quality of Life', Florida speaks of 'Quality of Place', which is made up of three sets of characteristics:

- What is there? (Built environment and natural environment)
- Who is there? (Diverse kinds of people, interacting and high level of acceptance of others)
- What is going on? (Vibrancy of street life, café culture, arts, music and outdoor activities) (Florida, 2002; Yigitcanlar et al., 2007)

Quality of Place involves a high level of diversity, both in terms of people, street life and amenities. According to Florida, the creative class highly values a mix of influences, including different kinds of music and different kinds of food. Also, they want to meet and socialize with people unlike themselves. Creative talent attaches great importance to face-to-face contacts in third places, and therefore prefers to live among other creative people. Storper and Venables (2004) referred to such concentrations of creative activities and meeting places as 'buzz'. Creative workers also desire a diverse nightlife with 'experiences', including interesting music venues, neighborhood art galleries, performance spaces and theaters, and an indigenous street-level culture with cafes, sidewalk musicians and small galleries and bistros. Furthermore, creative class people are attracted to places with many outdoor activities (Florida, 2002).

In order to be attractive for the creative class, cities need to have a tolerant social climate, operationalized through a high degree of ethnic diversity ('diversity index'), a large gay population ('gay index') and a large community of artistic people ('bohemian index'). In his statistical analyses on US metropolitan regions, Florida found that these indicators correlate with the presence of the creative class and also with high economic growth (Florida, 2002; Lee et al., 2004). Also later statistical studies found similar results. Mellander & Florida (2006) found that universities, amenities, and openness and tolerance affect the distribution of human capital. These three factors play complementary roles, since they attract or affect different types of talent. Whereas the university is a central hub institution of the talent-driven creative economy, amenities or service diversity are significantly related to the distribution of conventional human capital, creative professionals and parts of the super creative core. Openness and tolerance are significantly related to conventional human capital as well as to arts, design, and entertainment occupations (Mellander & Florida, 2006). Also the empirical findings by Wojan et al. (2007) are in line with Florida's statements. Their study on creative class growth in the US found that places with a surplus of 'bohemians' experienced faster rates of growth of other creative class subgroups between 1990 and 2000, and especially in non-metropolitan areas. Thus, creative people attract more creative people.

An underlying assumption in Florida's work is that jobs follow people, rather than people follow jobs. In other words, once the creative class settles in a certain metropolitan region, creative companies will likely follow. The policy implications derived from his study therefore have a large emphasis on the development of cities' soft conditions. Basically, his advice to city officials is to attract as many creative individuals as possible to their cities by creating high-quality urban environments that are rich in cultural amenities and social diversity (Scott, 2006).

Amenities and urban growth

A second stream of thought within the people-based perspective regards skills and amenities as the main drivers of location choice and urban growth. According to this 'Consumer City' approach, human capital, i.e. skilled workers, drive economic growth and these skilled workers are in turn attracted by amenities (Glaeser et al., 2001). These amenities can be subdivided into climatic amenities or related to consumer goods, and explain the success of Sunbelt cities in the south of the US and consumer cities in the North, which have an advantage to attract skilled workers (Glaeser, 2004).

The authors in this strand of literature stress that the success and failure of big cities depends largely on consumption, rather than production. Urban decline in the post-war period resulted mainly from changes in technology (e.g. automobiles) that made large cities less attractive and spurred suburbanization. Since the 1980s, cities rebounded and have become much more attractive places to live. This increased attractiveness may on the one hand be explained by rapidly declining crime rates, but on the other hand by rising incomes and education levels, which increased the demand for urban amenities such as museums, restaurants and concerts. Thus, cities once again catered the needs of the middle class (Glaeser & Gottlieb, 2006).

Four types of urban amenities are particularly important. First, the presence of a rich variety of amenities and consumer goods, such as theatres and restaurants, and an attractive mix of social partners. Empirical evidence showed that cities with more restaurants and live performances have grown harder since the 1980s. Second, aesthetics and physical planning are important, since attractive cities have done better since the 1980s. Third, the quality of public services and liveability play an important role in the attraction of skilled workers. High quality schools and low crime levels correlate with urban growth. A fourth type of amenity relates to speed and the ease with which people can move around in the region, which influence the range of services and jobs within reach. Since the 1980s, a process of decentralization of people and jobs has taken place, corresponding with increasing commuting distances, but decreasing commuting time. As a result, districts close to the CBD have done well whereas outer districts stayed behind (Glaeser et al., 2001; Glaeser, 2004). Based on Glaeser's work, fighting crime and supplying high-quality public amenities are important strategies to generate and attract high human capital workers.

The third people-based approach is similar to the Consumer City approach, but considers urban amenities as the principal drivers of urban growth and competitiveness in the global race for resources and investments (Clark et al., 2002). It regards cities as 'entertainment machines' and those cities with the most and highest quality urban amenities are most likely to attract knowledge workers. Amenities (Jacobs, 1961; Clark et al., 2002) provide a range of facilities, such as attractive residential milieus, shopping centres, cultural functions, restaurants, sports facilities and recreation areas. These facilities may help to attract potential employees belonging to certain household types, age groups, educational levels and specific origins to certain areas. Rather than private goods, public goods determine quality of life, and rather than quality of life, Clark et al. (2002) prefer to speak of quality of place.

A number of other empirical studies emphasize the importance of amenities for attracting the creative class. Yigitcanlar et al. (2007) discussed the relevance of amenities in their conceptual paper on the attracting and retaining of knowledge workers in knowledge cities and seem to agree with both Florida and Clark, that quality of place and urban amenities are the dominant attracting factors of knowledge workers. They stated that the knowledge worker is a "radically new type of worker" (p.7), who is highly mobile and prefers cities and regions with thick labour markets and a retail rich environment. The authors see the knowledge worker as a consumer with considerable disposal income. In terms of accommodation, knowledge workers seek smaller dwellings, in line with smaller households. Access to childcare services and higher quality education for children, as well as access to private health care facilities are highly valued. Yigitcanlar et al. (2007) emphasize the role of the knowledge worker's life outside work for making residential location decisions. Quality of life, urban diversity, social equity and quality of place are considered essential for the attraction and retaining of knowledge workers: "a central imperative for knowledge worker culture is an environment that stages the display of the human body: cafés spilling onto the pavement, brightly lit arcades, harbour side shopping, walkways down the river, thronging malls, public parks" (p.18). Quality of life therefore entails a high standard and variety of amenities, high quali-

ty education and community facilities, good climate and environmental quality, affordable housing, low crime levels, good access to transportation, as well as diverse leisure and cultural possibilities (Van den Berg et al., 2004). Knowledge workers highly value cultural capital, including static and performance art spaces, and authenticity and history. Knowledge workers express a strong preference for ethnic neighbourhoods, diverse communities, 'exotic settings' for recreation or play, a cosmopolitan atmosphere, the accepting of strangers and open channels for communication or exchange of knowledge (Yigitcanlar et al, 2007).
Also Currid (2007a; 2007b) seems to some degree supportive of the amenity-based strand, and emphasizes the importance of arts and cultural amenities as a meaningful part of urban, regional or national economies. She refers to this as the 'Warhol economy', and explains the 'hip' character of New York by the fact that people like to gather in cultural clusters. Currid advises developers and planners to create places that attract human capital and provide outlets for consumption. Furthermore, the standardization of the urban experience has increased the need for economic development that can create distinctiveness, in which the arts can play a central role (Currid, 2009).

Critical reflections

All three approaches within the people-based perspective have also been sharply criticized. A general critique is that employment opportunities have been neglected, or at least underestimated, whereas the role of soft conditions is overestimated. Especially Florida has been criticized for overemphasizing the importance of the creative class and for failing to distinguish between the necessary and sufficient conditions under which highly skilled and creative people will settle or remain in particular places. According to Storper & Scott (2009), growth crises in regions result from a lack of jobs, rather than a lacking inflow of people. They state that highly educated people are less mobile than is presumed. Since knowledge workers have invested heavily in acquiring know-how, skills and qualifications, they are unlikely to move to places without sufficient employment opportunities. Rather, they would choose between locations where there is a structured match between their talents on the one hand, and regional economic specialization and labour demand on the other. Scott (2006) argues that the economic networks and production system within a region have a larger impact on the attraction of talent than the atmosphere. Human capital is suggested as a much better predictor of economic growth than Florida's creative class (Bontje & Musterd, 2009).
These critics are in line with earlier empirical studies stating that the location decisions of companies are mainly driven by labour and cost elements, whereas quality of life aspects only play a secondary role, once a set of locations that meets a company's criteria on these elements has been defined. Quality of life aspects are somewhat more important for small-scale and especially footloose companies, for whom space and transaction costs are much less of an issue (Love & Crompton, 1999). According to Chen & Rosenthal (2008), households tend to prefer non-metropolitan areas and cities in warm coastal locations, whereas firms tend to prefer large, growing cities. However, workers are principally drawn to locations attractive to business, especially in

the case of highly-educated workers. In other words, people go where the jobs are. Soft factors appear to be more relevant for retirees than for workers (Chen & Rosenthal, 2008).
A second strand of critique criticizes Florida's empirical evidence due to his broad definition of the creative class and the subjective and hard to measure quality of place indicators (Musterd & Ostendorf, 2004; Storper & Manville, 2006). Kooijman & Romein (2007) questioned the positive causality between qualities of place and economic growth. Markusen's (2006) in-depth study of artists doubted the relationship between high-tech industry and arts, since high-tech centers such as Silicon Valley have relatively few artists. In fact, most artistic cities are neither the largest nor the fastest growing cities. According to Scott (2006), a concentration of creative people alone cannot explain the long term economic development of a city. Florida's theory also pays no attention to additional processes that channel and stimulate interaction. Furthermore, all three people-based perspectives do not take into account the origins of places. For example, they do not explain differences between Sunbelt cities and, perhaps most importantly, they do not pay attention to different residential preferences that may determine location choice (Storper & Scott, 2009).
In addition, it is difficult to define who belongs to the 'creative class' and who does not. Florida appears to consider the creative class as one homogenous group in terms of location preferences, and even its three subdivisions still cover a large number of different occupations and individuals alike. The creative class itself is also considered highly diverse, and a dichotomy such as that between 'bohemians' and 'nerds' (Kotkin, 2000; Marlet & Van Woerkens, 2004) is insufficient (Kooijman & Romein, 2007). Atzema (2007) concludes that the creative class in the Netherlands is more of an ideal type than of an empirical fact, and exists for largely of ordinary working people who all possess some -though not all- of the characteristics of the creative class. Therefore, the creative class on which urban policy should be focused is non-existent. Krätke (2010) also questioned the existence of 'the' creative class, and divided it into two groups: the 'scientifically and technologically creative occupations' and the 'dealer class', consisting of high-ranking professionals in finance, real estate, management and consulting. Krätke questions the importance of the latter category for regional economic growth. Also Servillo et al. (2011) suggest that the role that environmental, physical and social attributes play for the attractiveness of a region or city is different for specific groups.
Another strand of criticism is related to the social costs attached to the policy implications of the three people-based theories. The creative class theory is focusing too much on the middle and upper classes, whereas the importance of low-skilled employment is neglected. The authors in this strand of literature also fear that the implementation of policy recommendations aimed at attracting the creative class will increase social polarization (Peck, 2005; Markusen, 2006). Others state that the poor are completely neglected in Florida's creative class thesis (Bontje & Musterd, 2009). Scott (2008) pointed at a strong divide between the 'surface glitter' of the new economy and its amenities and the 'underlying squalor' that accompanies it, including new patterns of crime and gangs, riots, violence, increasing social polarization and ghetto formation, social conflicts and informal-economy jobs. In their analysis of creative city policies in Copenhagen, Lund Hansen et al. (2001) conclude that creative city policies are often accompanied by high social costs, particularly the competition between municipalities in the same region to cater to the so-

called ‘economically sustainable population’ and simultaneously the displacement of the socially and economically marginalized population. In their view, creative city policies and the resulting transformation of cities involve reduced transparency in urban governance, as well as increasing social and geographic polarization.

The applicability of Florida’s concepts for urban policies is also much-debated. According to Hall (2004), creative cities cannot be created out of thin air (Hall, 2004), whereas Kooijman & Romein (2007) suggest that Florida’s conviction that creative city policy should focus on the complex interrelations between living, working and leisure is difficult to put into practice by local policymakers working in separate departments. Furthermore, Peck (2005) argues that if all cities compete for the same hyper mobile-talented workforce and adopt the same policies, this will result in a mismatch between cities’ strategies and the ‘economic reality’, and a too strong focus on creating attractive neighbourhoods for higher income people. McGuigan (2009) regards Florida’s discourse as an “articulation of neoliberal economics with cool culture” (p. 298), which is related to a particular set of class interests, rather than real cultural policy.

There is no one-size-fits-all policy for creating knowledge cities (Servillo et al., 2011). Each city region has its own unique features that distinguish it from other cities and regions. Urban development policies are more likely to lead to success if they build on the particularities and historic development path of the region, rather than adopting uniform policies (Pratt, 2008; Musterd & Kovács, 2010). If each city adopts the same policy measures and focuses on the same features and amenities, this will increase uniformity and may ultimately result in the loss of unique characteristics and unique competitive advantage (Peck, 2012).

Finally, all three approaches are criticized for being too strongly US-centered, whereas its usefulness in the European context is questioned. The main difference between the US and Western and Northern Europe is reflected in residential mobility. Cultural and institutional differences form a significant barrier to (transnational) migration within Europe (Martin-Brelot et al, 2010). Language differences, labor market rules, bureaucratic systems, as well as cultural habits, make the European labour force more bound to a certain geographical location than their US counterparts (Andersen & Lorenzen, 2005). Florida, Glaeser and Clark’s US-centered theories did not take into account such factors, since these do not play an important role in the context of the United States. National borders in Europe often coincide with language borders and different tax regimes further complicate international migration. In the United States, the number of cities to move between is much higher than in European countries and intercity competition on the national level is much more distinct (Hansen & Niedomysl, 2009). Further barriers to mobility in the European case, compared to the US situation, are the higher gas taxes and consequently a lower commuting tolerance. Also, the level of income equalization through tax payment, benefits and welfare services is much more developed in Western and Northern European countries than in the United States (Esping-Andersen, 1990). Together with a smaller difference in payment between educated and unskilled labor, this means that the European creative class is on more equal terms with the rest of the population than the North American creative class. Therefore, to some degree the European creative class is more limited in their economic freedom of choice than their American counterpart (Andersen & Lorenzen, 2005).

Also, urban development in Europe is much different from that in the United States. Florida's model is based on a 'typical' North American metropolitan area, consisting of one single, large central city that has extended via rings of suburbs. Urban development in the Netherlands, for example, is characterized by urban networks that contain various large cities of similar size and a number of smaller towns. Thus, the spatial perspective of urban policy issues is different than in the US, and would require a more regionally-based and cooperative inter-city framework (Kooijman & Romein, 2007).

2.4 Residential preferences of European knowledge workers

This section will go deeper into the European context, by summarizing a number of empirical studies dealing with the factors that attract knowledge workers to European city regions. Two red lines in this literature are the ongoing importance of hard factors and social capital, and the high diversity among knowledge workers.

The ongoing importance of hard factors and social capital

Most recent empirical evidence on the location decisions of knowledge workers in European knowledge regions has been gathered in the ACRE-project, which included a survey among knowledge workers, both native and international, in 13 European city regions whose local economies are characterized by a (recent) emphasis on human capital. Two overall conclusions of the ACRE project should be emphasized. First, in Europe, social capital plays a dominant role in the process of making a relocation decision. The presence of family members or friends, following a partner, or having been born or having studied in a certain region are important reasons for choosing a place of residence. These types of social capital have been neglected by Florida (Brown & Meczynski, 2009). Similar results on the importance of personal life trajectories were found in a recent study from Norway, which found that students often choose to study in their place of origin and also tend to stay in the same region after graduation (Stambøl, 2013). Workers are thus not necessarily as mobile as is often suggested. Rather, the majority of people wish to have their future residence in the same residential environment as the one in which they are residing at present (Muhammad et al., 2007).

Second, besides social capital, hard economic factors are the main drivers of relocation: job opportunities, wages and accessibility are all important drivers of relocations (Bontje et al., 2008; Brown & Meczynski, 2009; Martin-Brelot et al., 2010). This latter finding confirms other critics that the US-centered location theories by Florida and Clark neglected the role of employment. Thus, the ACRE Project concluded that people generally do not move to places simply because of their available soft conditions. Rather, people move because of the availability of suitable jobs or because of personal trajectories and networks (Musterd & Murie, 2010).

Also Houston et al. (2008) concluded their case study of talented migrant workers in Scotland by stating that employment opportunities are becoming more, rather than less, important through time. Whereas 6 percent of workers moved to Scotland mentioned quality of life as the reason for their last move, 73 percent reported that their move was related to employment. An empirical study by Venhorst (2012) on the location choices of recent graduates in the Netherlands also confirms the importance of work opportunities for relocation decisions. Venhorst signaled a significant stream of graduates from university cities in the north, east and south of the country to the west. This is explained by the fact that employment in certain sectors is highly spatially concentrated in a number of cities, often in the Randstad.

A recent empirical study by Lawton et al. (2013) found that, based on a case study from Dublin, residential preferences of the creative class are highly diverse and signaled a continued importance of 'classic' location factors. Costs and size of the dwelling were considered important, just like distance and journey time between home and work and the quality of transport infrastructure. Soft factors were rarely mentioned among the main reasons for choosing a location. In fact, proximity to pubs or nightclubs was considered unimportant by 42 percent of the population. Furthermore, the residential patterns of Dublin's knowledge workers show that only half of Dublin's creative workers live in the inner city, whereas 29 percent live in the city outskirts and another 20 percent in the periphery. In general, they found that residential preferences of the creative class do not differ much from the choice characteristics of the general population (Lawton et al., 2013).

A study by Hansen & Niedomysl (2009) studied which factors are considered important for migration decisions of the creative class in Sweden. Their study focused on culture and entertainment, work, outdoor activities and recreation, and career opportunities. They distinguished between workers with a high and a low level of education, and also between different age groups. Differences in migration activities between low and high educated workers were found to be marginal. Only the group of people up to 25 years, including many students, tends to move towards regions with higher ranking people climate. The next wave of migration occurs after graduation, when people move to enter the job market, away from the larger cities and towards lower ranking regions. Thus, migration to places with a high-ranking people climate takes place *before* people become part of the creative class, whereas people move in the opposite direction *after* entering the creative class. Most migrants moving a distance over 20 kilometres stated employment as the main reason for moving (26 percent), followed by social reasons (24 percent) (Hansen & Niedomysl, 2009). These findings are in line with the main conclusions of the ACRE Project.

Hansen & Niedomysl (2009) conclude that soft conditions play a secondary role behind hard conditions when making a relocation decision. In addition, differences between high and low educated workers are strong especially with respect to hard conditions, rather than soft conditions.

For example, half of all workers considered cultural and entertainment facilities of no importance or small importance for making their migration decision, whereas 18 percent considered this of great importance and 2 percent of utmost importance. No significant differences between workers with high and low education were found in this respect. Similarly, outdoor activities and recreation hardly played a role in making migration decisions, whereas 32 percent of the highly educated workers considered work of utmost importance, more than twice as high as the share of low educated workers. The other way around, for 38 percent of the low educated workers, work was not important as a location decision factor, whereas this was the case for 20 percent of the highly educated workers. Career opportunities are considered less important than the job, but highly educated workers (15 percent) more often attach high value to this than low educated workers (6

percent). Looking specifically at highly educated workers, it stands out that work is by far the most important factor determining migration decisions. Still, outdoor activities and recreation, as well as cultural and entertainment facilities were both considered important by 20 percent of the highly educated workers. Interestingly, outdoor activities and recreation are more important for older migrants, especially for retired persons, and also for high income groups. Cultural and entertainment facilities are more often considered as a migration reason by older migrants, again especially by retired people (Hansen & Niedomysl, 2009). Niedomysl (2010) suggests that amenities should be considered as preferences, rather than needs or demands. These aspects are relevant mainly when other factors (such as jobs and affordable housing) are equal in different potential destinations (Niedomysl, 2010; Niedomysl & Hansen, 2010).
Marlet & Van Woerkens (2005; 2007) found that the Dutch creative class, using Florida's definition, is not attracted to cities because of tolerance or openness to cultural or ethnical diversity, contrary to Florida's statement. They state that job opportunities are the most important factors that make cities attractive to the creative class, but besides that, aesthetic features such as nature and historic buildings, as well as 'traditional' amenities like culture and cafés, are considered attractive. Thus, the role of quality of place should not be considered unimportant, but rather cannot be seen apart from employment opportunities.

Different residential preferences within the creative class: demographic features and lifestyles
Based on empirical studies on creative and knowledge workers in the European context, the critique that the three people-based approaches consider knowledge workers as one homogeneous group seems justified. According to Servillo et al. (2011), attractiveness is a complex set of characteristics which is different for each specific group of workers. This statement is confirmed through several empirical studies on (creative) knowledge workers in European city regions, which outlined large differences in residential preferences between different sub-groups of the creative class. Most notable conclusion is that not all knowledge workers prefer metropolitan areas. Different types of regions can be attractive for different types of knowledge workers, based on their lifestyle. In their empirical study on knowledge workers in Scandinavian countries, Andersen et al. (2010) concluded that metropolitan areas are not more or less attractive than suburban areas, but rather attract different groups of knowledge workers. Metropolitan areas attract workers because of employment opportunities, and retain people because of (cultural) amenities. Smaller urban centres and suburban or rural areas also attract workers because of employment opportunities but retain people especially because of social soft conditions: quietness, space and social cohesion. These cultural and social soft factors may be attractive to different types of individuals. For families, smaller centres seem to be more attractive than metropolitan areas, whereas younger people are mainly attracted to central parts of large cities with a larger cultural and leisure supply (Andersen et al., 2010).
Other studies confirmed that a choice for an urban or a suburban residential milieu is determined by demographic characteristics, rather than being part of 'the creative class' or not. Residential preferences appear to be strongly correlated with age, especially the preference for highly urban milieus. According to Lawton et al. (2013), the younger age cohorts (under 35) do have residen-

tial preferences conforming Florida's creative class thesis, whereas the proportion of individuals living in the urban periphery is largely consistent across age cohorts. Interviews with transnational migrants have pointed at the importance of life cycle and personal trajectory factors (e.g. becoming parents) for making location decisions, even for those living in the inner city districts. Similar findings were presented in other studies from Scandinavia (Andersen et al., 2010), Israel (Frenkel et al., 2012) and also in Australia (Verdich, 2010). Based on these studies, younger knowledge workers, especially singles or couples without children, prefer inner city districts with concentrations of (cultural) amenities, whereas older and settled knowledge workers more often prefer suburban residential milieus. The decision to move is informed by a complex set of push and pull factors whose importance varied across the life cycle.

Furthermore, A Dutch empirical study by Muhammad et al. (2007) looked into the effects of telecommuting on the probability of relocating. They found that telecommuting appears to have a limited effect on residential location preferences, whereas traditional factors, such as household type, number of children in the household, and especially the stages of life cycle still play a dominant role herein.

Beckers & Boschman (2013) conducted a statistical analysis on the residential preferences of knowledge migrants in the Netherlands, and found that for this group the characteristics of the local living environment, including urban amenities, do matter for location choices. This group tends to favour highly urban milieus, and in general up-market neighbourhoods in or in close proximity to city centres. However, their study also suggested that these residential preferences change during the life cycle. Once individuals start living together or start a family, quieter neighbourhoods become more popular and proximity to school outweighs closeness to work (Beckers & Boschman, 2013).

Similarly, Bendit et al. (2011) concluded after their empirical study on knowledge workers in Tel Aviv that knowledge-workers are attracted to dense urban environments and large cities. They generally prefer communities with a large number of culture and education facilities, and well-established knowledge communities with ample networking opportunities. Also the availability of appropriate housing, as well as mobility and accessibility are considered important. In general, they prefer locations that are highly accessible to both their workplace(s) and the metropolitan core. An interesting finding in their study is that the residential location choice of knowledge-workers is related to the main orientation of their activity pattern. Culture-oriented and sport-oriented activity patterns increase the tendency to reside in the metropolitan core, whereas a home-oriented activity pattern increases the propensity to reside in the outer suburbs and the metropolitan fringe (Bendit et al., 2011).

Different preferences between occupational groups

Empirical studies over the past years have shown that workers in different occupations tend to have different residential preferences. Most notable, whereas workers in cultural or creative industries have a highly-urban residential pattern, workers in non-creative knowledge-intensive occupations have residential preferences that are more similar to the general public.

An empirical study on Amsterdam found that workers in creative occupations have the strongest urban orientation. Of all architects employed in Amsterdam, 71 percent also lives within the city, whereas this goes for 17 percent of ICT workers. Apart from architects, also knowledge workers in the public sector (60 percent), in advertising (52 percent) and staff of the social sciences and law faculties of polytechnics and universities (around 50 percent) have a predominantly urban residential preference (Musterd, 2002). These findings are in line with previous Dutch studies that differentiated between residential preferences of occupational and educational groups (Helbrecht, 1998; De Wijs-Mulkens, 1999).

These findings are also in line with international studies on different occupation groups within the creative class. Kotkin (2000) found that high-tech workers in the United States do not have a preference for dense urban areas, but rather congregate in safe, suburban communities, which he refers to as 'nerdistans'. A Dutch empirical study by Van Oort et al. (2003) on the residential preferences of Dutch ICT workers has shown that their residential preferences do not differ much from the preferences of highly-skilled workers in general. In line with some of the abovementioned studies, it concluded that residential location choice differ between lifestyle groups and is often related to differences in household situation. About one quarter of all ICT workers prefer a location in or near the city centre, while the rest, generally the older and settled workers, prefer a suburban or exurban location. Regarding urban amenities, 65 percent of all ICT employees expressed a preference to live within reach of the city centre, mostly in either the actual city centre or in its surrounding neighbourhoods. For 36 percent of these city centre-oriented workers, urban cultural and social amenities played a role in this choice. However, for 44 percent a shopping centre nearby would also be sufficient. Their study found that Dutch ICT workers prefer a green environment. For 70 percent, living near a nature district is desirable, but most of them would also be pleased with a park nearby and are prepared to travel quite substantial distances to visit an area of natural beauty. Proximity of the workplace is not considered very important by most ICT workers, as long as they have good accessibility to the workplace. In other words, they express a high 'commuting tolerance'. A choice for residential area more dependent on the characteristics of the house, neighbourhood and the availability of facilities (Van Oort et al., 2003).

For workers in cultural industries, urban centres do appear to be the most popular, since these groups attach more value to living near amenities and meeting places that enable them to live near the 'scene'. Also symbolic values are more relevant to workers in cultural industries. Markusen (2006) confirmed that artists prefer living in urban areas and also make an important contribution to urban development. In her study on workers in cultural industries, Smit (2012) found that although soft conditions are not the only, or even the main, determinants of location choice, aspects such as neighbourhood image and the design of housing and public space are relatively often mentioned among the reasons for choosing a location.

However, there is also disagreement among scholars on this subject, since other studies found no such evidence even for the most artistic occupational groups that are supposedly highly urban-oriented, or nuanced the relevance of soft factors relative to hard conditions. For example, Borén & Young (2011) concluded after their study on artists' location preferences in the Stockholm region that even for these highly-creative workers, work opportunities are at least as important as city attractiveness. They suggest that a 'one size fits all' policy approach to attracting creative people is therefore likely to be unsuccessful.

2.5 Conclusion

The people-based location theories have several shortcomings as a predictor of residential preferences of the creative class, especially in the European context. First, they do not take into account personal trajectories and social capital. Second, they overestimates the relevance of soft conditions and downplay the role of traditional hard factors, particularly employment opportunities. Third, the US-based theories treat knowledge workers as one uniform group, whereas several empirical studies from Europe, Israel and Australia have shown that residential preferences are not necessarily different between knowledge workers and the general population, but rather differ among knowledge workers. Differences in residential preferences are based mainly on demographic factors, such as age cohort and family composition, as well as lifestyle. In addition, there are differences in residential preferences with regard to occupation, as workers in cultural industries appear to attach more value to quality of place, such as visual qualities, atmosphere and facilities, whereas technical workers have much less urban and amenity oriented residential preferences.

The literature review still raises a number of questions. First, although we know that differences exist within the creative class regarding residential preferences, these differences are mainly based on demographic aspects. There is much less consensus, however, considering different residential preferences among different occupational groups. Still, earlier empirical evidence indicates that creative workers and knowledge workers in alpha and gamma sectors on the one hand have a stronger urban orientation than beta-oriented workers on the other. However, studies have mainly focused on one specific sub group, such as ICT–workers or artists, without a direct comparison to the opposite group. More insight is needed on which local aspects are responsible for these assumed differences in residential preferences. For example, to what extent are urban cultural amenities more important for knowledge workers in alpha and gamma sectors, who are mainly working in symbolic knowledge bases, than for beta or technical workers for whom analytic knowledge bases are more important (Asheim & Gertler, 2005)? Also, more knowledge is need on which soft location aspects are important for *retaining* knowledge workers, taking into account differences between older/younger and settles/unsettled groups. These questions will be central in the survey for work package 2.

Also more qualitative information is needed on the strategies of local policy makers to keep their cities competitive and attractive for creative knowledge workers:

- How do cities try to strengthen their strong points and to improve their weak points, particularly during an economic crisis? These questions will be dealt with in the remainder of this report (WP1) .
- To what extent do international knowledge workers express different residential preferences than native knowledge workers? Which role does the 'soft side' of the city region play for their decision to stay or move? This question will be dealt with in WP6, through a combined quantitative and qualitative approach.

3. Metropolitan Region Amsterdam: diversity

3.1 Introduction to Amsterdam Metropolitan Region

Amsterdam is the largest city of the Netherlands, with 800,000 inhabitants in 2012 (O+S). The whole Amsterdam city region, *Metropoolregio Amsterdam* (hereafter, MRA) has over 2 Million inhabitants. Although it is also the Dutch capital, the government seat is in The Hague. Still, Amsterdam is regarded as the dominant city in the Netherlands in terms of culture and economy.

Development path

The city was founded around 1275 at a strategic location where the river Amstel reached the IJ, an arm of the Zuiderzee. During the early days, Amsterdam's economy was mainly based on trade in herring and beer, and Amsterdam at the time was less important than Utrecht, Haarlem and Leiden. Amsterdam became the largest and most important city of the Netherlands in the late 16th century, with approximately 30,000 inhabitants. When the Dutch revolt against the Spanish king started in 1567, after decades of Spanish domination, Amsterdam initially chose the Spanish side, but switched to the protestant movement after becoming isolated in 1578. In 1579, the seven northern provinces of the Netherlands separated from the southern provinces and formed the Dutch Republic, much to the benefit of Amsterdam. After Antwerp was conquered by the Spaniards and blocked by the Dutch, many rich merchants moved from Antwerp to Amsterdam. Amsterdam's welcoming attitude toward foreign (Portugese-Jewish) merchants, the relatively loose reign of the Dutch stateholders and the importance of international trade laid the basis for Amsterdam's image as a tolerant city (Mak, 2005; Bontje et al., 2011).
The city developed rapidly into one of the world's most important trade centres during the 17th century; the second half of the 17th century is therefore known as Amsterdam's 'Golden Age'. The Dutch Republic became very rich from colonial trade, mainly from the current Indonesia with an important role for the Dutch East Indies Company (VOC), while the West Indies Company orga-

nized trade with New Amsterdam (New York), the Caribbean and Brazil. Amsterdam's growth spurred especially after settling peace with Spain in 1648. Being the main trade centre of the Republic, Amsterdam profited most from these developments, and was expanded with the canal belt for the rich merchants and gentry and the Jordaan neighbourhood for the working class. During the Golden Age, Amsterdam also developed into an important arts and cultural centre and became home to many famous painters, including Rembrandt van Rijn, Johannes Vermeer and Jan Steen, as well as philosophers (Descartes and Spinoza) (Mak, 2005; Bontje et al., 2011).
During the 18th and 19th century, the Dutch Republic's position as a world power diminished, due to a lack of innovativeness in the political and economic systems, the harbour's problematic access to the sea and the lack of centralized authority within the republic. Contrary to Rotterdam and several medium/sized cities, Amsterdam largely missed the industrial revolution and became an impoverished city. Again due to colonial trade, Amsterdam's economy revived at the end of the 19th century and acknowledged a 'Second Golden Age', which lasted until World War I. During this period, the city walls were torn down and the city extended beyond the canal belt, resulting in the development of chaotic, and nowadays popular, neighbourhoods such as De Pijp and Oud-West. A few decades later, a new extension, Oud-Zuid, was developed, which had a more luxurious character and a more prominent role of design and urban planning.
From the early 20th century, most new housing developments were in the social rented sector, connected to the political dominance of the social democrats (PvdA) in the city council. The population kept growing until the early 1960s, with the exception of World War II when most of the Jewish population (and elite) was deported. Although the Jewish community never recovered, Amsterdam soon returned to its growth and modernisation path after the war. The city has hardly been damaged during the Second World War, certainly compared to some other Dutch cities, e.g. Rotterdam and Nijmegen. The city was expanded following the 1934 Amsterdam Expansion Plan (AUP) and reached 870,000 inhabitants in 1959. After 1960, however, mass suburbanization resulted in a population loss of 200,000 inhabitants, also stimulated by a government policy of 'clustered deconcentration'. Amsterdam's population changed rapidly, as a result of the outflow of middle classes to suburban areas and the inflow of international migrants from the former colony of Surinam, as well as guest workers from Turkey and Morocco. The inner-city areas of Amsterdam were facing a negative image and urban decay.
The historic inner city had nearly been destroyed by modernist planning, including highways through the inner city, the filling up of canals and the demolition of the Jordaan neighbourhood. Mass anti-establishment protests, led by the Provo-group and the squatter movement were able to stop this process, but only after the planned highway (Weesperstraat) had reached Waterlooplein and the metro had been constructed, resulting in large demolitions in the Nieuwmarkt area. Urban renewal switched from demolition to renovation and restoration (Terhorst & Van de Ven, 2003). Eventually, the canal belt was added to the UNESCO World Heritage list in 2010.
Since 1985, Amsterdam has been booming again, as a result of the renewed popularity of urban living, the earlier expansion of Schiphol airport and the traditionally diverse economic profile, with a strong position for international trade and exchange activities (Bontje & Musterd, 2008; Bontje et al., 2011). Amsterdam's main challenges during the past three decades appear to be the balance between laissez-fair and strict integration policies, as a way to deal with the city's multicultural character and, especially, solving problems on the housing market. The housing market is expensive and difficult to enter for people from outside or with a low income, and the absence of a middle segment makes it difficult to make a housing career in the city (Bontje & Sleutjes, 2007; Bontje et al., 2011).

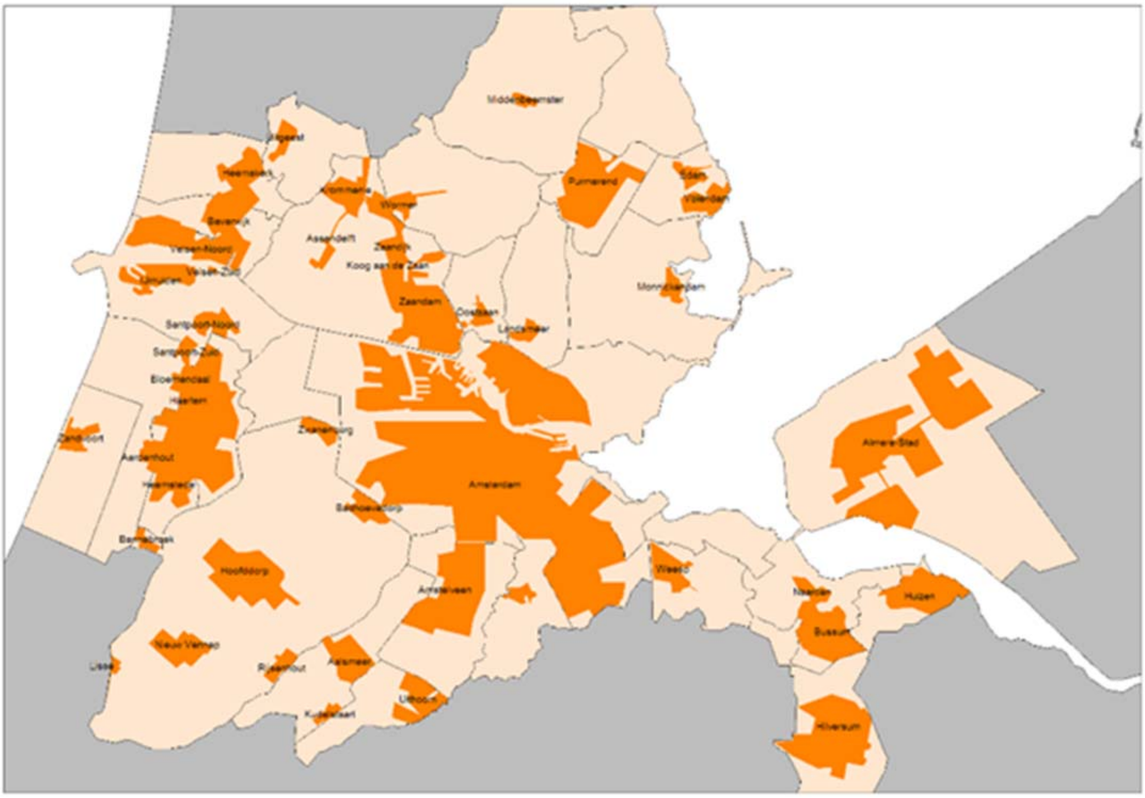

Figure 3.1 The Amsterdam Metropolitan Area

Regional governance and the policy agenda

A plan to create a formally institutionalized Amsterdam 'city province' was rejected in 1995, but a number of regional initiatives have taken off since then. The 'Amsterdam Metropolitan Area' (MRA*)* is an informal network of 36 municipalities around Amsterdam. Although most of the MRA is located in the province of North Holland, one of its most important parts in terms of new housing construction, Almere, is situated in Flevoland. MRA's aim is to strengthen co-operation in the region by organizing meetings, exchanging information and representing the interests of the region. The overarching goal of MRA's regional development programme is regional competitiveness. The MRA developed out of the *Noordvleugelconferentie* ('North Wing Conference') in 2001, and meetings are now referred to as *Metropoolconferentie*. Each meeting, decisions are taken regarding strategic development projects in the fields of housing, economic development and infrastructure (Bontje et al., 2011).

While collaboration in the MRA is mostly based on voluntary participation, *Stadsregio Amsterdam* has a legal basis and has regional governance tasks in public transport, infrastructure, housing and youth policy. A larger regional entity is the 'North Wing', consisting of the MRA area and the Utrecht city region, which is the most powerful economic region in the Netherlands. The 'North Wing Programme' (2005) coordinates decision-making on large projects in the fields of housing construction, infrastructure, employment and nature. In addition, a number of target-specific regional initiatives have emerged, including the 'Amsterdam Airport Area' and the 'North Sea Canal Area' (Bontje et al., 2011).

Although there is still some competition between municipalities, over the past decade there has been an increasing willingness to cooperate on a regional basis. Amsterdam and Zaanstad, for example have arranged a task division in which Amsterdam is a creative knowledge city and

Zaanstad a creative 'workplace'. Zaanstad, e.g. De Hemoevers where the former *Honig* factory is located, has recently become a hotspot for creative professionals. Haarlem has not developed concrete initiatives to attract creative or innovative industries yet, although the city has long had a large cluster of artists. However, Haarlem hardly has space to expand or restructure, and the city lacks the political will to actively become a creative knowledge city (Bontje et al., 2011).
Regional co-operation and networking are taking place in the economic, spatial and social domains. Since 2004, the organization of 'Amsterdam Partners', including several municipalities, higher education institutes and companies, is promoting the region internationally. The slogan 'I Amsterdam' was made up for Amsterdam, which is currently being used throughout the entire region (Bontje et al., 2011).
Amsterdam has not yet developed an integral policy with the explicit aim to become a creative knowledge city. Still, a number of policy documents have addressed elements of a creative knowledge city development as priorities. The 'Social Structure Plan' aims at investing in metropolitan dynamics and investing in human capital are two of the policy goals. The economic policy document 'HERMEZ' not yet identified creative or cultural industries as important pillars of urban and regional economic development, but did pay attention to the ICT and the new media cluster. Another priority was to intensify cooperation between the municipalities, institutes of higher education and knowledge-intensive companies.
The *Amsterdam Topstad* policy aims at making Amsterdam and its city-region more competitive. The main target of this program was to bring Amsterdam back into the top five of European business locations. Creative industries, innovation and knowledge are seen as important ingredients to regain Amsterdam's prominent position in Europe. According to the local experts that were interviewed, Amsterdam does not actively attract talents to the city, since this is seen as a task for the private sector. However, the city does facilitate foreign talent. For example, one part of the Topstad Policy was the installation of the 'Expatcenter' at the South Axis, which was created in 2008 by the cities of Amsterdam, Amstelveen, Almere and Haarlemmermeer, in cooperation with the Immigration and Naturalisation Services (IND). The aim of the Expatcenter is to be a 'one-stop-shop' service for international companies and highly-skilled migrants, which allows highly skilled migrants and their family members to complete several important formalities in a single visit, including residence permits, registration with the municipality and the reception of a citizen service number that is needed for opening a Dutch bank account (http://www.iamsterdam.com; Interview Expatcenter).
The *Broedplaatsen* ('Breeding places') policy is an incubator policy providing affordable workspaces for starting artists and creative entrepreneurs. Especially for those who start a new firm and for self-employed persons, the residential histories of the places to settle, the local amenities as well as interaction opportunities with colleagues with whom projects may be run provide important explanations for their settlement and economic development (Arnoldus, 2004).
Broedplaatsen-sites are more restricted in their development than *vrijplaatsen* ('free places'), the former anarchistic squatter and non-commercial artist colonies. Regulations and laws for fire prevention, safety and noise often frustrate the attractiveness of breeding places, and the most successful projects, especially *NDSM-werf* have increasingly become commercialized (Bontje & Musterd, 2009). The *Broedplaatsen* programme has resulted in disappointment from both sides: the municipality expected more entrepreneurship and artists have problems with formal arrangements (Bontje et al., 2011).
'Amsterdam Innovation Monitor' (AIM) aimed at stimulating the development of four innovative business clusters in particular: ICT/New Media, Creative Industries, Sustainability, and Life Sciences. AIM has been an independent foundation active in international promotion, networking,

monitoring and improving the business climate (Bontje et al., 2011). Since 2013, AIM has been merged with *KennisKring Amsterdam* to form 'Amsterdam Economic Board'. The Amsterdam Economic Board is a regional cooperation between local governments, knowledge institutes and the private sector, which determines the economic development strategy for the MRA. This strategy is formulated in common 'knowledge and innovation agenda's', aimed at stimulating innovation and entrepreneurship. Its mission is the sustainable economic growth and innovation, the stimulation of cooperation between entrepreneurs, knowledge institutes and the public sector, and removing barriers to the growth of (potentially) successful clusters. The overall target is to get Amsterdam into the top five of most attractive business settlement locations (www.iamsterdam.com).
The MRA's regional spatial policy for the next decades is formulated in the Structural Vision (*Structuurvisie*) 2040, which in total consists of six main topics:

- Intensifying: building 70,000 dwellings and amenities, intensifying the use of business parks, more high-rise buildings alongside the ring road and near public transport nodes.
- Transformation: a shift from mono-functional business parks to areas with an urban mix of living and working. The largest development in this respect is Haven-Stad (Harbour City): a part of the harbour that is till located within the ring road will be gradually moved out of this district while vacant space is being used for both small scale business spaces and residential areas.
- Public transport on a regional scale level: creating faster public transport connections between the inner city and the outskirts of the core city and the suburbs.
- High profile design of public space: especially within ring road, there has to be an attractive layout of streets, squares and quays, with much space available for cyclists and pedestrians.
- Investing in use of green space and water for recreation
- Shift to sustainable energy (DRO, 2011b)

Four main 'movements' are dominant in the Structural Vision 2040, describing the spatial planning policy up to 2040:

- The expansion of the centre urban milieu: previously unattractive neighbourhoods are now have trendy bars and restaurants.
- The city and the metropolitan landscape are closely knit: keeping green areas green and accessible and attractive for recreation.
- The rediscovery of the waterfront: water is regarded a distinguishing feature of Amsterdam, compared to other metropolises. The main developments to be planned are IJ and IJmeer, Zaanoevers, IJburg (second phase) and Zeeburgereiland.
- Internationalisation of southside: expansion of Schiphol, South Axis and intensification of living and working districts in Southeast (DRO, 2011b).

The municipalities in the MRA seek cooperation based on complementary identities, rather than competition. The housing supply should be adapted to the wishes of high educated knowledge workers and creative workers, who have a strong preference for the culturally strong centre-urban milieu of Amsterdam. In order to preserve families, parts of the city should offer more relaxed living environments. Particularly in IJburg 2, Zeeburgereiland, Noord (North), Zuidoost (Southeast) and the Western Garden Cities, there are opportunities for realizing houses with a garden. Also opportunities for 'short stay' and the accommodation of student housing on campuses are part of the Structural Vision 2040 (DRO, 2011b).

Housing market

	Owner occupied	Social rent	Private rent	Unknown
Amsterdam	24,4%	47,1%	26,5%	2%
MRA region	42%	38,2%	18,6%	1,2%
The Netherlands	55,1%	31,2%	13,1%	0,7%

Figure 3.2 The Amsterdam housing market (Source: CBS, 2011)

As figure 3.2 shows, Amsterdam's housing market is characterized by a dominant social rented sector. In the core city, the share of social rent is 47 percent, compared to 38 percent in the MRA region and 31 percent nationally. The share of social housing is, however, decreasing, as it was still 52 percent in 2006 and it has been higher before. This is largely the result of former social rented dwellings being sold to owner-occupiers. The owner-occupied sector, on the other hand, is strongly underrepresented in the core city of Amsterdam: 24 percent, compared to 42 percent in the region and 55 percent in The Netherlands. In fact, Amsterdam has one of the smallest owner-occupied sectors in the world (Aalbers, 2004). The private rented sector is also overrepresented in Amsterdam. It comprises 26.5 percent of the total housing stock, compared to 19 percent in the region and 13 percent in the whole country. In Amsterdam's neighbouring municipalities, the housing stock is predominantly owner-occupied and the social-rented sector is relatively small, with the exception of the older centres like Haarlem and Zaandam and some new towns. This large share of social housing has created a problem of accessibility on the housing market in Amsterdam. The average waiting time for a social rented dwelling is seven years (in some districts even more) and the average residence in the first dwelling is no less than 14 years. The number of moves within the city is small and has been declining since the early 1990s, but started to increase again after 2004. As a result, about 30 percent of all residents lives in a too small dwelling (Bontje et al., 2011).
Most new constructions take place in the wider region, especially in Almere and Haarlemmermeer (O+S, 2012). The housing density in the region is 673 dwellings per km², which is three times higher than the national average, but within the region there are large variations. Logically, Amsterdam is the most densely built sub-region with 2,285 dwellings per km², while the rural sub-region Waterland has the lowest density with only 255 dwellings per km² (O+S, 2012).
Furthermore, Amsterdam has a relatively old housing stock: nearly half of all dwellings were built before the Second World War, compared to only one-third in the region. Apart from the fact that Amsterdam was not severely damaged in the Second World War, this relatively old housing stock is also caused by the limited space for expansions within the city limits. Since the 1990s, however, some new construction has taken place within the core city, explained by the conversion of former harbour sites (Eastern and Western harbour districts) and the site of the old Ajax stadium in Watergraafsmeer (Park De Meer) into residential areas and the construction of IJburg, which has been built on newly-made land in the river Het IJ. Also, in the 1990s, new areas such as De Aker and Nieuw Sloten were fully built up (Bontje & Sleutjes, 2007). Within the core city, Amsterdam has almost reached the limits of its growth. There are still some parts of IJburg and adjacent Zeeburgereiland to be developed. For the rest, the city is seeking its growth opportunities mainly in intensification and the transformation of former harbour and industrial sites.
Housing in Amsterdam is also predominantly small-sized: 66 percent of all dwellings has at most three rooms, while the share in the region is only 42 percent. On the other hand, the share of dwellings with more than five rooms is relatively small in Amsterdam: 9 percent, compared to 27 percent in the wider region. The share of single-family dwellings is relatively small in Amsterdam

(16 percent) when compared to the wider region (51 percent) and especially the Netherlands (71 percent); most dwellings are apartments. Thus, for people who prefer a larger dwelling, there is little choice within the core city. There is, however, much more variation within the region: in Waterland, Almere and Het Gooi en Vechtstreek around 80 percent of the housing stock consists of single-family dwellings (O+S, 2012).

The housing stock in the municipality of Amsterdam largely consist of apartments in 3 or 4 storey buildings. Detached or semi-detached housing is hardly available in the city, and is very expensive. The core city is therefore especially attractive for those groups of knowledge workers with highly urban residential preferences. Also in the wider region, detached or semi-detached family dwellings are rare and generally expensive. The largest concentrations of these types of dwellings are found in high income suburbs such as Bloemendaal, Heemstede, Aerdenhout or the municipalities in Het Gooi, and to a lesser extent in Haarlemmermeer and Amstelveen. The municipalities surrounding Amsterdam do have a large supply of terraced housing, however.

The average price for an owner-occupied dwelling has decreased over the last years, between 2004 and 2005 even with 8 percent. This is probably caused by the selling of rented dwellings, which are often cheaper than "traditional" owner-occupied dwellings. However, compared to 10 years ago, the average price has skyrocketed: from €74,000 in 1994 to €188,000 in 2005. The strongest increase has taken place in the 19th century neighbourhoods: from €55,000 in 1994 to €190,000 in 2005 (O+S, 2006). This strong increase coincides with the increased popularity of Amsterdam as a residential location for professionals since the 1990s, whose preference for central locations probably also explains why exactly the 19th century neighbourhoods have become much more expensive (DRO, 2006a). As a result of the economic crises, housing prices have decreased since 2007, although at a much smaller pace than the national average. Recently, there are modest signs of recovery at the housing market. Currently the average housing price stands at €206,000 (Het Parool, 2013).

Amsterdam's attractiveness for young people is considered the motor behind the city's growth. Young people, including students and graduates, are especially attracted to highly urban residential milieus. In addition, over the past decade, an increasing number of high educated workers from countries with upcoming economies, in their twenties or thirties, have settled in Amsterdam. This had led to an increasing concentration of high educated young talent (DRO, 2011a).

The quantitative and qualitative growth of the number of dwellings in Amsterdam is of crucial importance for the further development of Amsterdam as the region's core city. Through the concentration of knowledge institutions, employment and urban amenities, the MRA attracts many young people from other parts of the country and from abroad. Consequently, the region has stronger population growth and suffers less from ageing than other regions. Also within the region, differences in population structure and housing demand are increasing. Young people tend to start their housing career in the MRA in the core city of Amsterdam and spread out across the region at later age. Since 1985, the core city has grown with 90,000 inhabitants. The number of families in the city has increased over the past 15 years, since more families have entered than left the city (DRO, 2011a). Increasingly inner parts of the city are considered attractive living environments by middle-class families, who previously would not have chosen not to live in the city or would have left after the birth of their children. Particularly, gentrified districts such as the Eastern Harbour district and IJburg are popular destinations for middle-class two-earner households (Boterman, 2012).

The MRA needs a high educated working population in order to function as the motor of the Dutch economy. Therefore, highly urban residential milieus are needed in the MRA, which can be accomplished through intensification, transformation and the addition of 70,000 dwellings in Amsterdam until 2040 (DRO, 2011b).

3.2 Economic profile of the Amsterdam Metropolitan Region

The Amsterdam Metropolitan Region as a whole has a diverse economy, with a leading role for knowledge-intensive services like finance, real estate and law firms, next to the emergence of significant ICT and creative industries clusters. Amsterdam is strongly specialized in financial services. The financial centre accounted for about 48,000 jobs in 2009, making it one of the largest economic sectors in Amsterdam. However, the merger with the stock exchanges of Paris and Brussels and the economic crisis have resulted in job losses. In a public-private partnership, the banks ING and ABN Amro, the Free University and the Dutch National Railways, the city of Amsterdam is trying to create a more attractive business climate for the financial, insurance, legal and real estate sectors (Bontje & Sleutjes, 2007; Bontje et al., 2011). Furthermore, Amsterdam is a strong knowledge centre. It is home to two universities, a polycentric, and several specialized higher education and research institutes in the arts, audio-visual media, economics, and life sciences. The city region also offers high-quality healthcare. Amsterdam has shown to be able to hold a strong position in international trade and exchange activities and to develop a relatively varied economic structure (Bontje et al., 2011).

Creative and knowledge intensive industries

Besides the country's economic centre, Amsterdam is also the cultural capital of the Netherlands, with a long legacy in creative industries and also the highest shares of employment in cultural industries: 13 percent of all jobs are in cultural industries, such as arts, creative business services, publishing, architecture and higher education. All cultural industries, except architecture, are overrepresented in Amsterdam. The share of cultural industries is much larger than in the other three large cities: 5 percent in Rotterdam, 4.5 percent in The Hague and 3 percent in Utrecht (Kloosterman, 2004). Also Marlet & Van Woerkens (2005) ranked Amsterdam first in the Netherlands in terms of its share of artists, and nearby Haarlem took sixth place in the same ranking.

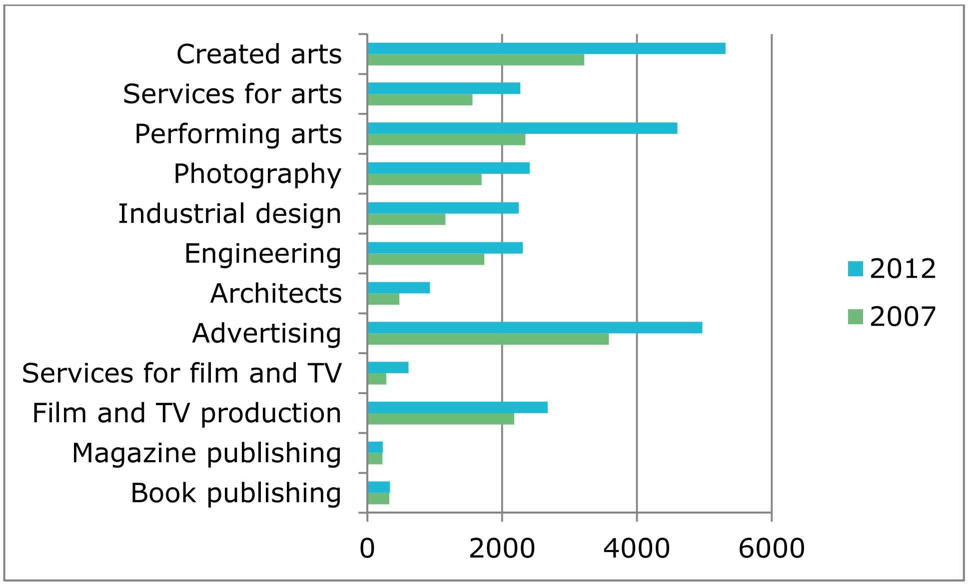

Figure 3.3 The number of firms in creative industries in the Amsterdam city region (Source: CBS, 2012)

Recent figures from Statistics Netherlands (CBS, 2012) show that, with the exception of book and magazine publishing, all creative sectors have grown between 2007 and 2012, with the strongest growth taking place within the created and performing arts sectors and advertising (figure 3.3). The largest creative sectors are created arts and advertising with over 5,000 branches, and performing arts with more than 4,000 branches. The city region furthermore has over 2,000 branches in film and TV production, photography, engineering, industrial design and arts services. Architecture is still relatively small in the region, but has increased since 2007. The number of branches active in publishing is rather small, but Amsterdam has a strong cluster of several leading publishing companies, mainly concentrated around the canal belt or the larger ones near highways and railroad stations. Figure 3.4 shows that Amsterdam does not have many jobs in high tech manufacturing, but has a large and growing ICT employment base, consisting of software development and IT services.

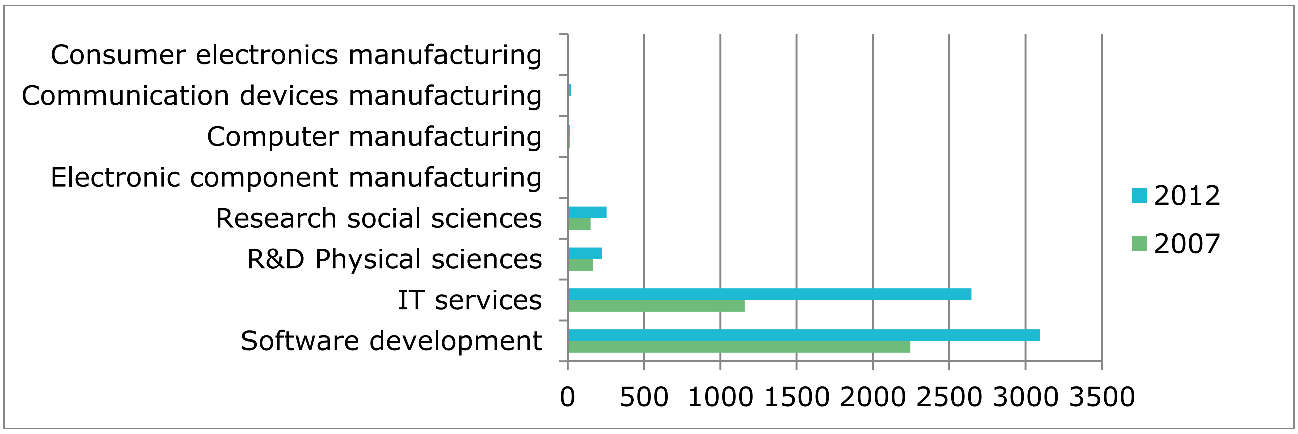

Figure 3.4 The number of firms in high tech manufacturing and ICT in the Amsterdam city region (Source: CBS, 2012)

Several academic studies over the past years have looked into Amsterdam's creative sectors. In his study on the Amsterdam advertising sector, Röling (2011) described Amsterdam as a second tier global advertising city. It developed into an important centre for an increasing number of independent agencies working for the international market. Amsterdam's advertising industry is a niche market focusing on international brand strategies. Independent advertising agencies are considered to be among the most influential, innovative and creative agencies in the world, and Amsterdam has one of the highest concentrations of independent advertising agencies in the world, behind London. A number of very influential advertising firms are located in Amsterdam, including Wirden + Kennedy, KesselsKramer and 72AndSunny. These companies are attracted by the presence of a large number of international headquarters and the strategic location within Europe. Röling's study concludes that talents working for these companies are attracted by the creative reputation of the companies themselves, but also by the image of the city of Amsterdam, particularly the open-minded and tolerant attitude.
Heebels (2012) and Deinema (2012) both studied the Dutch book publishing industry, which has always been strongly concentrated in Amsterdam. According to Deinema (2012), the concentration in Amsterdam is the result of path-dependent local processes, rather than steered by policy-making. Based on Heebels' study (2012), the concentration of the Dutch publishing industry has decreased somewhat, but still 25 percent of the publishing sector is located in Amsterdam. Although publishing firms in Amsterdam do not have higher survival chances than elsewhere, Am-

sterdam has a large number of experienced and well-performing publishing companies. The canal belt, where an important part of the publishing industry is concentrated functions as a stimulating meeting place, but also as a symbolic space that publishers derive reputation and trust from in their relations with others.
According to Amsterdam Economic Board (2012), the economic growth of the MRA over the past ten years leaned strongly on internationally oriented companies. Amsterdam Economic Board has identified seven clusters which dominate the regional economy, not all of which are knowledge-intensive:

- Financial and business services: in total 26 percent of the regional economy
- Trade and logistics: 19 percent of the regional economy. The MRA has a comparative advantage, based on the historic trade mentality and the regional infrastructure: Schiphol, seaport and the strategic location within Europe.
- ICT/ eScience: 7 percent of the regional economy. Amsterdam internationally is strongly represented in the ICT sector, with TomTom being the current flagship company. Future perspectives are uncertain, however, because of strong dependence on risk capital, strong competition from other European regions, and creative destruction through the replacement of larger companies by solo entrepreneurs.
- Creative industries: 5 percent of MRA's economy. This sector consists of media and entertainment, cultural services and creative business services. Traditional companies in content production are gradually replaced by small companies and solo entrepreneurs.
- Flowers and food: 2 percent of the regional economy. This sector is mainly clustered in Haarlemmermeer, where there is a large food and drug industry cluster and an agro-complex.
- Red life sciences: this is a modest sector in terms of economic output, but it is highly knowledge intensive. The sector consists of R&D activities within the healthcare sector and is mainly clustered around the Academic Medical Centre (AMC)
- Tourism: the positive development of the tourism sector has been stopped by the economic recession, and is expected to recover only slowly.

The 'Cross Media Monitor 2012' (iMMovator Cross Media Network, 2012) described the development of the cross media sector – a combination of creative industries and ICT – in more detail for several Dutch municipalities, including the larger urban centres in the MRA. In the core city of Amsterdam, cross media is the largest sector with 75,000 jobs, closely followed by healthcare and trade. Based on the Cross Media Monitor 2012, job growth in the cross media sector in Amsterdam between 2000 and 2011 has been stronger than the Dutch average. Amsterdam's specialization grade for total cultural industries is 284 (Netherlands = 100). The Amsterdam creative industries are characterised by small-scale businesses.
The arts sector in Amsterdam is stronger than in any other municipality in the Netherlands, especially regarding performing arts and created arts, with a specialization grade of 325. Amsterdam furthermore has an overrepresentation in media and entertainment (276) and creative business services (248). However, several sections of the media and entertainment sector are decreasing in terms of employment. In total, 2.2 percent of all employment in media and entertainment has disappeared, with the strongest losses in press media and the book industry (iMMovator Cross Media Network, 2012).
Amsterdam is the leading ICT-centre in the Netherlands, followed by Eindhoven. Compared to creative industries, employment within the ICT sector spreads out more across the region.

Amsterdam's specialization grade in ICT is 204, which is explained especially by an overrepresentation of ICT services (134). The city has an underrepresentation of hardware production, but, contrary to the general development of this sector, Amsterdam has seen recent growth. The ICT sector has been growing since 2009. This growth is explained by a growing general and technical services sector. All other sub-sectors of ICT have shrunk since 2000 (iMMovator Cross Media Network, 2012).

Also smaller cities around Amsterdam have significant concentrations of creative industries, particularly Hilversum where a large-scale media (radio and TV) cluster is located, and Haarlem, which has a significant arts scene. In total, the North Wing of the Randstad accommodates approximately 40 percent (90,000 jobs) of all creative employment in the Netherlands (Van der Groep et al., 2008). ICT jobs are also found in suburbs such as Diemen, Hoofddorp and Almere (Bontje et al., 2011).

In relative terms, Hilversum is the municipality with the strongest specialization in creative industries, with a specialization grade of 648. Creative industries account for 16,500 jobs in the city, 63 percent of which are within radio and television broadcasting companies. The city is known as a radio and television broadcasting hub, due to the presence of the Media Park and many large scale broadcasting companies. The specialization grade for media and entertainment is even 1607 (iMMovator Cross Media Network, 2012). However, Hilversum has faced a decline in employment as a result of negative trends in media and entertainment, as well as the relocation of broadcasting companies to Amsterdam (De Volkskrant, 2013). The city also has a relatively small ICT sector, offering 2,600 jobs. In total, 28 percent of all jobs are in the cross media sector.

Haarlem has a broad range of creative industries, but is particularly known for its arts scene. However, recently the city is suffering job losses due to the relocation of book publishers. Partly as a result of these relocations, the creative industries in Haarlem have seen a process of scale reduction over the past years.

The other large municipalities in the region, Haarlemmermeer and Almere, have an underrepresentation of creative industries employment. Cross media is the sixth sector in Almere, with 6,800 jobs, of which 4,200 in ICT and 2,600 in creative industries. Almere is particularly specialized in software (282). Almere's most recent economic development contradicts the regional picture, as cross media has decreased between 2000-2011, as a result of job losses in media and entertainment (radio and television, and press) and creative business services (communication and advertising).

Cross media in Haarlemmermeer is with an employment share of 6 percent relatively small, and even smaller than the national average. Cross media is not a designated growth sector for Haarlemmermeer; the municipality has a stronger profile in logistics and business services, due to the presence of Schiphol Airport. The cross media sector in Haarlemmermeer accounts for 6,800 jobs, nearly 3,000 of which are in creative industries and nearly 4,000 in ICT. Of all creative sectors, media and entertainment is the largest one, mainly due to the location of the large publishing company Sanoma Publishing. Within ICT, Haarlemmermeer is strongly specialized in the installation, rent and restoration of ICT hardware, and this sector has remained stable in terms of employment between 2000 and 2011. In total, the number of ICT jobs has, however, decreased with 50 percent during the same period, as a result of job losses in ICT services and telecommunication and in ICT jobs at publishing companies. In the most recent years, however, the decline has been smaller and even modest growth in ICT services has been noted. Also the number of creative jobs has decreased between 2000 and 2011. Most job losses were in press media and cultural heritage, partly compensated for by an increase in the number of jobs in the radio and television sector. Since 2009, press media has been growing again and most job losses have been in communication and advertising. Compared to other municipalities, the cross media sector in Haarlemmermeer is large-scale, with an average company size of 33 employees. This is due to the presence of a number of large media and hardware production companies. The number of solo entrepreneurs is not growing in Haarlemmermeer, contrary to the developments in other cross media cities (iMMovator Cross Media Network, 2012).

Amsterdam's economic geography

A study by DRO (2006b) on the production milieus of Amsterdam's creative industries showed that the creative industries in Amsterdam are largely concentrated within the A10 ring road, and south of Het IJ. Within this area, a core area can be recognised, with Het IJ, Kostverlorenvaart, Noorder-Amstelkanaal and an imaginary line between Wibautstraat and the Eastern Harbour Area. The degree of concentration is different for each sub sector. Architecture and engineering, as well as advertising, are also found to some degree within Amsterdam Noord and outside the ring road. Publishers are located either around the canal belt, or in the case of larger companies, alongside the ring road. The touristic heart of the inner city does not have a strong concentration of creative industries, because of the high real estate prices and the crowdedness. Also the 'golden curve' of the canal belt does not have a strong concentration of cultural industries, with the exception of the established publishing sector. Neighbourhoods where early urban regeneration has taken place and where predominantly social housing has been built, are less popular. Upcoming concentration areas are Oostenburg, the Czaar Peterbuurt in the inner city, and some neighbourhood directly adjacent to the core area, including the middle part of the northern IJ-shore (Amsterdam Noord), Weesperzijde (East), Hoofddorppleinbuurt (South) and Chassébuurt (De Baarsjes). In these districts, especially small-scale entrepreneurs have settled. Large-scale companies increasingly settle on office locations alongside the ring road or in South-East. The researchers explained the high concentrations in and around the inner city by the long-existing concentration of creative activities (path dependency), in combination with the spatial and architectural qualities and the identity and reputation attached to being located in 'hip' neighbourhoods (DRO, 2006).
Röling & Van der Groep (2005) have shown that advertising sector is mainly found in the inner city and the 19th century ring surrounding it. Another empirical study from 2005 confirms the central-urban preference of the Amsterdam's creative and knowledge intensive companies and their workers. Law firms are found especially in the central well-to-do areas, such as the Western Canal Belt and parts of Oud-Zuid. Creative business services are located in axes running from the centre periphery toward junction areas, the centre and urban high-income districts. Media and entertainment are concentrated in the western part of the city and in the centre periphery. Large concentrations are found within the ring road A10 and, within that area, mainly between Amstel and Kostverlorenvaart. Just like businesses in the creative and knowledge-intensive sectors, knowledge workers living in Amsterdam are typically found in the most urban areas. However, different patterns can be observed between culturally creative workers, preferring the most urban districts, and professionally creative workers that are much more widely distributed, both within the city and across other municipalities in the region. There is also a significant degree of overlap between the spatial distribution pattern and dynamics of Western migrants and dynamics of businesses in the arts and media and entertainment sectors. The largest concentrations of Western migrants are found in the same districts with the largest concentrations of creative sectors. Especially the advertising sector many Western migrants in advertising sector (Musterd & Deurloo, 2005).
A study at the regional level (MRA) by Bontje & Sleutjes (2007) found that creative companies tend to cluster within the core city and particularly the districts within the ring road. At the time of

the study, Noord was not yet popular with creative industries, but since then there has been a steep rise in the number of creative companies located there, especially at the locations near Het IJ (Overhoeks, NDSM Wharf). Also the inner parts of Haarlem have large concentrations in several creative sectors, and in the case of media and entertainment, also Hilversum and Het Gooi have large concentrations. However, there are also large concentrations of employment in creative sectors found at locations near the A10 ring road, railway stations (South Axis, Teleport Sloterdijk, Amstel) or Schiphol Airport (Hoofddorp). This is explained by the fact that a limited number of large companies in creative sectors, such as publishing and advertising, are located there. For these companies, contrary to the large segment of solo entrepreneurs in the same sectors, accessibility and space (hard conditions) are more important. Knowledge intensive, but not necessarily creative, activities such as law and financial services show concentration patterns in the south western part of the inner city (canal belt) and in an axis running southward from the centre to the South Axis (Bontje & Sleutjes, 2007).

3.3 The hard side of the MRA: labour market, infrastructure and the institutional context

During the expert interviews, the interviewees were asked about the main strengths and weaknesses of the MRA for the attraction and retaining of knowledge workers. The arguments mentioned have been subdivided into factors related to the 'hard side' and the 'soft side'. In this paragraph, the hard factors that were mentioned are outlined with the help of interview quotations, and subdivided into the following themes: human capital and the labour market, regional governance and policy context, and infrastructure.

Human capital and the labour market

Recent studies on the attractiveness of Amsterdam as a (creative) knowledge city already made mention of the strong knowledge and creative economy, the high average level of education of the working population and especially the large economic diversity of Amsterdam Metropolitan Region a major regional strengths. These aspects came forward during the ACRE project (Bontje & Pethe, 2010) and the Inventive City Regions project (Bontje et al., 2011) in which Amsterdam was one of the case studies.

This picture was confirmed during all the expert interviews, since all interviewees mentioned Amsterdam's varied economy as one of the major pull factors of the Amsterdam region for both companies and workers. Amsterdam's high diversity in economic functions offers broad career perspectives for knowledge workers: *"What also contributes to why people come here is that career perspectives go beyond your own profession. So there is high diversity of economic functions, also with regard to service delivery." (Policy advisor Spatial Planning, Municipality of Amsterdam)* In addition, this broad range of economic sectors has resulted in a large and diverse group of knowledge workers living in the city, which in turn attracts other workers: *"You have a large group of knowledge workers living together here, and that can only grow into a larger scale, a flywheel effect occurs…A great mass of people who want to achieve something, who are entrepreneurial. And that also attracts new people. So due to a sort of 'two-stage rocket' we are relatively successful in this field." (Urban Planner, Municipality of Amsterdam)* The local expert at the Expatcenter furthermore mentioned that work was the main reason why international knowledge workers choose Amsterdam.

The interviewees at Amsterdam Economic Board stated that for the city itself, the varied economic structure is considered a positive feature, since it makes the city less vulnerable for economic crises and also generates spin-offs. Amsterdam is a so-called 'heterogeneous super cluster', and

for many parties this heterogeneity is also the main reason to choose Amsterdam as a location to settle. However, the diverse economic profile also has a downside, mainly from a city marketing point of view, which was also emphasized during some of the interviews. First, according to the local experts at the Amsterdam Economic Board, a lack of focus makes it difficult to attract specific types of workers, who are mainly interested in a strong profile and good career perspectives in their respective sectors: *"I think one of the problems is that Amsterdam does not choose…Amsterdam's profile is 'everything'. The mayor does not want Amsterdam to be Capital such-and-such again, because Amsterdam has everything. And that is also true, but every time you say that, that term is hollowed out. So 'Appsterdam' is awesome, and we also have 'I Amsterdenim', since the hole top of the denim industry is located here, also globally. But choosing is something at least the politicians do not really want, and that makes it difficult to focus your international marketing very specifically on one certain target group. It always keeps emphasizing that the broad spectrum is present, unlike the example of Eindhoven where they say 'we are a design city', or Copenhagen that shouts 'we are a fashion city', or Helsinki is saying 'we are the city of Nokia'. Amsterdam is the city of everybody." (Amsterdam Economic Board)* On the other hand, the same experts also recognized that Amsterdam does not excel in any particular sector, which makes it also difficult to focus attention on one sector without underemphasizing other sectors that are just as strong. Still, Amsterdam has conditions that make the city very attractive for a large number of sectors, including some sectors in which other Dutch cities are specialized: *"It is also understandable that no choice is being made, because there is not one sector of which you can say 'this is really what we are'…I could say, leave design to Eindhoven and focus fully on sectors in which you know that you really stand out and which other parties do not have. But on the other hand, no place has as many design studios as Amsterdam. All the big names are in Amsterdam. The advertising companies that make use of the design studios here win all the prizes, also in the field of design. We have the Stedelijk Museum with the best design collection of the Netherlands. Thus, the conclusion: no, of course we do not give up design, because we do want to have these big design companies here. That is a little bit of a Catch 22." (Amsterdam Economic Board)*
A second weakness related to the diverse economic profile that was mentioned by the local experts at Amsterdam Economic Board was a lack of clustering at the micro-level. Amsterdam has a large range of sectors, but within many sectors, it has very few companies. As a result, talents within certain sectors may choose other cities because they have better career perspectives within their sector there: *"Amsterdam has a lot, but it also has very little of many things. That is the problem…So you have, for example, gaming studio's. Guerilla Games, that is a really big international studio, but it is also one of only few gaming studios in the city. So a talent has the choice between Amsterdam where there is one studio, Frankfurt where there are five, or London where there are ten studios. He would think: if I leave Guerilla, I am stuck here, and if I go to another city, I can make a career between all these different companies…Also at the micro-level you need to achieve more clustering, since that really has an attraction for those parties." (Amsterdam Economic Board)*

Furthermore, due to this 'problem of diversity', Amsterdam does not really show what it is good at with respect to certain sectors. For example, some of the local experts mentioned that Amsterdam's beta profile is still underemphasized. Amsterdam has a long history with ICT and has many conditions that make the city a good ICT test bed. It has the largest internet cable connecting Europe to the US and accommodates a number of important companies, such as IBM, Cisco, but also more creative firms such as Booking.com and TomTom. However, these aspects are not actively being marketed internationally by the city, and many people are not familiar with them: *"Booking.com is one of the largest internet travel agencies, but no one knows it is located in Am-*

sterdam…The mayor looked out on the building, but did not know that the company was inside…Regarding ICT, there are many pearls in Amsterdam that are never made visible…they are not well exploited internationally. If you show for once what a history Amsterdam has and what is possible here, and also the digital tolerance towards ICT, that Amsterdam is simply a very good test bed. So to say: if you want to try a product somewhere, do it here". (Amsterdam Economic Board)

In fact, Amsterdam has at least as many beta jobs as Eindhoven, but due to the diverse image of Amsterdam, this is not emphasized. Still, Eindhoven and Amsterdam both have different profiles regarding the beta sector. Whereas Eindhoven is strong clusters, Amsterdam's beta sector is made up more of small-scale firms. When asked about competition with Eindhoven in terms of the beta sector, one of the interviewees saw Eindhoven and Amsterdam as satellites, rather than competitors, which also strengthen and depend on each other: *"The beta population in Amsterdam is larger than in Eindhoven, Eindhoven has campuses, but apart from that, they do not have that much. There are more beta companies here than in Eindhoven, mostly small-scale, and you do not notice it because of all these other things that are present as well. But Amsterdam also is a beta city to a high degree…In Eindhoven many things are invented, and then they still seek for the connection to Amsterdam to market these things…And in Eindhoven they do the technical work…Eindhoven becomes a sort of Amsterdam, a sort of Silicon Valley near Amsterdam…A different identity, but linked to the name of Amsterdam and Schiphol…Is that competition? No, I only think we are significantly strengthening each other. But with the name of Amsterdam being the main attractor…That is what the outside world forces upon us, so we might as well make use of it." (Urban Planner, Municipality of Amsterdam)*

Another point for improvement for Amsterdam that was mentioned is the lack of schooling possibilities for technical workers and in particular the weak connections between education institutes at different levels and the private sector. The Amsterdam Metropolitan Area has two large technical clusters, AMC BioMed (life sciences) and Shell Technology Centre Amsterdam, focusing on research and consultancy in the field of sustainable technology. Furthermore, the region accommodates a number of large ICT firms (Cisco, IBM, Accenture) as well as a large number of small and medium sized ICT companies. Despite various employment opportunities in technical sectors, technical workers, however, now mainly come from other cities with a technical university, such as Eindhoven, Delft or Enschede. In the city itself, there is still a lack of technical talents, both for ICT and high-tech manufacturing, which was also mentioned as a major weakness by some of the local experts: *"I think the largest bottleneck for the Amsterdam region at this moment is technical talent. Not only in the field of ICT, but also regarding manufacturing. And for creatives, the link with lower professional education should be made more explicit, so that it is not just about scientific or vocational education, which has long been common within innovation trajectories. So that whole chain should be linked to each other…In fact we should do four things: we want to increase the influx of ICT education, we want to strengthen the connections between the private sector and education, and there has to be a much stronger emphasis on extra training and continuing education. That is the long term, and at the short term Amsterdam should just be positioned as a city you want to go to as ICT talent. Apart from there being a shortfall, there is another reason attached to that: once TomTom has found a new algorithm expert, which is extremely difficult to find, that generates few other new jobs within the same company. So it is also the case that if you manage to attract top talents to the city, that generates a large impact on employment at a somewhat lower, non-top talent level." (Amsterdam Economic Board)*

Plans to establish a technical institute to Amsterdam should solve this shortcoming of talent. 'Amsterdam Metropolitan Solutions' is a competition which should result in the formation of a third university in Amsterdam, which should profile Amsterdam as a city where technology is applied in order to solve social problems. The new institute should teach in that field and is expected to attract young foreign talents, and potential start-ups, who before were not able to find appropriate training possibilities in Amsterdam: *"In the field of applied sciences, there is a gap in Amsterdam. It is difficult to attract talent to here because there is no training here. So we thought of accommodating a technical institution in the city…The target of this institution is to attract more knowledge workers in that field, who also generate start-ups here." (Policy advisor urban planning, Municipality of Amsterdam)*

Infrastructure

Earlier research has pointed out the proximity to Amsterdam Schiphol International Airport as an important asset for the city and the region. Still, the city is troubled by high levels of congestion (Bontje et al., 2011), which is related to the high density of people and economic functions on a relatively small scale. Particularly the importance of Schiphol as a stronghold was confirmed during the expert interviews. Schiphol is the fourth largest airport in Europe, and has direct connections to destinations across the globe. Apart from the connectivity offered to local knowledge workers, Schiphol according to some of the interviewees also functions as a major business hub. Especially some larger international companies are attracted by that and choose a location near Schiphol.

Regarding the regional public transport system, it was mentioned that the train system enables people to reach several places in and outside the region within short time. This also makes other (urban) centres within the region attractive for knowledge workers. However, the local public transport connections between the centre and the urban edges could still be improved: *"Hilversum has an intercity connection of 20 minutes. It takes you longer to get from Dam to Osdorpplein. Haarlem as well, Zaanstad too. So, increasingly, these kind of cities will become attractive for expats and knowledge workers as a place of residence. It is really important to have a well-functioning public transport system, both for train and bus." (Teamleader Metropoolregio, Municipality of Amsterdam)*

Another problematic aspect of Amsterdam related to infrastructure that was mentioned by one of the interviewees is the high level of congestion and high costs of car parking. However, this interviewee also mentioned that this is not necessarily problematic for all knowledge and creative workers (Interview Amsterdam Economic Board).

Regional governance and the policy context

According to the local experts, cooperation between the different municipalities in the region mainly involves a joint marketing strategy, which is centered on Amsterdam. Although there are some tensions between municipalities who want to retain their autonomy to a large degree, it was mentioned that other municipalities make use of the brand 'I Amsterdam' to attract companies: *"There are tensions, but we also welcome each other to things. Cooperation on spatial and economic domains is very good. I think it is very special that the brand 'I Amsterdam' is also used by Amstelveen to attract companies, and also is used by Almere to attract companies. Also Wageningen uses it to get a cluster in China…Thus, the brand Amsterdam makes people want to belong to it, and everyone understands that some things are in Amsterdam and in the region. At the same time I think it is necessary to broaden it to more than the city alone. It is important that the cooperation goes smoothly…Where a company lands, is decided by the company itself. But you do the marketing and the business together. So we work together with Haarlemmermeer for example. And so, sometimes a company lands in Amsterdam, and sometimes it does not happen.*

But it is not about Amsterdam attracting companies; it is about the region attracting companies." (Teamleader Metropoolregio, Municipality of Amsterdam)

Concerning housing plans, Amsterdam and the surrounding regions are not really competing, since Amsterdam attracts different groups of workers than suburban districts: *"The segment that wants to live in Hilversum is different from the segment that wants to live in Amsterdam, so in that respect you do not compete that much" (Teamleader Metropoolregio, Municipality of Amsterdam).* From a regional perspective, Amsterdam plays its natural role as central city and focuses on the highly urban milieu. All other municipalities preserve their own identity: *"The nice thing of the MRA is that all the municipalities around Amsterdam preserve their own identity. Zandvoort may, in a functional sense, be Amsterdam at Sea, but it is still Zandvoort… Unity in diversity. That is the basis of good cooperation: one is not dominated or annexed by the big brother in the centre, but we do all play out our strengths. And if we keep on doing that, that is the way we get the most out of each other, it does not make sense if everyone creates its own highly urban milieu. You can think like this, but society thinks like that" (Urban Planner, Municipality of Amsterdam)*

There are, however, some tensions, which are mainly about favouring certain companies and municipalities building office buildings despite vacancies in the rest of the region. One example is the enormous KPMG building next to the A9 highway in Amstelveen, which has been empty for a number of years after Amstelveen granted KPMG permission to build a new building. Another more recent example is the relocation of media companies from Hilversum to Amsterdam, which has led to tensions between Amsterdam and Hilversum: *"Hilversum wants to remain a media city, while companies are leaving and come here. And Hilversum thinks Amsterdam is doing its best to attract these companies, while it is the companies themselves who make that decision". (Teamleader Metropoolregio, Municipality of Amsterdam)*

Another weakness of Amsterdam that was pointed out during some of the interviews is the position of Amsterdam in relation to the state. Although the Amsterdam region is one of the main motors of the Dutch economy, there are no specific state policies aimed at strengthening the position of Amsterdam: *"Amsterdam is the largest medium-sized city. Our whole financial system is based on the state dispersing its means equally across all medium-sized cities and provinces, while Amsterdam increasingly is becoming the motor of the national economy. Cities become important, and which cities are relevant in the Netherlands? That is Amsterdam, and then there is nothing for a whole while, and then the rest. That idea is contrary to the Dutch mentality, that also is sympathetic in a way, but we are involved in an international rally between cities, implying that we have to attract people, and does the state offer sufficient means for that?...The limited scale of Amsterdam is a weakness in that respect. I think that the state does not realize enough that this scale should be larger in order to be competitive. A city like Amsterdam benefits from influx and circulation, really fast, because people are mobile…You have to be able to find something [housing] in Amsterdam, and in practice that is not that easy." (Urban Planner, Municipality of Amsterdam)*

Finally, the current economic crisis, and corresponding budget cuts, has implications for the city's and region's housing plans, to the extent that many plans in the Structural Vision will be postponed up to ten years. According to one of the interviewees, this may have disastrous effects for the competitiveness of the city: *"There is an enormous demand for housing within the ring road of Amsterdam. Enormously big, and that is robust… At the moment, that demand cannot be made effective….because banks do not want to give loans…With a big risk for the knowledge economy. The problems on the housing market are not only inconvenient for people, but also for the economy of Amsterdam and the economy of the Netherlands it is harmful. The influx and circulation of this city, which is dependent on that, is being hampered. And that is dangerous for the city. That* *is a really big risk… It is not good for people, as economic entities, who cannot fulfill their chances here. It is damaging to the Amsterdam economy, for the regional economy, but not in last place also damaging for the national economy, which can collect a lot of taxes from Amsterdam. They are starving their golden hen…If you know that the Amsterdam housing stock is growing with 3,000 dwellings a year, and at the moment that is perhaps 1,000, then in the following ten years you leave 2,000 households standing outside the gate every year. A household is worth 50,000 euros of income, 20,000 euros of taxes, and 2,000 households per year with knowledge, people with a certain capability. These people are outside the gate. They will settle, but somewhere else. That is a loss for Amsterdam…So financially, we are settings things right by investing as little as possible, but you let go of lots of human capital". (Urban Planner, Municipality of Amsterdam)*

3.4 The MRA's soft conditions: image and social climate, authenticity and cultural and leisure amenities

In this paragraph, the aspects related to the MRA's soft side that were mentioned by the interviewees are summarized and illustrated by quotes from the interviews. These aspects are subdivided into housing, image and social climate, authenticity, and culture and leisure amenities.

Housing market and living environment

Two aspects of the housing market are considered problematic, and also potentially harmful for the attractiveness of the MRA for knowledge workers: limited accessibility and high housing prices and rents. Social rented dwellings are meant for households with an accumulative income of maximal €34,229. These dwellings have relatively cheap rents, up to €681 net rent depending on size, but long waiting lists. Although renters' incomes are tested when applying for social housing, people have long been able to stay even if their income increased. Only the current government has adapted the rules, so rents may be increased according to income. Together with a lack of affordable dwellings in the private rented sector and the restrictions to getting loans for owner-occupied dwellings, this development results in a very low circulation on the housing market. For international workers, who are dependent on the private rented market because of their generally short stay, there is a severe lack of affordable housing.

The following quote from the expert interviews at the Spatial Planning Department illustrates the risks that the Amsterdam housing market brings to Amsterdam's competitiveness:

"[Disadvantage]number one is the 'dark' housing market, which is badly accessible for those who do not know the way. And the weird gap between either very cheap, for those who fit into the social system, or very expensive for people who have lots of money. And in between there is nothing, and that really is a major weakness… (Urban planner, Municipality of Amsterdam).

"Someone who is highly educated does not immediately have a high income. He has to have the possibility to live here in the beginning, so the housing market for highly educated people has to match this. A dwelling for 1,000 euros is not affordable if you start working, you can afford it after a number of years, so you have to be able to choose a dwelling that matches up to this demand. And we still have too few of that, and these people prefer to live in the city." (Senior policy advisor, Municipality of Amsterdam) The interviewees at the Spatial Planning Department recognized the need for more dwellings in the middle segment, but were not optimistic that the situation is going to change in the near future, since private investors are not interested in building housing for the middle segment because of low returns, and the public sector will increasingly be less able to play a financial role in that.

One of the solutions by the city of Amsterdam to deal with the high demand for housing in the central parts of the city is to enlarge the central urban milieu, especially by facilitating developments that are already taking place: *"The main movement is that the so-called central urban 'pancake' is expanding. Not with large steps, but bit-by-bit. But everyone is trying to come as close as possible to the canal belt. In the Structural Vision, we try not to force things, but to facilitate things that are already happening. The next step is Ring Zone West…by making it more varied in the Ring Zone, by building more houses, more catering amenities, a more friendly street pattern, renovating the Rembrandtpark, we try to facilitate the natural expansion of the central urban milieu" (Urban Planner, Municipality of Amsterdam)*

One of the examples where this expansion is already taking place is HavenStad (Harbour City), the last remaining harbour district within the ring road, where harbour activities are gradually being replaced by other commercial and residential functions. This area is considered attractive because of the location at the waterfront and the relative proximity to the city centre: "*There is a fight between the economy of hard factors and the economy of soft factors…The HavenStad plan is a plan to change this harbour area, in 30 years, into a mixed highly urban part of the city. We see that in HavenStad two movements are coming together. One movement is the rediscovery of the waterfront, which has been going on for some time but which is increasingly getting stronger. And the expansion of the central urban milieu. At a place like this, they come together, and at places where they come together, you have the highest development potential… And we assume that, knowing that Bos en Lommer is up and coming, Spaarndammerbuurt is up and coming, Westerpark has become a very important hotspot, where it is completely full with people who before would have left the city with good weather, but now all of 'hip Amsterdam' is having a drink there, together with their children. HavenStad is the last big location within the ring, besides Zeeburgereiland, that is suited for facilitating that large urban interaction climate…What we want to realise here, you cannot do in Hoofddorp just like that. That is strongly restricted to place, connected to existing highly urban area. Companies that are active there now, are much more mobile…The combination of water and a location near the canal belt is suited for, or has the moral obligation, to function as highly urban area." (Urban Planner, Municipality of Amsterdam)*

Finally, the municipality of Amsterdam also focuses on the facilitation of working from home, rather than continuing cluster policies, such as Teleport in the past, where all telecommunication activities were clustered on one business park near Sloterdijk station. That kind of policy-making is regarded outdated by the municipality, and consequently, building regulations around Teleport have been made less restrictive. Developments toward an urban district are already taking place with the settling of hotels and the future development plans for student housing (interview Urban Planner, Municipality of Amsterdam). The municipality recognizes the increasing importance of the neighbourhood economy, which implies that much work is being done in residential neighbourhoods and often from home (PBL, 2010; Sleutjes, 2012; Folmer & Risselada, 2012), and tries to stimulate varied, rather than mono-functional, districts: *"If you build houses here in high density, with variation, and also offer space for catering and other amenities, you are creating, rather than a business district, a 'little companies' district. That is the knowledge economy. You do not need a special campus for that…Now there are more computers in De Jordaan than in Teleport." (Urban Planner, Municipality of Amsterdam)*

During the expert interviews, the variety of housing offered by the different municipalities of the region was mentioned as a strength. Amsterdam focuses on offering the highly urban residential milieu, whereas the surrounding municipalities in the region have a larger supply of family dwellings for people with suburban residential preferences: *"Most people still seek for a house with a garden. Also in this region. Fortunately there are many partners in this region, Almere, Hoofddorp, Zaanstreek, with ambitious housing programs. So we can facilitate the suburban resi-*

dential preference. We do know that at the suburban market, supply is less scarce than the highly urban area, compared to demand." (Urban planner, Municipality of Amsterdam)

Image and social climate

One of Amsterdam's main attractors is its image as a tolerant and open city, characterised by diversity in terms of ethnicity, culture and lifestyles. This image has made the city a popular destination for tourists, but also for international workers. The city has had a tolerant image already since the 16th century. The city presents itself as 'gay capital of the world' and is among the most popular destinations for homosexual travellers. There are one hundred gay bars, discos, saunas, video stores, bookshops, restaurants and hotels. At Keizersgracht, the world's only gay monument was opened in 1987, as a symbol against discrimination. Each summer, the Gay Pride takes place and its famous canal parade draws large numbers of visitors to the city. After same-sex marriage became possible in 2001, the first ones were registered in Amsterdam and still one out of seven same-sex marriages in the Netherlands are registered in Amsterdam (Bontje & Sleutjes, 2007). In order to demonstrate that Amsterdam is proud of its diversity and tolerance, a number of cultural niche festivals, such as the *Kwakoe* festival in south east and the Gay Pride festival. Amsterdam's city brand "I Amsterdam" also refers to creativity, innovativeness and trade spirit (Bontje et al., 2011).

Although this tolerant image is increasingly contested locally, the city is still seen this way by the outside world, as was confirmed during some of the interviews: *"The image of sex, drugs of rock and roll – whether that nowadays is still based on reality is another thing – is something because of which Amsterdam is still clearly on the map. That is a very import soft factor." (Urban planner, municipality of Amsterdam)* However, over the recent years there are signs that tolerance in the Netherlands is decreasing. Whereas Amsterdam internationally has the image of being gay friendly, Amsterdam gays perceive decreasing tolerance and increasing hostility and violence towards homosexuality. Populist political parties -Pim Fortuijn's LPF and later Geert Wilders' PVV- have gained support since the 2002 elections, although these parties until now have had relatively low scores in the predominantly social democratic and liberal city of Amsterdam. However, in the wider region, the city of Almere and the municipality of Edam-Volendam were among the municipalities with the highest shares of PVV voters in the Netherlands during the 2010 national elections. Recent stricter immigration and integration policies at the national level may eventually harm Amsterdam's attractiveness for international workers.

Amsterdam is in many respects an international city. The city and the region have an international population and the share of people of non-Dutch origin has been increasing for years. The city of Amsterdam is home to 177 nationalities and in 2012 half of the population belonged to a minority group in terms of nationality or ethnicity (O+S, 2012). Moroccans and Surinamese are the largest ethnic groups, each account for approximately 9 percent of the population. Other significant ethnic groups are Turks (5 percent) and Antilleans (1,5 percent). Furthermore, 15 percent of the population is made up by Western migrants, particularly from the US, Britain or Japan.

Besides a large international community, also the Dutch population is known for its good command of English, which makes it easier for international knowledge workers to settle in the region: *"The Amsterdam climate is internationally tolerant. So people will soon feel accepted here and will feel at home quickly because everyone speaks multiple languages, in any case English is spoken by 80 percent of the population...So I can imagine that you perceive this an international environment where you easily get into contact with people. And the open, tolerant culture surely contributes to that." (Teamleader Metropoolregio, Municipality of Amsterdam)*

Still, a recent survey among international workers has shown that the vast majority of expats thinks that Amsterdam is a hospitable city (59 percent) or at least to some degree (32 percent), around half of the expats find it difficult to integrate into Dutch society and 58 percent is dissatisfied with the number of Dutch friends. Colleagues make up the largest part of their network (O+S, 2012b). The interviewee at the Expat center also confirmed this picture, and explained this by the Dutch mentality with regard to social contacts, which is mainly based on scheduled visits rather than spontaneous events, as well as language barriers.

Authenticity and historic amenities

Figure 3.5 One of Amsterdam's characteristic canals

Amsterdam is widely known for its historic character, and particularly its unique morphology with canals, narrow streets and monumental buildings (Musterd & Deurloo, 2006). Amsterdam's historic city centre has largely survived the Second World War and the pressure of modernization and has now developed into a cultural and tourist centre and a high status residential location. In particular the Canal Belt (figure 3.5) and the adjacent Jordaan neighbourhood are popular destinations for tourists. The monumental status of the housing stock in the inner city and some of its surrounding neighbourhoods makes these neighbourhoods attractive by higher income groups, which is reflected in high prices of real estate and exploding rents. In the preservation of the historic character of the inner-city, the urban social movements have played a prominent role. In the 1970s, plans were proposed to transform parts of the city centre into an 'American-style' CBD, including the conversion of some canals into streets and the replacement of the Jordaan neighbourhood by large-scale office construction. These proposals, as well as alternative plans, generated mass protests and even violent riots, which were organised by the various anti-growth coalitions that struggled for a 'liveable city' on a human scale and the preservation of historical street patterns. The social movements won and the reconstruction plans were withdrawn and replaced by a social policy of urban renewal without displacement. The first metro line was constructed, but further extensions were cancelled and the destruction of the character of the Nieuwmarkt area as a result of the metro construction was mitigated by restoration with lots of public housing and small shops that fit in well with the city's historic landscape. The urban social movements were thus able to block a radical reconstruction of the historic city centre and even helped the city of

Amsterdam to realise its own preservation policy (Terhorst & Van de Ven, 2003; Bontje & Sleutjes, 2007).

Amsterdam now has over 8,500 official monuments, of which 7,395 are located within the historic city centre. It is not allowed to tear down these buildings and their use and physical changes are subject to strict government control. Amsterdam's historic city centre has been designated as a Historical Preservation District since 1999, which means that nonlisted buildings and the public domain have also become subject to strict political controls (Terhorst & Van de Ven, 2003). In addition, the Canal Belt has been on the UNESCO world heritage list since 2010 which further restricts developments in and around the designated area. A building does not necessarily need to be a monument to be preserved and new construction has to fit well into the historic urban landscape (www.amsterdam.nl).

Outside the inner city, especially the neighbourhoods immediately surrounding the inner city are popular living and tourist areas, because of their proximity to the inner city, in combination with their characteristic 19th century or early 20th century housing stock and the presence of lively street markets (e.g. Albert Cuypmarkt in De Pijp district and Dappermarkt in East).

Besides these areas, Amsterdam since the 1990s has been very active in the revitalisation and transformation of former harbour and industrial sites. The Eastern Harbour District, and Java-eiland in particular, are currently among the most expensive residential districts in Amsterdam. Old warehouses have been transformed into apartment blocks and new modern architecture has been added. Also the *Westergasfabriek* area has been transformed from a former gas plant into a leisure district, where bars and cinemas are located and music concerts are held occasionally. A similar development has taken place in Overamstel over the past few years, around a former chewing gum factory, and in Noord, at *NDSM-werf*, a former shipyard that has been in use as a creative hotbed and a mixed residential and leisure district for a number of years. Also the parts of Noord close to the ferry are increasingly becoming popular districts, whereas until a few years ago, Noord was considered an unattractive borough. Adjacent to the Shell Technology Centre, a mixed functional area called Overhoeks has been developed with modern apartments and the new EYE film museum.

Attractive old industrial heritage is considered to have high potential for either meeting places or the creation of creative hotbeds, as is illustrated by the following quotes: *"If there is a very nice building in that area, which is being used in the wrong way, or is in a bad condition, but which is in fact a very nice building, which people can fall in love with, find attractive. And if there is a sunny corner attached to it, then that is the place where people go to naturally." (Urban Planner, Municipality of Amsterdam)*

"If it is nice industrial heritage, which you had plenty of in Noord, then it is attractive. The problem areas are districts with ugly buildings from the 1980s, since in general people are not happy with that and do not want to be there…What you seen now is that there is a trend going on at the moment, especially in the arts sector, that people move towards Zaanstad. And especially with their business, because the Honig factory has become vacant, that is such a beautiful building. And the Hembrug-site, those are really beautiful old buildings where almost everything is still possible. I have the impression that the Zaan Shores (Zaanse Oevers) are slowly becoming the new Noord. And that is logical, because it is five minutes away from here [the centre]; you can go by bike." (Amsterdam Economic Board)

The most recent development is the Minervahaven site (part of HavenStad), where land is sold and buyers are granted freedom to design their own buildings. This has attracted companies and people who want to invest in that area and want to build high-quality architecture:

For the Minervahaven, I have good hopes…Almost all denim companies or fashion companies that came to Amsterdam lately want to be in the Minervahaven area. Because it is attractive, because you are able to put down beautiful architecture there, but you also have beautiful old industrial heritage. And that works, that combination, because it is sexy, it is exciting. Diesel built their headquarters there, and then they build something really nice…A large number of architects settled there who want to build a house there and live there with their families…that enormous diversity leads to exciting places. If you drive down IJburg a bit further, you see that a large part of the prefab is simply vacant. And it has been sold for much lower prices than was initially thought."(Amsterdam Economic Board)
Also in the wider Metropoolregio, there are several larger and smaller cities and villages with historic cores with touristic value, as well as unique natural areas such as Waterland: *"In Amsterdam we have a beautiful background in which it all happens – the inner city, and all that is discovered around it…Also the variety in landscapes around the city- all these beautiful jewels of villages and cities that also have an important contribution. The MRA consists of several larger or middle-sized cities and villages. These are all aspects that are important." (Urban planner, Municipality of Amsterdam)* In a ranking by Marlet & Van Woerkens (2005), the Top 3 cities in terms of pre-war buildings were all located in the MRA. Haarlem ranked first, Amsterdam second and Hilversum third.
Amsterdam's long legacy in trade and its tolerant and open climate were also considered important. One of the local experts mentioned that policies aimed at attracting foreign talent should always emphasize Amsterdam's historic amenities: *"If you want to make Amsterdam interesting, and if you want to create a buzz where it all happens, then you should be able to tell a collective story, which is in line with the experiences and perceptions of talents in Spain, Italy, the US or wherever. These stories should always be linked to the whole origin of Amsterdam. If you tell a story that Amsterdam is so good because you have a very good data cable, that is not really interesting. An Amsterdammer would never express that. But if you say: Amsterdam has always been creative, entrepreneurial, open, and has always had an enormous trade mentality, then you link it to the values that have always made Amsterdam…Then it is understandable also for Amsterdammers what certain things are about. And with that, you can also substantiate your statements. Every city can say: 'we are a city of tech talent'. Yes, you can invest a large marketing budget in that, but if you cannot link it to certain values that are recognized in the city, everyone will see right through that." (Amsterdam Economic Board)*

Cultural and leisure amenities

Amsterdam is the cultural capital of the Netherlands. The city has the reputation of being a word-lclass cultural cluster and a vibrant entertainment centre, with a rich variety of cultural amenities and nightlife that gives the city a structural advantage over other Dutch cities as a location of settlement for young and creative people (Musterd, 2002). The city has more than 50 museums, the three art galleries *Rijksmuseum* (displaying classic paintings, including masterpieces by Rembrandt, Vermeer and Frans Hals), *Van Gogh Museum* and *Stedelijk Museum* (modern art) at Museumplein, and the *Anne Frank House* at Prinsengracht being the most famous and most visited. The other well-visited museums range from arts (e.g. *Filmmuseum EYE*), cultural history (e.g. *Jewish Historical Museum*, *Tropenmuseum*, technology (e.g. *NEMO*), and design (e.g. *Handbag museum*) to the more low culture aspects Amsterdam is also famous for (e.g. *Sexmusuem Venustempel*, *Hash museum*, *Heineken Experience*).
Apart from museums, the city also hosts some of the Netherlands' main venues for classical performances, popular music and theatre plays, eight of which attracted more than 100,000 visitors

in 2011 (O+S, 2011). The best known and with 740,000 visitors in 2011 also the most visited venue is the *Concertgebouw* at Van Baerlestraat (Museumplein), which offers a high quality programme of classical concerts. In 2005, a second venue for classical music was opened, *Muziekgebouw aan het IJ* (73,000 visitors), which shares its building with jazz venue *Bimhuis* (54,000 visitors). The *Muziektheater* (237,000 visitors in 2011) is hosting the *Dutch Opera* and the *Dutch Ballet*, and shares its building with the city hall, named *Stopera*: a combination of the words stadhuis (city hall) and opera. The city's largest theatres are *Royal Theatre Carré* (346,000 visitors), the *New DeLaMar Theatre*, re-opened after renovation in 2010 (313,000 visitors), *Stadsschouwburg* (176,000 visitors) and *Kleine Komedie* (104,000 visitors). These theatres offer a wide range of theatre play, cabaret, musicals and music performances. The city's main popular music venues are *Paradiso* (565,000 visitors) and *De Melkweg* (395,000 visitors), which rank second and third in terms of numbers of visitors . Both venues have two concert halls, the largest one having a capacity of 1,500, with programmed performances of both Dutch and inernational artists and bands. Throughout the centre (e.g. *Bitterzoet*) and at Westergasfabriek (*Gashouder*) some smaller concert venues can be found. Far away from the city centre, in the borough of South-East near Bijlmer-Arena railway station, one medium-sized and one large concert hall, respectively *Heineken Music Hall* (capacity 6,000) and the new *Ziggo Dome* (capacity 17,000), opened in 2012, are situated. Furthermore, the *Amsterdam Arena* stadium (capacity 52,000) is used for large pop music concerts, mainly outside the football season.

The importance of high-quality cultural amenities was highlighted during the expert interviews: *"Cultural amenities are very important and their relevance increases…30 percent or 25 percent of the residential choice is determined by the cultural amenities in a city or a neighbourhood, in this case the city. The same goes for young people who increasingly value cultural offerings. So that is very important" (Teamleader Metropoolregio, Municipality of Amsterdam)*

The survey among expats by O+S (2012b) showed that cultural amenities are indeed used by expats. 75 percent of expats had visited a museum, gallery or exhibition during the past 12 months, whereas concerts (55 percent) and festivals such as IDFA, Uitmarkt or Dance Valley (42 percent) also have been popular.

Despite its high population density, Amsterdam is also a green city, and each neighbourhood has its own park. Vondelpark, in the southwestern part of the city, is the largest and most popular park, which apart from its natural qualities also offers free open air music and theatre shows during the Summer months. Also Oosterpark and Westerpark are popular recreation areas, which are also used for festivals or music concerts occasionally. Just south of Amsterdam, in the municipality of Amstelveen, there is the Amsterdamse Bos, an artificial forest which is popular for walking, sporting (e.g. Bosbaan rowing track) and for open air performances.

The role of meeting places and amenities that enable face-to-face- interaction is also recognized by Amsterdam's policy makers: *"A large share of that is dependent on companies such as Starbucks or Douwe Egberts to create a sort of coffee shop that can develop into a meeting place. To mention a simple example: we have a company restaurant on the first floor. In our new concept it is located at the ground floor and made public, so that we can meet other people in the city. So the philosophy 'the restaurant is on the top floor and there you only meet people from the same company' is going back…It is a target in the concept of Science Park to create particularly those spaces that stimulate interaction. And for the restructuring of Wibautstraat, a profile has been made that enables very broad sidewalks…So now, with the same amount of traffic, there is much more space for developments on the sidewalk, which results in new cafes etcetera. The city has to shape the right conditions to make that possible. And that includes the possibilities for companies to settle there and to exert that. So free WiFi should be a target for the whole city. Which is not*

the case yet, but that would help. So that you can settle here easily and get into contact with each other." (Teamleader Metropoolregio, Municipality of Amsterdam)
In the wider region, especially Haarlem has a rich cultural offer. The city has several museums, including the *Frans Hals Museum* and the *Teylers Museum*, which is the oldest museum in the Netherlands. Furthermore, Haarlem offers some theatre and music venues: *De Lichtfabriek* (music and cultural events), *Het Patronaat* (music) and *Stadsschouwburg* (music and theatre). Almere has its own theatre (*Stadsschouwburg*), but a local music venue, *Muzinq*, went bankrupt already a few months after opening. Zaanstad is particularly known for the *Zaanse Schans*, a popular tourist destination with its characteristic windmills and historic houses (Bontje & Sleutjes, 2007). Haarlemmermeer is largely a residential and commercial municipality, but *Museum de Cruquius* is a popular tourist attraction, showing the history and functioning of a monumental steam pumping engine from 1849 that was used to impolder the lake Haarlemmermeer. Het Gooi, and Hilversum in particular, is mainly known for its media cluster and its upmarket residential areas, but museum *Beeld en Geluid*, an audiovisual archive showing the history of Dutch broadcasting, is worth mentioning. The rest of the region is especially attractive for nature recreation. Waterland and the North Sea dune area are popular walking and cycling destinations, whereas Zandvoort aan Zee and Bloemendaal offer some of the Netherland's most visited beaches.
However, during the expert interviews, also some critical notes or concerns were heard with respect to Amsterdam's cultural and leisure amenities, particularly considering the strict regulations regarding what is possible and not in the inner city, and the catering sector in particular:
"That is a bottleneck…There have been initiatives against the dulling [vertrutting] of Amsterdam. Certainly in the centre, very little is allowed. The catering sector in Amsterdam is a returning point of attention, and especially the regulations…The Dutch Fashion Awards moved to The Hague because they went nuts because of all the things that were not allowed in the centre." (Amsterdam Economic Board). In addition, recent budget cuts by the national government in the arts sector are considered as threats for Amsterdam, as a result of which the city of Amsterdam has increased its own spending on culture: *"If you cut off all subsidies in the cultural sector, you are on the one hand promoting that you want to be internationally competitive with a diverse supply, but on the other hand you are taking away the existence of these institutions, whether you speak about music or created arts. So the crisis has led to budget cuts, also for young creative people who want to develop themselves in that field, they cannot come here anymore. The question is whether the market can compensate that…Cultural festivals and stages with more experimental arts, they are facing problems right now." (Teamleader Metropoolregio, Municipality of Amsterdam)*

3.5 Where do knowledge workers live in the MRA?

Previous studies on residential preferences of knowledge workers in Amsterdam
Previous research on residential preferences of knowledge workers in Amsterdam has shown that both within the region and within the city, several concentration areas of knowledge workers exist. There is an overlap of workspaces for creative industries and residential spaces for their workers (Bontje et al., 2011). One of the earlier empirical case studies on (creative) knowledge workers in Amsterdam showed that there are different occupational groups also express different residential preferences (Musterd, 2002). These findings are in line with studies from other European city regions finding different preferences for specific sub-groups (Martin-Brelot et al., 2010; Andersen et al., 2010; Frenkel et al., 2012).

Based on its empirical findings, workers in creative occupations have the strongest urban orientation. Of all architects employed in Amsterdam, 71 percent also lives within the city, whereas this goes for 17 percent of ICT workers. Apart from architects, also knowledge workers in the public sector (60 percent), in advertising (52 percent) and staff of the social sciences and law faculties of polytechnics and universities (around 50 percent) have a predominantly urban residential preference (Musterd, 2002). The most popular destinations for architects are Grachtengordel-Zuid (southern canal belt) in the centre, the Eastern Harbour district, the Jordaan district (figure 3.6) and the Eastern Islands (figure 3.7).

Figure 3.6 The Jordaan district in the centre of Amsterdam

Figure 3.7 The Eastern Harbour District: a former dockland area transformed into a high profile residential district

Artists also express a preference for the districts within the ring road A10 in Amsterdam, especially the inner city and the 19th century districts. Workers in the media sector are strongly represented in both the central districts of Amsterdam and the suburbs of Hilversum and Bussum. In contrast, knowledge workers within the financial sector have a strong suburban orientation and are often found in Almere, Maarssen, Bussum, Heemstede and Waterland. Still, these workers can also be found in newly constructed areas within the ring road, such as Omval near Amstel Station. Also among students, there is a pattern that students in alpha and gamma sciences (media and creativity, social sciences) are more urban oriented than students in economics, technical studies and sports (Musterd, 2002).

The Municipality of Amsterdam has been interested in the residential preferences of creative workers for years and gathers information through the 'Monitor Creative Industry'. The 2006 edit of this monitor showed that the attractiveness of Amsterdam for creative and knowledge workers is especially determined by the direct living environment and urban amenities. Knowledge workers have different preferences than other occupational groups. Particularly, they prefer a dynamic urban life with space for diversity of lifestyles, a diverse supply of cultural and culinary amenities and high quality of public space. Dwelling aspects, such as size and the number of rooms are considered important, but are badly valued, whereas the location of the dwelling is highly valued by knowledge workers, much more than workers in other occupations (DRO, 2006).

A follow-up of the same study from 2008, with a focus on housing careers, concluded that knowledge workers, contrary to other occupational groups, are highly demand-oriented. They are more able to fulfill their residential preferences because of their generally higher income, but also pay more attention to their sense of belonging. Of all households that do not succeed in fulfilling their residential wishes, 14 percent reluctantly moves out of the city. Highly educated people, and especially the younger groups, are more mobile and therefore more difficult to retain within the MRA. These groups clearly prefer the highly-urban settings. For a small share of knowledge workers, especially those with young children, the region offers some choice, but only if Amsterdam is nearby because of the amenity structure. Many creative knowledge workers depend on the city for their work or simply attach much value to urban life in general. More space inside and outside the house, the green structure and quietness are regarded as pull-factors of the wider region (DRO, 2008). With IJburg and a number of new constructions within the ring road (Overamstel, Houthavens, Zeeburgereiland), accommodating and retaining knowledge workers within the city has improved: the centre-urban milieu has been expanded. This way, families with children are able to continue their residential career in the city. Other towns in the region are not considered attractive, unless they offer a similar urban milieu. For all occupational groups, the areas within the ring road are the most popular residential location. For creative workers, Haarlem is the most popular destination in the region, whereas other occupational groups have more mixed preferences. Most decisions to leave Amsterdam are based on negative reasons, such as high housing prices and lack of living space (DRO, 2008).

Based on the latest 'Monitor Creative Industry' from 2011, relocation patterns are now mainly restricted within Amsterdam. Of all knowledge workers in Amsterdam with a propensity to relocate, 66 percent prefers to stay within the city, the varied amenity structure being the dominant reason. In addition, the study found that other workers are not less urban oriented than some groups of creative workers. Also, 25 percent of all knowledge workers work outside Amsterdam, but actually prefer to live in Amsterdam. Due to a lack of parking space in the centre, these workers predominantly live in the fringes of the city, especially IJburg, where amenities can still be reached within a short time. Furthermore, some people do not have an urban orientation, but are satisfied within the ring road as long as there are shops and public spaces within reach. In other words, occupational choice is only partially determining how people perceive the city and which preferences they have for their living environment. All occupational groups in Amsterdam prefer a central urban milieu, justifying recent policy efforts to enlarge this milieu (DRO, 2011).

The dominant reasons for not wanting to relocate were usually related to satisfaction with the dwelling or the neighbourhood. Knowledge workers relatively more often mention satisfaction with the neighbourhood as a reason for not moving. Also the current distance to the workplace is a keep factor (DRO, 2011).

The ACRE project (2006-2011) investigated the attractiveness of 13 European cities, including Amsterdam, for creative knowledge workers. Based on the empirical findings of this project, for creative knowledge workers in Amsterdam there is a strong overlap between their residential preferences and activity patterns. Workers living in the inner city use urban amenities significantly more often than persons living in the suburban areas of the region. All creative knowledge workers interviewed in the ACRE project expressed satisfaction with local amenities, services and infrastructure and many of them have a strong preference for inner city areas. Relocating urban amenities to peripheral residential locations would not make peripheral districts more attractive for knowledge workers with an urban preference. Rather, they value an authentic built environment and atmosphere in which they also like to walk around as a leisure activity. Creative centres in the outer fringes of the region will likely attract different types of knowledge workers. Most creative knowledge workers in Amsterdam had lived in Amsterdam for a long period of time and also expressed a desire to stay, contradicting Florida's thesis that the creative class is highly mobile (Bontje et al., 2008). The ACRE empirical study found that soft factors such as openness and diversity play a more prominent role in the location decisions of recent graduates than for creative knowledge workers, for whom work related reasons are clearly more important. A majority of creative knowledge workers came to Amsterdam due to a new job, which confirms the continued importance of employment (Scott, 2006) and is in line with empirical studies in other European city regions (Brown & Meczysnki, 2009; Martin-Brelot et al., 2010; Anderssen et al., 2010). Whereas two-thirds of the knowledge workers were satisfied with the Amsterdam region, 86 percent were satisfied with their own neighbourhood. This may indicate that knowledge workers make a deliberate choice for a certain type of neighbourhood or part of the region, while there are also parts of the region that do not meet their preferences (Bontje et al., 2008).

The preference of knowledge workers for urban environments was confirmed during the expert interviews: *"All cities try to retain knowledge workers, but he question is whether they will succeed in Velsen. They want to, but the question is whether they should want that and if they do, how long they will be able to retain these groups… The core of them want to live in Amsterdam or in the direct vicinity." (Teamleader Metropoolregio, Municipality of Amsterdam)*

For the group of people with a highly urban preference, who cannot find housing in Amsterdam, alternatives are found in other urban centres in or just outside the region, e.g. Haarlem or Zaanstad, rather than settling in suburban districts: "*What you see is that people looking for the highly urban milieu, but cannot find place in Amsterdam: what do they do? They do not go to the garden cities. They go to Haarlem, close to the inner city, to look for a dwelling. Or in Utrecht, or in Leiden, but especially in Haarlem Centrum there is a very strong connection with Amsterdam. And that is illustrative of the enormous scarcity and specificity of that residential milieu. People have lots of possibilities, you can live in Almere, you can live in Hoofddorp, in Zaendelft….But for people looking for that specific milieu, it is all or nothing. But still, a very important part of the [housing] task for the Metropoolregio is situated in the neighbouring municipalities, and the municipality of Amsterdam can be very happy with that" (Urban planner, Municipality of Amsterdam)*

The earlier mentioned Haven-Stad project is meant to solve a part of this scarcity problem by creating new urban areas: *"There is a fight between the economy of hard factors and the economy of soft factors…The HavenStad plan is a plan to change this harbor area, in 30 years, into a mixed highly urban part of the city. We see that in HavenStad two movements are coming to-*

gether. One movement is the rediscovery of the waterfront, which has been going on for some time but which is increasingly getting stronger. And the expansion of the central urban milieu. At a place like this, they come together, and at places where they come together, you have the highest development potential… And we assume that, knowing that Bos en Lommer is up and coming, Spaarndammerbuurt is up and coming, Westerpark has become a very important hotspot, where it is completely full with people who before would have left the city with good weather, but now all of 'hip Amsterdam' is having a drink there, with their children. HavenStad is the last big location within the ring road, besides Zeeburgereiland, that is suited for facilitating the large urban interaction climate…What we want to realise here, you cannot do in Hoofddorp just like that. That is strongly restricted to place, connected to existing highly urban area. Companies that are active there now, are much more mobile… The cooperation between water and location near the canal belt is suited for, or has the moral obligation, to function as highly urban area." (Urban Planner, Municipality of Amsterdam)

Also the Zaanoevers Project facilitates the accommodation of students: *"That is a typical area where you can and should do that. We have several locations for student housing . A) because it is allowed, due to sound regulations, and B) because it has been shown that this target group adds something to the area that was not there yet. Regardless whether it is at Westergasfabriek, where the [student] ship used to be at Houthavens, or on the opposite side, at NDSM, where MTV is located, or in Sloterdijk, near station Sloterdijk, where some experiments are taking place with student housing." (Teamleader Metropoolregio, municipality of Amsterdam)*

Differences between creative and technical workers

During the expert interviews, it was mentioned that workers in creative industries have different preferences than ICT workers. Broadly stated, whereas technical workers, particularly those working at large companies, come for work and do not care so much for living in a lively urban district, workers in cultural industries attach more value to the soft side of the city. According to the experts at Amsterdam Economic Board, cultural workers attach more value to living in the inner-city and near meeting places and specific (high-culture) amenities. For creative workers, soft factors are equally important as hard conditions. ICT workers, on the other hand, are more diverse in their residential preferences and, generally, attach more value to the hard conditions. One of the interviewees referred to Currid's (2007a) 'Warhol economy' when describing the location preferences of creative workers: *"Creatives gather around coffee houses and there has to be a good bookstore. Those are very basic things, but that is really what you see if you look at where parties are located in the city. So the creative business services are in fact attracted by a very broad range of factors, and strangely the soft factors are nearly as relevant as the hard factors, whereas that is not the case for [ICT workers]. For artists, especially cheap residential space, cheap working studios and the availability of subsidies to conduct 'free' projects matter." (Amsterdam Economic Board)*

In the ICT sector, there is a large difference between young workers at creative companies and the older ICT workers at large companies. Whereas the classic ICT workers can be triggered by offering large international companies, it is more difficult to directly target the creative ICT workers. Rather, the city can create the infrastructure which is needed by them:

"There is a distinction between the classic people who just want to have a job and the more creative types of people; they choose for different types of ICT companies. There is a difference between people who want to work at Booking.com or TomTom, and people who want to work at IBM or Cisco; those are totally different profiles…The new ICT versus the old ICT more or less…There are three different groups. You have the freebooters, the free thinkers, the independents. They

resemble the creative sector. They do not come so much to earn money, but they rather come because Amsterdam is creative, open, shares ideas, tolerant, a testbed. And then there are two other types of ICT workers. Those are the start-ups; they see a very good environment to start a business. They are triggered more by a competitive environment, where there is financing, where innovation is prominent, but also where people get along with each other. And the third group is the standard employee who just wants to work at a multinational, and he is triggered by a certain form of certainty, and liveability in the city. It has to be a bit exciting, it has a certain edge, but he especially is seeking for—he has a house, a mortgage, children—he just seeks stability, he wants a job at IBM, Cisco, Accenture etc.…Those three groups should be targeted differently. Looking at the freebooters, I think especially of communities such as APPsterdam, that is an app-development community, which settled here and declared Amsterdam to be the app development capital. Amsterdam can do nothing for that, that is free marketing, because through all these informal networks they pull all these developers in this direction…It si very difficult to target these people. You can offer them the infrastructure, the incubator. But they do not trigger on a nice big poster saying that Amsterdam is fantastic; that just does not work. But they do trigger on good coffee…good internet access, flexible workplaces…In that sense they resemble the creative workers. It is creative technology, this is kind of an in-between group." (Amsterdam Economic Board)

Also regarding housing preferences, there are differences between the creative and the creative ICT workers on the one hand, and the classic technical workers on the other hand. The generally younger ICT workers belonging to the 'new ICT' are also attracted by the central milieu of Amsterdam, but their salaries are often too low to be able to afford a dwelling there. The enlargement of the central urban milieu is therefore needed for this group of workers, since they are not attracted to suburban areas: *"It would be good if the city is able to create a different sort of centre, a bit like in London, where the neighbourhood is also adventurous, but it does not necessarily have to be at the canal belt. Because only expanding towards Purmerend or Aalsmeer, that is not going to be the solution on the housing market. They just do not want that. So if you do that, you have to make sure that there is a certain attraction, a certain excitement there" (Amsterdam Economic Board)*

Based on the expert interviews, creative workers are critical with regard to both their work spaces and –especially— their residential locations. They have a strong preferences for the most central spots in Amsterdam, particularly the canal belt and the Jordaan district, and attach high value to the proximity of meeting places and nightlife amenities. However, especially the startups and the artists within the creative industries often have a too low income to be able to fulfill their wishes:

"And then they want residential and working space in the vibrant and exciting part of Amsterdam, thus not in Aalsmeer or Purmerend…Noord is okay, but efforts to start that in the Bijlmer have failed, and that is largely due to those secondary conditions. They want to be able to go to a club, they want to be able to talk until the small hours and get drunk or something, and then be home soon [drie keer vallen en dan ben je thuis]. That is something they want. In that respect the creatives are very critical anyway…When it comes down to residential space, they all want to be right at the canal or in the Jordaan. In that respect they are really spoiled brats… Sometimes I say to people: man, what are you thinking, that you can be at Keizersgracht for 150 euros a month?...And then they also want 70 m² where they can paint or something else…There are plenty of work spaces and in principle there are also plenty of living spaces, but they just do not want to be there. If it is a location in the centre, or in West, or in South, or in the part of East near the Tropenmuseum, then they all really like to be located there and you get 80 subscriptions for such a location. But when it is located in the direction of Bijlmer, or Sloterdijk, or a similar location,

then we were lucky if we had one subscription, and very often we had none." (Amsterdam Economic Board)

In this respect, the plans for the enlargement of the central urban milieu in the Structural Vision 2040 should be welcomed by both creative and 'new ICT' workers. These developments are also needed, as one of the interviewees expressed concerns that creative workers are increasingly choosing other European cities, such as Berlin, over Amsterdam, because there are more possibilities there: *"By offering more space in the city for start-ups. For example, Zaan/IJ offers lots of possibilities for that, with old factory buildings. I am concerned for that sector where it concerns very young people, of whom I have understood that they do not go to Eindhoven, but to Berlin…I think we have to few raw edges left. So we have space, but it is not 'edgy' anymore. Also in that respect Zaan/IJ may have something to offer… These are the real frayed ends of the city, these are fun and interesting areas that are a bit more rough and edgy, which you can give more space for experiments as a city". (Teamleader Metropoolregio, Municipality of Amsterdam)*

"All these ideas are acquired within the ringroad. Those are the areas where you can meet people. What do they look like, what are the latest trends?...Much implicit knowledge is being transferred there, just by being here. You know what is cool and uncool, what has street credibility and what has not… That is implicit knowledge transfer, which takes place through accidental encounters. That big interaction-milieu is very important for the knowledge economy. So it not strange that knowledge workers, knowledge intensive companies… we see that whatever sector you take, for example advertising… meanwhile, not a dispersal of companies is taking place but rather intensification. Everyone in the advertising sector is settling near the canal belt if possible. And the limited financial means determine that they look for a place a bit further away…Bos and Lommer is doing well, Oud-Noord is doing well, Indische Buurt has emerged very rapidly. Also inner city business locations, such as Schinkel are doing really well, or Overamstel. These are the business parks which are [worth gold]. Landlust... The new area, around the Kouwgomballenfabriek, there is one big hotspot for creative firms in the broadest sense. A big advantage is that you have a bit more space than in the city, but it is really close to the city. With one toe you are at Dauphin, and at Dauphin you are part of the scene. And that goes on until Teleport. If you move somewhere in between, you are ok." (Urban Planner, Municipality of Amsterdam)

<u>*Residential preferences of internationals*</u>

Previous studies on residential preferences of internationals in Amsterdam have indicated that, in general, the balance between housing prices and quality is regarded problematic. Also, the supply of dwellings does not match the demand. Also, it was shown that internationals prefer to live nearby amenities and therefore prefer central locations. However, the price of four-room apartments in the central districts of Amsterdam is high, which is a barrier to finding residential space. Still, internationals generally rate their dwelling and living environment positively. Especially the green structure, accessibility by public transport and basic amenities such as shops and sporting facilities are appreciated. Many internationals live in a rented dwelling, because of their short period of stay, and because they cannot apply for tax advantages on the owner-occupied market. Asian internationals often have a smaller budget for housing and prefer to live in a community with or nearby their fellow countrymen. Western expats, however, prefer to live in socially mixed environments. Expats with families prefer suburban locations, especially those nearby an international school. Singles or couples without children, however, have a more centre-urban preference, nearby (nightlife) amenities and meeting places.

Also for the group of internationals, there are differences in residential preferences based on occupation. Whereas creative workers tend to have a central-urban orientation and prefer to inter-

mingle their living and working environments, internationals and knowledge workers in ICT or other beta sectors mostly prefer suburban residential milieus (DECISIO, 2011).
A study by Regioplan (2005) among expats in the Randstad, mainly from US and Canada, England and other European countries outlined differences in residential preferences between sub groups based on nationality. Whereas Western expats prefer to live in mixed areas, Asian expats prefer to live among their fellow countrymen and therefore in concentrated districts. In Amstelveen, for example, a concentration of Japanese workers has emerged. Also expectations regarding housing are different for different groups of expats. Whereas American expats generally expect the company to take care of their housing beforehand, Asia internationals often seek for living space independently, and acknowledge problems with finding affordable housing. Asians also tend to have lower expectations regarding their dwelling than western expats. Expats often get assistance by their employer in their search for housing, either directly through company-owned dwellings or indirectly through specialized agencies.
Expats with families prefer suburban areas, such as Amstelveen or Het Gooi, over urban districts. For this group of internationals, space and quietness in and around the house, shopping facilities and especially the proximity to international schools are the most important aspects. For single internationals, especially those in Amsterdam, the (central) city is more attractive, and bars and restaurants are often used and preferably nearby.
Especially American expats attach much value to a safe neighbourhood. Internationals also prefer larger dwellings than can be found in the Netherlands, a large dinner room with a closed kitchen, large rooms and a second bathroom. Expats in high functions have the most difficulties with finding appropriate housing. They prefer large dwellings on spacious lots, but the availability of such housing in the Randstad is very limited. Only in the expensive suburbs of Het Gooi and Bloemendaal, this type of housing can be found (Regioplan, 2005).
In 2006, O+S (Municipality of Amsterdam), conducted a survey among expats in Amsterdam, half of whom is British or American and of whom 70 percent is highly educated. The focus of the survey was on the expats' experiences and opinions on expectations, arrival in and first impression of Amsterdam, their daily life and quality of life in Amsterdam. Half of the respondents that lived in Europe before indicated that they consider Amsterdam a more favourable living environment than other European cities they have lived in. However, also this survey brought forward that the problematic housing market is a major bottleneck: 85 percent of respondents thought of housing costs as expensive or even extremely expensive. Most of the expats lived in the city centre or the surrounding neighbourhoods, particularly in the southern or southwestern part.
A study by Ernst & Young (2010) among creative knowledge workers in Amsterdam showed that also among internationals, differences in residential preferences exist among occupational groups. Within the group of knowledge workers, different sub groups with distinctive profiles can be distinguished. Artists and architects mostly live in the city centre, professors live both urban and surburban, whereas ICT workers predominately live in the suburbs.
Being one of the municipalities within the region with a relatively large share of Western migrants, also Amstelveen is interested in residential preferences of internationals. A 2008 survey among (high educated) internationals and expats showed that Amstelveen was often chosen as a place of residence because of physical and social soft factors. A safe and quiet living environment was mentioned most often, followed by the availability of an appropriate dwelling, an international school or an international community were important reasons to choose Amstelveen as a place of residence. Amenities such as pubs, restaurants and clubs are being missed, however. More than 80 percent of the respondents were satisfied with their living environment and especially the green facilities, accessibility and public transport. A majority of internationals in Amstelveen is

also satisfied with safety, the city centre, shopping amenities and sports facilities (Gemeente Amstelveen, Staf, statistiek & onderzoek, 2008). Two of the interviewees specifically mentioned the popularity of Amstelveen as a place of residence among Asians. This popularity is explained by communities that have been there for years, since Asians tend to live near each other. Also, a large share of the Japanese workers earns a high income and is able to rent large houses in a quiet environment in the more expensive sectors, which are widely available in Amstelveen and much less in Amsterdam: *"I think you can say that Amstelveen has the market of the Asians. Many Japanese are living there, and they can rent expensive dwellings, which we do not have in Amsterdam. So what Amsterdam does not have, Amstelveen has, and therefore they live there"* (Teamleader Metropoolregio, Municipality of Amsterdam)
Decisio (2008) conducted a study among knowledge workers in the province of North-Holland, and found differences between the residential preferences of alpha, gamma and beta workers. Alpha workers tend to choose urban cosmopolitan districts, but do not have a large budget for housing. They therefore prefer to have a combined living and working space. Beta workers generally have a larger budget for housing and prefer suburban areas with more space and comfort. Meeting places and culture are on average considered less important by this group. Gammas often have a relatively high budget for housing. Young, ambitious gamma workers, often with double salaries, tend to prefer highly urban living environments, whereas settled workers more often prefer high quality suburban environments, in line with international studies. For international workers, the presence of international schools is important (Decisio, 2008). Also the southern part of the city appears to be popular with knowledge migrants (Decisio, 2010).
The interviewee at the Expatcenter, however, did not believe that international workers have different residential preferences as other workers: *"Everyone just wants to have a house as big as possible at a location as central as possible."* (Expatcenter Amsterdam) He only noted that Japanese and Indian workers tend to concentrate around their own communities, especially in Amstelveen.

3.6 Conclusion: MRA's strengths and weaknesses for knowledge workers

Amsterdam and the MRA have a very strong profile for knowledge workers, both in terms of hard and soft conditions. Amsterdam has a very diverse economy, which makes the city less vulnerable in times of economic crisis and attracts a broad scope of talent to the city. However, Amsterdam seems to foster this diverseness as its main economic strength, whereas the city internationally does not excel in one specific field, and also does not show what it is really good at in particular. Especially the beta sector seems to be under highlighted in Amsterdam, despite its considerable size. This makes it difficult to brand the city internationally and to attract specific talent. The local experts especially noticed a lack of technical talent in the city and, related, a lack of schooling and training possibilities for this group. Building a stronger link between the region's educational institutions—at different levels— and business sector, as well as the establishment of a new technical institute are the main topics on the human capital agenda.
Amsterdam also is known for its strong transport infrastructure and global connectivity, which is mainly the result of the proximity to Schiphol international airport. A downside of the MRA, however, is the high level of congestion. Also, public transport is crowded and regional connections could be improved. In addition, the city is extremely car-unfriendly, with long traffic jams and skyrocketing parking costs. The latter aspect is not necessarily problematic for all groups of knowledge workers, however.

The major weakness of Amsterdam is its housing market, which is expensive and badly accessible. It is dominated by very cheap apartments in the social sector on the one hand, to which long waiting lists apply, and very expensive dwellings in the private and owner-occupied sectors on the other hand. The middle segment is largely absent. The housing market situation makes it difficult for some groups to find appropriate housing in the city, including expats and creative workers who often earn low salaries, and restricts people with middle incomes living in social housing in their residential mobility.

Besides the housing market, Amsterdam is well endowed in terms of soft factors, however. The city is a popular tourist destination and has a large international population. Amsterdam is known as an entertainment centre with a tolerant atmosphere and liberal values. Furthermore, the city is the dominant cultural centre of the Netherlands, with a broad range of world class museums, theatres and music performances. The city scores high on authenticity, because of its preserved and monumental historic inner city, including the canal belt and the Jordaan neighbourhood.

Based on the expert interviews, Amsterdam's hard and soft factors strengthen each other. Amsterdam is attractive to knowledge workers both because of the broad economic opportunities and innovative environment, and because of the social and cultural climate that is offered.

In the experience of some of the interviewees, however, there are differences between for workers in cultural industries, soft factors are equally important as hard factors, and these workers are also more critical with regard to place of residence. In general, they want to live in the centre, or as close to the centre as possible. Workers in technical occupations, such as ICT, are more diverse in their residential preferences and are attracted to Amsterdam particularly because of the innovative work climate and career opportunities.

The main policy implications for Amsterdam relate to the ability to find affordable accommodation in the region. High housing prices combined with long waiting lists for social housing make large parts of the housing market badly accessible for the large group knowledge workers that are not in the high income segments (e.g. creative workers) and are new to the city. More dwellings are needed in the middle segment, but since this housing category is less interesting from investors' point of view, the municipality or the MRA should take a more active role in this. Currently, only financially attractive development projects take place at waterfront locations, but these will mainly attract higher income groups. The group of knowledge workers do not all have high incomes, as is often misunderstood.

Although Amsterdam's economic diversity is problematic from a marketing point of view, it appears to be overall beneficial for Amsterdam in economic terms, since it attracts a large variety of companies and workers to the region. However, the concerns regarding the missing link between the regional technical sectors and higher education deserve some policy attention. Perhaps the eventual settlement of a technical education institute (Amsterdam Metropolitan Solutions) will solve this problem.

Finally, in terms of Amsterdam's soft conditions, the main priority seems to be to keep up the high level of cultural and leisure amenities. However, recently complaints are heard about Amsterdam's restrictive policy regarding bars and events in the inner city, also during some of the interviews. This has already caused the relocation of the Dutch Fashion Awards to The Hague, but may in the longer run diminish Amsterdam's attractiveness for creative people. This may be dangerous, given the already strong competition from other cities with less restrictive policies, such as Berlin.

4. Eindhoven: the national 'Brainport' of the Netherlands

4.1 Introduction to Brainport Eindhoven region

The city of Eindhoven is located in the south-eastern part of the country, in the province of North Brabant, close to the Belgian and German borders. With 216,036 inhabitants in 2011, it is the fifth largest city of the Netherlands and the major city within the country's second urban network, Brabantstad, which further includes Breda, Tilburg, 's-Hertogenbosch and Helmond.

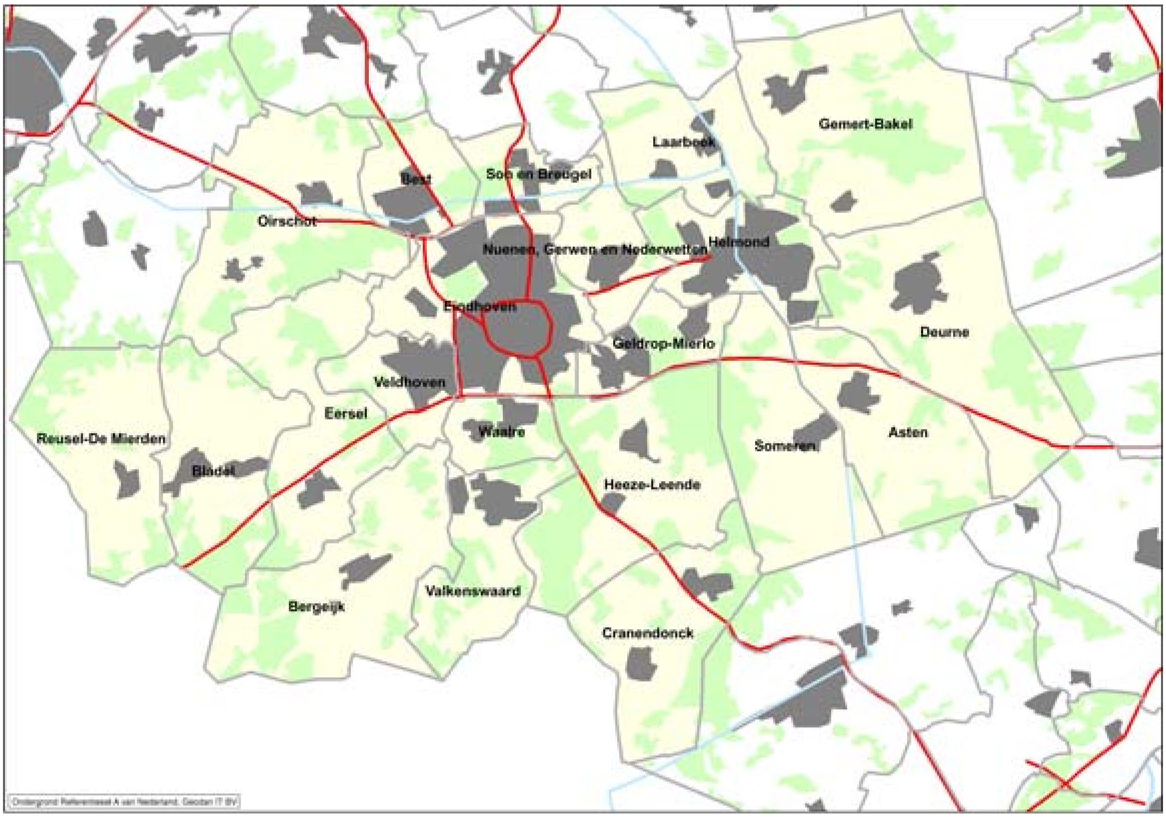

Figure 4.1 Map of Eindhoven Region

Development path

Eindhoven's development largely coincides with the development of Philips Electronics, nowadays one of the largest Dutch multinationals. Prior to the industrial revolution, what is now known as Eindhoven consisted of six separate villages: Eindhoven, Stratum, Woensel, Strijp, Tongelre and Gestel. At the beginning of the twentieth century, Eindhoven was an agricultural village with no more than 5,000 inhabitants. The foundation of the Philips Gloeilampen N.V. in 1891 laid the basis for Eindhoven's strong industrial development. Philips' rapid growth in the early twentieth century spurred Eindhoven's growth, resulting in the annexation of the surrounding villages (Van der Borg & Russo, 2005). After the Second World War, Eindhoven gradually developed into the most important industrial centre of the Netherlands, which besides electronics (Philips) was also specialized in automotive industry (DAF trucks and buses) and food processing (Campina). The second city in the region, Helmond, grew fast due to the expansion of the metallurgical industry (Van der Borg & Russo, 2005).

Because of the strong association with Philips, the city was and still is referred to as 'Light town'. The (past) influence of Philips on local life is still visible, as Philips has always invested strongly in the living environment of its employees. Several monumental factory or office buildings are still found in the city, many of which still contain a Philips logo despite no longer being used by Philips. Also some of the neighbourhoods adjacent to the inner city were constructed especially for Philips employees (e.g. Philipsdorp) and the Philips Stadium site used to be a sports centre for Philips employees.

An important factor in the development of Eindhoven towards a creative knowledge city has been the strong educational institutes in these fields. In 1947, the Design Academy was opened, followed by the Technical University (TU/e) in 1956. In 1996, the Hogeschool Eindhoven became the Fontys University of Applied Sciences. Over the past decades, Eindhoven has developed a diverse knowledge base. The city has approximately 24,000 students, 44 percent of which are active within technical disciplines, 23 percent in economics, 18 percent in health care and well-being, and 16 percent in other disciplines, including design.

Deindustrialisation in the late 20th century had large consequences for the Eindhoven region with a large rise in unemployment. Up to the mid-1980s the city scored well with growth rates higher than the national average, but between 1986 and 1991 the yearly employment growth rates dropped from 5.3 to 0.9 percent (Van der Borg & Russo, 2005). Large job losses were the result of downturns and consequent reorganizations at Philips and the bankruptcy of DAF.

Eindhoven started a process of economic restructuring in the mid-1990s in order to decrease its dependence on the declining manufacturing sector. The city found a solution to its economic problems in the development and stimulation of creative industries, based around the city's past with regard to technology and design (Fernandez-Maldonado & Romein, 2009).

A series of policies, involving both the public and the private sector, were implemented. A Triple Helix between government, industry and knowledge institutes was set-up to develop a shared vision of economic development. Cultural development strategy was embedded in this overall strategy. As a result of these policies, Eindhoven reinvented itself as the major technology hub of the Netherlands, with a strong specialisation in knowledge-based manufacturing industry, and was eventually appointed a national 'Brainport' in 2004, which together with the North wing of the Randstad region and the port region of Rotterdam –the mainports— would become one of the economically most important regions of the Netherlands. The Ministry of Economic Affairs selected the region as one of four innovation regions to receive public investments within the overall objective to strengthen the Netherlands as a dynamic and competitive economy.

Currently, the city has a relatively low unemployment rate and represents a very important industrial and technological centre for the Netherlands, since the region contributes for some 40 percent of the industrial added value of the country (Van der Borg & Russo, 2005, Fernandez-Maldonado & Romein, 2009).

Regional governance and the Brainport Agenda

The Eindhoven region is known for its strong public-private partnerships and inter-municipal co-operation. intensive cooperation between municipalities, within the *Samenwerkingsverband Regio Eindhoven* (SRE) region. It is one of the eight 'city-regions' in the Netherlands: public corporations consisting of the municipalities in urban regions with the task to attune developments in the fields of housing, employment and traffic flows. SRE consists of 21 municipalities and coincides with the South-East Brabant area. The SRE region is a functional region, in which Eindhoven is the core city and functions as the main employment centre. The second largest employment centre is Helmond. In all SRE municipalities, 10 to 50 percent of the working population commutes to Eindhoven. Employment is dispersed across the region, but with a strong concentration in the Eindhoven urban area, e.g. Eindhoven and Veldhoven. The majority of the inhabitants of the SRE also work within the region. Other working destinations include the immediately surrounding municipalities and other urban centres in Noord-Brabant (especially Tilburg and 's Hertogenbosch), Limburg or the Randstad. Furthermore, the majority of people working in the Eindhoven region also lives in the region (Fernandez-Maldonado & Romein, 2009; www.sre.nl).

At this regional level, there is also a Triple Helix (public sector, private sector, university), which has no formal status but organizes itself around programmes and projects and is referred to as Brainport Development. In 2004, the Eindhoven region was appointed national 'Brainport' by the Dutch government (Ministerie van VROM, 2005). The Triple Helix structure was developed in response to the industrial downturn of the early 1990s. The aim was to transform a 'traditional industrial region into a top-technology and design region'. The Brainport Programme focuses on further development and completion of the value chains of spearhead sectors of technology valorization: life-tech (life sciences, medical technology), high-tech systems (ICT, micro-electronics, nanotechnology, automotive and mechatronics) and creative industries. Its mission is to create an environment for economic and social development towards a high quality of life and, through this, to achieve a sustainable and globally competitive region (Stichting Brainport, 2007; Brainport Development, 2011).

The policies and initiatives function at several spatial scales: from the Municipality of Eindhoven up to cross-border networks. These have different accents, but their common objective is the enhancement of knowledge, technology, creativity and innovation in the region of South-East Brabant and Eindhoven city (Fernandez-Maldonado & Romein, 2009).

The Brainport Region is closely cooperating with neighbouring regions in order to solve shortages in the labour market. The Eindhoven region is also cooperating within the ELAt region (Eindhoven, Leuven, Aachen Triangle) (Brainport Development, 2011a).

There is increasing networking between the different actors in the creative industry, but the City of Eindhoven has played a central role. This central role is criticized, since cultural development should be left to improvisation (Van der Borg & Russo, 2005; Fernandez-Maldonado & Romein, 2009). Whereas Brainport Development sets the agenda for economic policies, its individual partners are responsible for the implementation of these policies.

Currently, the Brainport 2020 Agenda is the leading economic vision for Southeast Netherlands, which the SRE area is part of. It aims to further improve the settlement climate, through investments in six domains:

- Labour market: at all levels, high quality education is needed which is adapted to the needs of regional companies. The emphasis is on technique and entrepreneurship, and qualifications should match with the current top clusters and upcoming clusters in Southeast Netherlands: high tech systems, chemicals, life Tec, smart mobility, smart materials, industrial design, solar, energy in the built environment, homecare, food and technology, and fresh food (and health).

- Knowledge workers and skilled workers are highly needed in order to fulfil future labour demand.
- Technology: innovativeness should be guaranteed, since this contributes to solutions to societal challenges and high quality products and services. A strong R&D infrastructure is considered vital for the development of products, for exports and for conditions for settlement and entrepreneurship. Currently, R&D spending by the national government is too low, which makes the Brainport region vulnerable if companies decide to close or relocate R&D plants. It is assumed that a strong and accessible public knowledge infrastructure will be able to tie, stimulate and attract private R&D. In this respect, also better use should be made of the ELAt region, both in terms of innovation and international reputation.
- Business: more start-ups and more market focus are needed, as well as quick and innovative growing firms. Therefore, more capital is needed for high potential companies in each phase of their development. The public sector should stimulate this by buying innovative products, and the chains of small and medium sized firms should cooperate more closely in order to increase innovativeness.
- Amenities: High-standard connections to customer regions, suppliers and international branches are a necessary condition in order to be a technological top region. Also, researchers should be able to travel fast between different European knowledge hubs. In this respect, Eindhoven is still underperforming. By clustering similar firms, they benefit optimally from each other's knowledge. In addition, the living environment deserves further attention. The region should be a place where people like to live, with attractive nature, attractive cities, high quality education, varied culture and an international image.
- Organization: cooperation between companies, knowledge institutes and the public sector is regarded as a fundamental condition for success. This Triple Helix should be continued and further developed. In addition, structural cooperation between national government and the region is necessary because of the relevance of Brainport 2020 for the national economy.
- International cooperation: many companies have branches across the world and produce for the global market. A high quality international network is of utmost importance to both these companies and the region. Also the public sector should extend their horizons, both internationally and within the cross-border region ELAt (Brainport Development, 2011a).

In the spatial programme of Brainport, the emphasis is on the further development of the clusters' business parks (A2 corridor and TU/e Science Park), which also should be connected better to each other through corridors, including high quality regional public transport. But another important aspect of the spatial agenda is regional investments in the highly urban quality in the two urban cores, of which the image is lagging behind with Brainport's economic ambitions. The 'Railwayzone' in Eindhoven, including the station district, Strijp S, Emmasingelcomplex and Victoriakwartier, and the 'Canal zone' in Helmond, including the inner city, the station district and Suytkade, are the designated carriers of urban development and a more attractive urban settlement climate. Around Eindhoven, the development of the green structure has high priority, through the Green In and Around the City (*Groen In en Om de Stad, or* GIOS) programme, which includes rural Strijp, Nieuwe Woud and Middengebied Eindhoven-Helmond and should connect to the national landscape Groene Woud through so-called city gates (*stadspoorten*) (Stichting Brainport, 2007; SRE, 2009).

Housing market

Eindhoven's housing market is in many ways the opposite of the Amsterdam housing market. Almost half (44.5 percent) of the city's housing stock consists of owner-occupied dwellings in 2011 (figure 4.2). In the entire region, this share is 59 percent, which is higher than the Dutch average (55 percent). The city's rental market is dominated by social rent, which accounts for 41 per cent of the total housing stock, much higher than the regional (29 percent) and national average (31 per cent). The private rental market is with 14 percent in the city, and 11 percent in the region, more or less in line with the national situation (13 percent).

	Owner occupied	Social rent	Private rent	Unknown
Eindhoven	44,5%	40,7%	14,3%	0,6%
Southeast Brabant	59,1%	29,3%	11,2%	0,5%
The Netherlands	55,1%	31,2%	13,1%	0,7%

Figure 4.2 The Eindhoven housing market (Source: CBS, 2011)

The municipalities within the SRE region have a long-lasting cooperation in the field of housing. At the SRE level, arrangements are made about the share of (newly constructed) social housing in the core city and the surrounding municipalities. Still, there is no overarching regional housing policy, and housing remains the task of the individual municipalities. Although certain specific target groups, including knowledge migrants, increasingly play a role in regional negotiations, there are no specific housing policies targeting them and direct steering is considered unnecessary. However, all the municipalities in the SRE area, together with the Expat Centre and Brainport Development, are working on a covenant for the accommodation of (international) knowledge workers (Interviews Expatcenter and SRE). In this convenant, which is currently in the orientation phase, the parties attempt to get an overview of all the barriers faced by international workers: *"The region has to remain on the map, and in order to be able to compete economically, and certainly internationally, you have to be an attractive region and the housing of knowledge workers has to be well-arranged."* (SRE)
Most population growth, including the accommodation of new (international) knowledge workers has to be accommodated within the urban centres. The rural areas, De Peel and De Kempen, are only allowed to build for their own natural population growth (Interview SRE).

4.2 Economic profile of Brainport Eindhoven

Since 2000, Eindhoven has experienced strong job growth. Since the establishment of Philips, the city has been characterised by a strong willingness to innovate. After Philips' headquarters left to Amsterdam and employment in manufacturing decreased as a result of robotization and outsourcing, Eindhoven recognised opportunities in creative industries. The total number of jobs in 2011 in the core city of Eindhoven was 143,100, an increase of almost 6 percent since 2000. The development is different for each sector. Business services, health care, education and IT have experienced strong growth, whereas construction, financial services and trade have seen a decrease in the number of jobs. Still, trade is the third sector in the city, in terms of employment. A shift towards business and consumer oriented services has taken place, which makes the local economy less dependent on demand-sensitive product industry (Gemeente Eindhoven, 2011).

The majority of jobs in the Eindhoven Region is in services, illustrating an economic shift since the 1980s when manufacturing accounted for more than half (55 percent) of all employment, 33 percent of which was within electronic manufacturing, including Philips. Since then, and particularly over the past decade, a shift has taken place toward business and consumer oriented services. As a result, the Eindhoven region has become less dependent on manufacturing. Nowadays, manufacturing is offering 9 percent of all employment in the city, whereas advising, research and specialistic service delivery is the largest sector with 21,655 jobs (15 percent). In the 1980s, business services still accounted for 2,000 jobs (Gemeente Eindhoven, 2011).

The concentration of national R&D expenditures by private companies in this region is very high and shows an ongoing increase. Philips Electronics and ASML ranked respectively first and third in the top ten of companies in the Netherlands in 2005 in terms of R&D expenditures. But firms in other industrial branches such as medical technology and high-tech systems (ICT, micro-electronics, automotive, nanotechnology and mechatronics) have also increased their R&D expenditures. In total, 45 percent of national private business R&D expenditures, or one billion euros, is invested in the Eindhoven region (Stichting Brainport, 2007). At the output side, the region produces 40 percent of the added value and 43 percent of the patent applications by Dutch manufacturing industry. The region's specialization in high tech industry is illustrated by the fact that 19 percent of all jobs are in industry, compared to 13 percent in the Netherlands, of which 50 percent are in medium- and high-tech industry (36 percent in the Netherlands) (Van der Borg & Russo, 2005).

Eindhoven's knowledge industry is strongly export-oriented, which makes the regional economy sensitive for fluctuations in the global economy. The Eindhoven region currently accounts for 25 percent of all Dutch export, 40 percent of all Dutch R&D spending, and half of all Dutch patents, whereas it only has 8 percent of the population. The production structure of the economy is now diversifying into the direction of services, especially business services.

The Brainport Agenda concentrates on strengthening the existing top clusters in the region that together account for 68 percent of all R&D spending in the Netherlands and almost half of the economic export: High tech systems & Materials, Chemistry, Life-sciences and Agrofood. In the Eindhoven region, High tech systems and Materials is the dominant sector, but the region also has strong specializations in Food & Technology, Automotive (Helmond), Lifetec & Health (Best) and Design are central. The Brainport Programme aims at the further development and completion of the value chains of spearhead sectors of technology valorization: life-tech (life sciences, medical technology), high-tech (ICT, micro-electronics, nanotechnology, automotive and mechatronics) and creative industries.

The main industrial companies in the region are the multinationals Philips, DAF and ASML, which are embedded into (regional) networks with medium- and small-scale suppliers of specialized knowledge and design, and knowledge institutes. There has been a trend toward increasing synergy between the university and local firms. Eindhoven has scores in high and middle-tech firms, ICT as well as in creative industries way beyond the national average (Van der Borg & Russo, 2005; Stichting Brainport, 2007).

The region also scores high regarding innovation. The European Innovation Scoreboard, which annually measures the innovation index in European regions (European Commission, 2007), positions the province of North Brabant as the number one region in the Netherlands regarding innovation performance and the 20th best region in Europe (Fernandez-Maldonado & Romein, 2009). In 2011, the Intelligent Community Forum has declared Eindhoven the smartest region of the Netherlands, indicating that the region makes best use of ICT and broadband connections (Intelligent Community Forum, 2011).

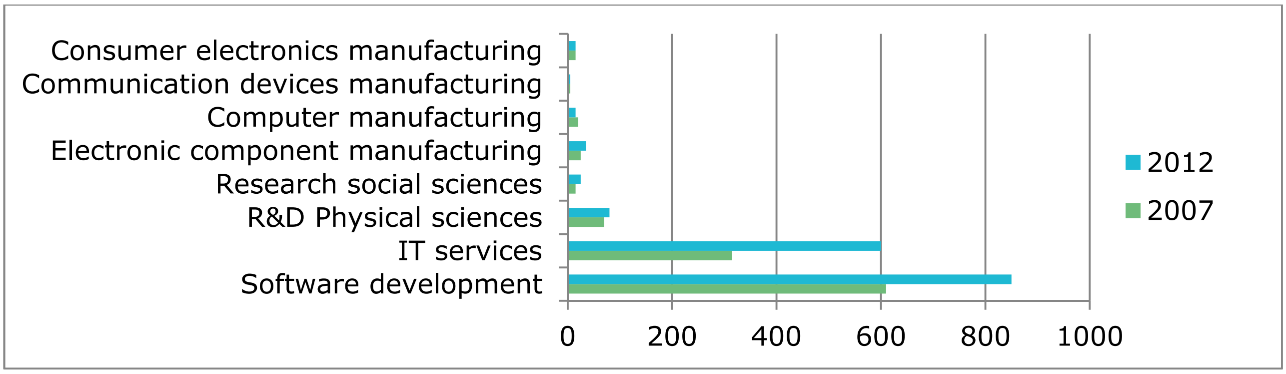

Figure 4.3 The number of firms in high tech manufacturing and ICT in the Eindhoven city region (Source: CBS, 2012)

As figure 4.3 shows, Eindhoven has a large number of firms active in software development and IT services, and their number has strongly increased since 2007. Also R&D in physical sciences, research in social sciences and electronic component manufacturing have grown since 2007. These sectors have a much smaller number of firms, but the firms in these sectors are in general larger than the IT services and software companies. Figure 4.4 shows that, with the exception of magazine publishing, all sectors belonging to the creative industries have grown between 2007 and 2012. In terms of the number of firms, engineering and advertising are the most important creative sectors, followed by created arts, industrial design and performing arts. According to Market & Van Woerkens (2005), Eindhoven ranks ninth in The Netherlands in terms of its share of artists. The strongest growth has taken place in industrial design, created and performing arts, photography and architecture. Figure 4.4 furthermore shows that Eindhoven has relatively few media companies, both in terms of publishing and film and TV.

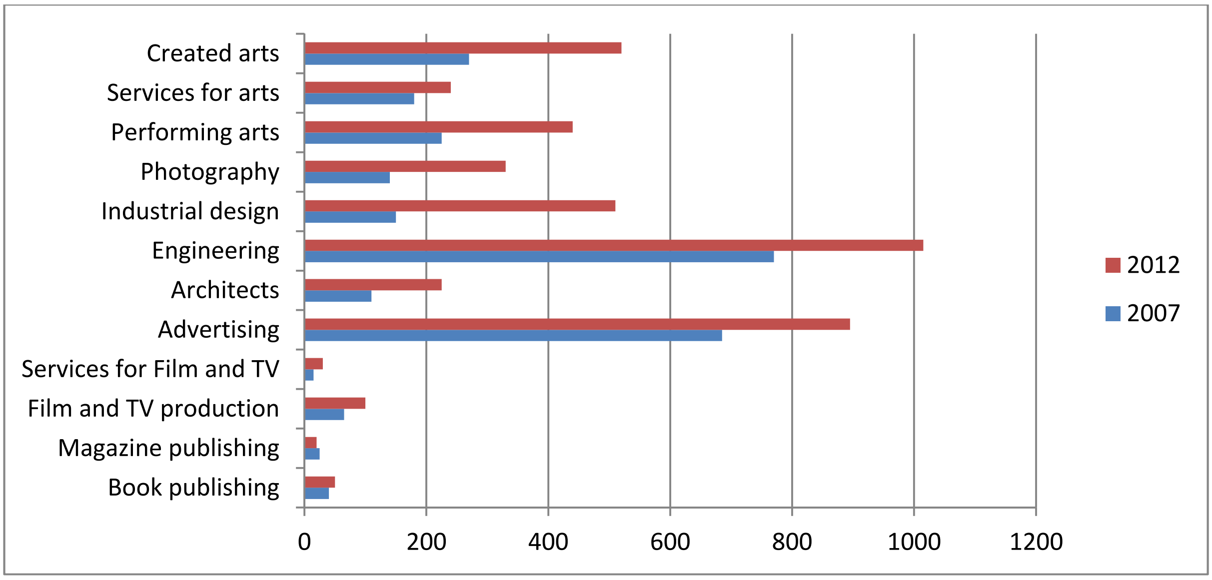

Figure 4.4 The number of firms in creative industries in the Eindhoven city region (Source: CBS, 2012)

According to the Cross Media Monitor 2012, Eindhoven's development between 2000 and 2011 is characterised by a dominant ICT sector, with strong job losses in the hardware sector (6,000 jobs) and job growth in software (3,700 jobs). The ICT sector consists of large companies which, contrary to the national trend, keep growing. The creative industries have been small-scale for many years in Eindhoven, partly because large media companies are absent. Within the creative industries, Eindhoven is specialized in creative business services, especially the design sector, which has grown with approximately 500 jobs between 2000 and 2011. Although relatively marginal in terms of jobs, Eindhoven also has a specialization in performing arts. The cross media sector (creative industries and ICT) is the fourth sector in Eindhoven, behind trade, healthcare and high-quality business services. It accounts for 14,500 jobs, of which 5,500 in creative industries and 9,000 in ICT. Specialisation in terms of jobs is greatest in ICT services, with a specialization grade of 189 (Netherlands = 100). Also ICT hardware (157) and creative business services (161) are overrepresented in Eindhoven (Stichting iMMovator, 2012).

The economic geography of Brainport Eindhoven's knowledge economy

Brainport's knowledge industry is highly segmented and concentrated in a number of large clusters. The main clusters are:

- Eindhoven: High Tech Campus (high technological nano and microsystems) and TU/e Science Park (university)
- Helmond: High Tech Automotive campus
- Best: medical campus
- Veldhoven: ASML and medical centre, High Technology Park

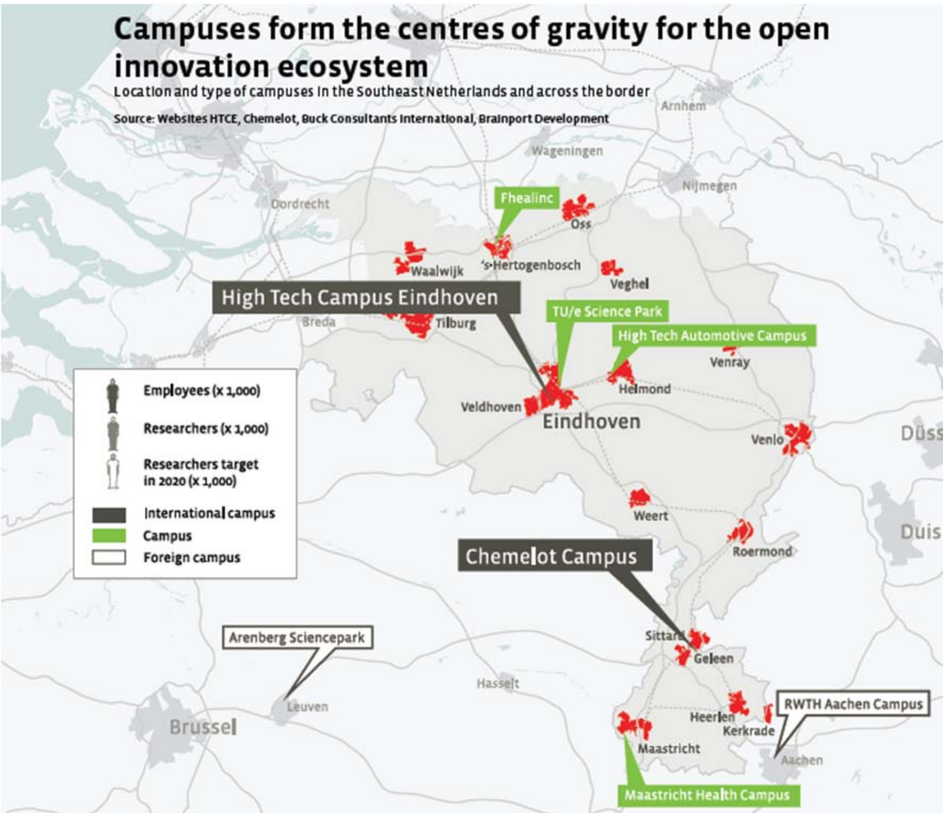

Figure 4.5 The innovative campuses in Southeast Netherlands, of which the Eindhoven region is part (Source: Brainport Development, 2011b)

These campuses are central in economic policy-making, and are combined with a number of mixed business parks (Interview SRE). Figure 4.5 shows the dispersal of the main clusters throughout the region. Most of Eindhoven's innovative knowledge industry is located alongside the A2 highway, including the High Tech Campus and ASML. In Brainport's Spatial Programme (SRE, 2009), this zone will be developed into 'Brainport Avenue' and will also include the yet to be developed Brainport Innovation Campus. This corridor crosses the west corridor, running from the airport and the A2/A58 highways to Eindhoven Central Station.
Statistics show that industrial employment is dispersed across the entire SRE region, with concentrations in a number of municipalities in De Kempen (Bergeijk and Bladel), suburbs (Best, Son en Breugel and Veldhoven, Valkenwaard, Deurne, Helmond and the Peel area (Cranendonck and Laarbeek). Hightech employment partly overlaps with industrial employment. The largest concentrations of high-tech jobs are found in suburban municipalities on the north and west side of the city: Best (23 percent), Son en Breugel (22 percent), Veldhoven (21 percent). Also the municipality of Eindhoven (18 percent) and Valkenswaard (15 percent) have shares of high-tech jobs above the regional average. The natural districts Peel and De Kempen have the smallest shares of all sub regions, although some municipalities have relatively large concentrations: Cranendonck (13 percent), Bergeijk (12 percent) and Bladel (13 percent). The other city in the region, Helmond, has one of the largest concentration of industrial jobs within the region (22 percent), but its share of high-tech jobs is below the regional average (8 percent). In short high-tech manufacturing is concentrated especially in the core city of Eindhoven and its western and northern suburbs, and to a lesser extent in a small number of centres in areas of natural beauty (Gemeente Eindhoven, 2011).

4.3 The hard side of Brainport Eindhoven: labour market, infrastructure and housing market

Labour market and human capital

On the hard side, three aspects were often mentioned as strongholds of the Brainport region. Foremost, the region's strong clusters, as well as its good career perspectives, are considered the dominant attraction factors for (international) knowledge workers. Some of the interviewees mentioned that particularly for technical knowledge workers, work potential and career perspectives outweigh soft conditions when choosing a location for living and working: *"All researches point out that the job is the main reason for settling here." (SRE) "What we hear from expats is that the reasons for choosing to come here are always work and career." (Expatcenter Southeast Netherlands) "I think we have a specific work climate in this region; I think that is something that attracts people to this region. That also shows." (Sector Strategy, Municipality of Eindhoven)*
Especially the presence of a small number of large firms, which are leading in their respective sectors, is seen as a major strength of the region. DAF, Philips, ASML, FEI attract a large number of knowledge workers themselves and are also at the head of supplier chains in sectors important to Brainport: *"The main strength of Eindhoven remains the industry; the high tech companies, ASML, Philips…The High Tech Campus is one of the strongest assets in the region. I think that is Eindhoven's strength. The green residential qualities are there, but I do not think they are distinctive from other regions." (Sector Area Development, Municipality of Eindhoven)*
"Together, they are an important attraction factor for knowledge workers. Especially workers in technical sectors are attracted by work. They do not only come because Eindhoven is so attractive, but they really come for employment and the type of companies that is found here in the region". (Economic Affairs, Municipality of Eindhoven)

Eindhoven is known for its strong campus policy, with the High Tech Campus in Eindhoven, the Brainport Innovation Campus, and the Food and Automotive in Helmond being the main clusters. There are several campuses offering a wide variety of employment in high-tech companies, making the city less dependent on Philips: *"It is not one company, as was the case 100 years ago. Then there was Philips, and if you did not like it there, bad luck. Now there are 25 firms, large and small, and together they form a cluster. Thus, someone who is looking for work here does not necessarily have to work, or keep working, for ASML, but if he settles here he can continue his career within this region." (Sector Public Space, Municipality of Eindhoven)* In turn, the presence of a large group of knowledge workers works as a magnet for other talents and also for knowledge-intensive companies: *"The whole picture of campuses, what you can offer there in terms of industry, especially with regard to the Brainport Clusters, is a pull factor for knowledge workers. That is a self-strengthening policy, because if that is going well…It works like a magnet" (Economic Affairs and Culture, Municipality of Eindhoven).*
In order to attract technical workers from outside the region, it is considered important to offer a challenging work environment, also in terms of content, that distinguishes the region from other regions with a similar economic profile: *"A few things are attractive in this region for a specific type of knowledge workers, the technical knowledge workers. The main thing that is happening which is attractive to them is that we have companies and activities which are top quality, that make very interesting things, who seek borders of innovations and that can offer an attractive environment in which you can find enormous challenges… that you can find a job with which you can shift the boundaries of your own capabilities". (Sector Strategy, Municipality of Eindhoven)*
Another strong asset of Eindhoven on the hard side is the region's educational infrastructure, which provides a large number of potential knowledge workers for the region. The region has a number of top institutes in the fields of design and technology, covering all different levels of education: *St. Lucas* in Boxtel (lower vocational), and the Design Academy (higher vocational) and the Technical University TU/e (academic) in Eindhoven. In addition, Eindhoven is also home to the broader polytechnic Fontys University of Applied Sciences. Specifically for international workers with families, the presence of an international school is often mentioned as a strong point of Eindhoven. Currently there are two international schools, one primary and one secondary, which are dispersed across the city. However, these schools will be brought together at a new campus in the northwestern part of the city, not far from Strijp S, which is currently under construction.
However, some of the local experts also expressed concerns about the scale of the region and, related, the size of the regional critical mass, which according to them is still way to small in order to be competitive on a global scale. For example, the university is relatively small and according to one of the local experts at the Department of Economic Affairs and Culture, it should be *"four to five times larger"*. In this respect, Eindhoven tries to cope with its relatively small scale by seeking cooperation and building networks both within the region and with adjacent city regions with a similar economic profile: *"We are too often inclined to look within our own borders, and of you have European or global ambitions, the size is different. So you have to increase your scale, your critical mass, and that can be arranged by cooperations, by building networks, and increasingly that is what we do, both nationally and internationally."* (Economic Affairs and Culture, Municipality of Eindhoven)
The most eminent threat to Eindhoven's competitiveness, is that the local supply of skilled labour is too small to fulfill the demand of local companies. Despite the financial crisis, the Eindhoven region continued to achieve economic growth and is still growing, which is expected to result in a surplus of jobs in the near future. The major of Eindhoven, Rob van Gijzel, has expressed these concerns at the municipality's annual New Year's reception in January 2013. Eindhoven expects to

have a shortage of ten thousands of highly skilled technical workers in the coming years, because Dutch universities deliver too few graduates in technical disciplines. As a result, Dutch companies already loses tasks to foreign companies, because there is too little staff to fulfill them (NRC, 7-1-2013).

This problem is being tackled in three ways. First, for the short term, Brainport Development is active in the recruitment of foreign talent, focusing on a limited number of regions, including growth countries (e.g. China and India), strong regions with a similar DNA as Brainport (Taiwan, Boston, Cambridge, Helsinki), and European regions with a similar economic profile but high unemployment rates (recently Spain): "*We hear from companies that we sometimes have difficulties in getting a sufficient number of knowledge workers, of technical workers, so we look for them abroad, at all levels: academic, vocational but also people who are good with their hands. So in that sense I think there is plenty of work available." (Sector Strategy, Municipality of Eindhoven)*

"The largest threat to the economic viability of this region lies in the fact: can you find sufficient qualified staff to keep the industry going?" (Sector Strategy, Municipality of Eindhoven)

Currently, 80 percent of all expats are Europeans, since transaction costs for attracting Europeans are much lower. Companies take care of acquisition for vacancies themselves; Brainport Development is rather the organizing party and focuses on letting talents know that the region and its companies exist. This happens through branding, both by visiting career fairs and online (e.g., Facebook). Also, a 'Brainport Alumni Network' will be set up, since the current stock of workers are considered the best ambassadors. The marketing is different in each country, and the story being told is adapted to what is important for the local population. There has to be a very strong link between the region and what is happening in Brainport (Interview Brainport Development).

Second, for the longer term, national policies are stimulating high school graduates to choose beta studies. The fact that Eindhoven's high-tech sectors continued to grow in times of economic crisis has changed the mindset toward these industries: *"The [communis opinion] has long been: there is no place for manufacturing in this country. You can never compete with China, Bangladesh or other low-wage countries...There are a few advantages: the financial sector has collapsed. That has disadvantages, a crisis that lasts a few years, or rather a new reality, but while that sector was collapsing, here in the region we saw only little signs that is was not going well. When the national economy was shrinking with 1,2 percent, the regional BNP was increasing with 3 percent in 2011. And why? The manufacturing sector produces things and sells them at the global market. What makes this region attractive is that we have companies that sell their products at the global market and in a number of fields, like ASML, are world market leader in their segment. AMSL, NXP are very competitive, FEI produces the best electronic microscopes to be found…And because these companies are doing well, their first supplier is doing well, and their second supplier, the whole chain stays on top. And an important part of that chain is related to the ecosystem here in the region. In short: crisis? What crisis?... The core economic core is doing very well [draait als een tierelier]. It still is" (Sector Strategy, Municipality of Eindhoven)*

"If you only look at the replacement demand you are facing shortages, because we are facing a graying population, all the people who graduated from the Technical School are now nearing their retirement, so we expect a large outflow. If you look at graduates from technical universities, ROCs and polytechnics, that is too little to feed the replacement demand, let alone the growth demand, so it is an absolute necessity to have a Technique Pact to invest in technical education, to show kids at a young age how interesting it can be to be involved in science and technology. And that way also breaking with the tradition and the image in the Netherlands that manufacturing is dirty jobs, low wages and not interesting and you should study business, accounting or work in the banking sector if you want to make money. The crisis has been a blessing in disguise

for us, because it put the relevance of manufacturing back on the map." (Sector Strategy, Municipality of Eindhoven)

This so-called 'Technique pact' is national policy, but was initiated in the Brainport region. Thus, rather than negative impact on regional employment, the financial crises has intensified labour market restructuring and has led to a better adaptation of (higher) education to labour demand in the high tech sector: *"Such a Technique Pact is a perfect example of the revaluation of manufacturing in the Netherlands, and for that reason we are very happy with it…In the longer run the balance between people working in technical professions and people working in other sectors will be improved. On short term we will be dependent on attracting people from abroad." (Sector Strategy, Municipality of Eindhoven)*

"Has the crisis had an effect on knowledge workers? I think more the awareness that things are changing, and if we really want to make structural changes, we receive signals now so that we can already make steps or tackle that". (Economic Affairs and Culture, Municipality of Eindhoven)

Third, labour market renewal was already going on, but is fastened as a result of the crisis. As part of this flexibilisation stategy, Brainport is striving for a work guarantee rather than a job guarantee. If people lose their job at a high tech company, Brainport tries to retain those workers for the future by reintegrating them across sectors. For example, workers are placed within knowledge institutes in the region, and after a number of years, they can return to high tech companies with new knowledge from these knowledge institutes. Reintegrate workers across sectors: *"You can lose your job, but we make sure that you find a new job within South-east Brabant…For knowledge workers, that means that they land in a sort of environment, where the increasingly flexible labour market is tackled in a quite flexible way. That is an extra pre for knowledge workers in this region." (Economic Affairs and Culture, Municipality of Eindhoven)*

Infrastructure

Apart from employment opportunities, also the good accessibility of the region was frequently mentioned as a major strength of the region on the hard side during the expert interviews. This concerns the location at major nodes in the highway and the railroad networks, but also the relatively short distance to major urban areas such as the Randstad, Antwerp, Brussels and Cologne. Although Eindhoven's location is peripheral in the Dutch context, it is located centrally from a European perspective. Furthermore, expats, especially those from countries like the US, China or India, have different definitions of far and nearby.

In terms of infrastructure, Eindhoven is a major node in the Dutch national road network and is well accessible by train. The city region is close to both the Belgian and the German borders and therefore has good road connections to Antwerp and Cologne. However, its airport offers only few connections to large European cities (Fernandez-Maldonado & Romein, 2009).

In the Eindhoven urban area, there is a high-quality public transport system, the *Phileas*, which consists of electric automatically driven buses driving on free bus lanes. The project started in 1998 and currently there are two lines where Phileas buses are operating: one connecting the railway station with the airport and one connecting Eindhoven and Veldhoven. Plans are being made for further expansion of the high-quality public transport system with more lines, improving the connections between the centre of Eindhoven and the other employment and residential sub centres (SRE, 2009; Interview Sector Public Space, Municipality of Eindhoven).

Regional governance

Another strong aspect of the Eindhoven region on the hard side is the strong regional governance structure. According to all the interviewees, cooperation between public and private partners and education institutes, the Triple Helix, is working efficiently, and according to some respondents, Eindhoven is an example for the Triple Helix is further developed than elsewhere in the country. The Triple Helix is institutionalized in Brainport Development: all parties, government, education and private sector are together at one table to determine the policy agenda together to improve the attractiveness, or rather the economy of the city. This has resulted in the programme Brainport 2020, a task form national government, which has defined future goals, an action programme and a task division. The programme falls apart into all types of projects and activities, carried out by the party most eligible to do that, but always in cooperation (Sector Strategy, Municipality of Eindhoven). The Triple Helix enables short communication lines between local companies, knowledge institutes and authorities, as well as quick anticipation on new developments (Economic Affairs and Culture). These short lines are an advantage to knowledge workers settling in the region, as it helps them to build a career and switch between different companies: *"That is also one of the advantages of this region: the cooperation between private enterprise, knowledge institutes and the public sector, how that is organized in the Triple Helix and how that chain is functioning. Thus, if you are employed by one of these companies, you are at the same time part of a larger chain of large and small firms, spin-offs of universities and education institutes, or of companies themselves, in which later in your career you can take steps." (Expat centre Southeast Netherlands)*

The Triple Helix is also seen as a way to integrate newcomers to the region quickly into the regional networks: *"The Triple Helix way of thinking should be applied broader than only in the business or economic sphere. So that if someone comes to live here, there is a certain hospitality, so that not only in terms of work, but also with your family and socially, you arrive into a [warm nest], that you can feel at home here quickly, so that you can meet people at the individual level, but also with organizations or institutions that you need. Or that you enable people to meet them on a short term." (Economic Affairs and Culture, Municipality of Eindhoven)*

4.4 The Brainport Eindhoven region's soft conditions: housing market, image, social climate, authenticity and cultural and leisure amenities

Housing market and living environment

Whereas in the Amsterdam region, apartments are overrepresented and affordable family dwellings are scarce, the Eindhoven region has a large supply of (semi-)detached family dwellings for a reasonable price, but is lacking a highly urban milieu. There is limited supply of housing units in the city centre, which are precisely the type of dwelling preferred by younger high-skilled foreign workers and creative people (bohemians). The following quote from a local expert illustrates this problem: *"The highly urban environment, that is a challenge for us. Expats are particularly seeking highly urban living near the city centre. And that is a challenge for us, to keep up with developments, such as De Witte Dame, De Regent. We have too little of that. At Strijp-S, that highly urban climate is being planned" (Sector Area Development, Municipality of Eindhoven)*

"What you see at Strijp S is our response to the highly urban component that was absent until now. Can you offer more choice? If you look at the level of the municipality, we have fantastic rural residential environments, very close to the city. Even within the city there are very rural living environments very close to the centre. And adding more diversity, different tastes, not only taking into account the Dutch consumer but also the international consumer, whether he is a knowledge worker or not." (Sector Strategy, Municipality of Eindhoven)

This is due to a combination of deficits in the municipal construction programme and rising numbers of one-person households. There is limited availability in the social housing sector and limited affordability of owner-occupied houses of the size they need. This makes it difficult to retain students after graduation. Eindhoven is aware of this problem, and recent housing development projects are dominated by apartment blocks, either newly constructed (Vesteda-toren, Hartje Eindhoven) or in transformed industrial buildings (Strijp-S). Also, the municipality is working on a convenant for student housing, in cooperation with the province, housing corporations and the expat center.

However, for knowledge workers with higher incomes or arriving with families, the region has a large offer of housing which, compared to the Randstad is more affordable. Although the small scale of Eindhoven has disadvantages in terms of the size of critical mass, it may also appeal to knowledge workers who are not necessarily attracted to large metropolitan areas but feel more at home in smaller towns: *"<u>The</u> knowledge workers does not exist; they are all individuals with their own preferences, but what might make the city interesting is that the city has a manageable scale. If you do not feel at home in the metropolises, but more in talent town-like settings, a sort of secondary city compared to capital cities such as Amsterdam. You are here in a more small-scale environment that can offer special qualities in terms of living and social connections." (Sector Strategy, Municipality of Eindhoven)*

The compact size was also considered an advantage for designers, who are this way able to stay in touch with the whole production line: *"Everything can be reached within cycling or walking distance, so within 15, 20 minutes you can be in touch with the production industry every day to follow the production process of the intended design." (Economic Affairs, Municipality of Eindhoven).*

Since a significant share of Eindhoven's knowledge workers comes from abroad, also information regarding access to housing should be internationalized. In several of the expert interviews, it was emphasized that Eindhoven does not have a housing portal in English and housing contracts are only set up in Dutch. Although *Rooftrack* is a nationwide portal, only seven dwellings in Eindhoven were available on June 10 2013, for example, compared to 235 in Amsterdam (www.rooftrack.nl). However, some of the larger companies that attract many foreign workers, such as ASML, are very active in assisting their workers with finding housing.

The municipalities in the region are largely complementary concerning the housing market. Whereas the core city of Eindhoven, and to a lesser extent the city of Helmond, offer the urban residential milieu, the surrounding municipalities have a large supply of suburban or rural residential milieus in a green environment: *"It is quite complementary. There is a clear urban-rural division in the region. Distances are also not so big that there are large hiatuses or surpluses. You can live rural and be in the centre of Eindhoven within 20 minutes, and the other way around. And if you want to live in an urban setting that is possible, and still you are in the nature within short time. That is an advantage, that those distances are small, that you have both within reach, both the rural area and the city." (SRE)*

<u>Image and social climate: tolerance and diversity</u>

In terms of ethnical diversity, Eindhoven ranks eighth in The Netherlands (Marlet & Van Woerkens, 2005). Some of the local interviewees indicated that Eindhoven has a long tradition of tolerance towards people coming from outside. This is explained by the fact that the city's growth has been largely based on workers that were recruited by local industries, first from other parts of the Netherlands and later from other countries as well:

"In social terms, I think this is a tolerant region where people find it interesting to do things with people from outside Eindhoven. Eindhoven has originally been a city where migrants of all sorts have been able to find their place. There has always been a large influx. First from other parts of the Netherlands and later from Europe and the rest of the world. So you have a culture, an atmosphere in which it is normal that people are not all born and raised in the city or the region, and have a tolerant and open attitude." (Municipality of Eindhoven, Sector Strategy).
"One hundred years ago, people from Gelderland and Drenthe came to work here. So Eindhoven has always had a culture to welcome new people. In the sixties, especially Spaniards came here…So that is different than in the other cities in Brabant, that Eindhoven has been a melting pot for people from all parts of the world for one hundred years, and that is also part of the city's culture. I think that makes it easier for people from outside; they are not confronted with a homogeneous, closed community…I think if foreigners made the effort to settle here, they will not regret it in general." (Sector Public Space, Municipality of Eindhoven)
Over the past twenty years, the city has also become much more international. The English language is being used more and more during events and there are international progammes at theatre. Some events even have a direct link to other cultures, such as Glow and the light festival of India, Diwali, and every year, an Asia-week is being facilitated: a mini-festival, in which each community has its own day of festivities. Furthermore, the international school is not only important for education in English language, but also functions as a meeting place for internationals. A survey among internationals by Buiskool & Grijpstra (2006) brought forward that international workers in Eindhoven highly value their social contacts at work and with other international workers. However, social contact within the neighbourhood, at clubs or associations, at religious organisations and in general with autochthonous people were rated less good. These findings indicate that international knowledge workers find most of their contacts during their work and within the international community. However, there was an expressed demand for more events which stimulate intercultural contacts (Buiskool & Grijpstra, 2006).
However, in general terms, Eindhoven's image is lagging behind with its ambitions. Despite being the fifth city in The Netherlands, the city does not possess the look and feel of a large city. Rather, the city has a reputation of being 'boring' or 'provincial' (Brouwer et al., 2011). It is not as diverse and multi-cultural as the other major Dutch cities and it is 'peripheral' by Dutch standards. Rather, Eindhoven is considered a 'big village' known more for the natural resources in its surroundings (De Kempen) and the presence of large industrial firms than for its urban and cultural strengths: *"It is still like a village; we want to profile ourselves as a city, but we have to grow into that role…So if you speak of the weak points of the region, what Eindhoven is missing, than we lack a sort of natural attractiveness such as Amsterdam in terms of being a world city... It does not have a touristic character, people do not come here for holiday… If people are here I can imagine that they stay because of those qualities, but we are not known for those qualities." (Sector Area Development, Municipality of Eindhoven)*

Authenticity and historical amenities

A shift in mentality has taken place since the 1980s regarding the valuation of Eindhoven as a manufacturing city. Whereas previously old industrial buildings that became dysfunctional would have been demolished, since the 1980s the preservation of industrial heritage has become the new policy. Four prominent examples of transformed industrial heritage are found in the inner city, alongside Emmasingel. The *Witte Dame* (white lady), a large white former Philips plant, was nominated for demolition by Philips at the end of the 1980s. However, protest led by artists strived for the preservation of the building, resulting in the eventual refusal by the municipality to grant permission for its demolition. A new destination had to be found for the building and Philips invited developers to come up with proposals. Development company 'deWitteDame' came with the plan to transform the building into a home for several institutes involved in design. Nowadays, the building is accommodating the Design Academy, Philips Corporate Design, the public library and the Mu Art Foundation. Its neighbour, the *Lichttoren* (Light tower, see figure 4.6) has once been the headquarters of Philips Lighting, but has been transformed into a multifunctional building with housing and work spaced at the upper floors and recreation amenities such as a bar at the ground level. Opposite the Witte Dame is the *Bruine Heer* (brown gentleman), which also has once been the headquarters of Philips. This building currently houses several companies and the office of Brainport Development. On the same side of Emmasingel, the factory building where Philips developed its first light bulb can be found, which currently houses the Philips Museum.

Figure 4.6 Lichttoren, with adjacent to it De Witte Dame: two symbols of Eindhoven's industrial past

A second spot where industrial heritage has been transformed into new urban use is *Strijp-S* (figures 4.7a), a mixed-functional district just outside the inner-city that is being developed on a former Philips industrial site, abandoned due to reorganisations and relocations. The district consists of a combination of former industrial properties from the late 1920s and early 1930s redeveloped into creative workplaces, cultural facilities and housing on the one hand, and newly constructed housing on the other hand. The area has a number of monumental buildings with architectural and historical value, including *Hoge Rug*, *Klokgebouw* (Clock building, see figure 4.7b) and the *Veemgebouw.* These buildings are now re-used as combined work, residential and recreation spaces. A park (with the name *Park Strijp*) will be realised to compensate for the lack of green in the area. A newly constructed public transportation system (HOV) and underground parking guarantee the area's accessibility. Strijp-S will be ready when Park Strijp has been realised in 2017. Different types of activities have been planned for this area: residential activities (275,000 m²), offices (114,000 m².), various types of facilities (29,000 m²) and educational services (15,000 m²). The idea is that Strijp- S should become a high quality living and working environment with urban allure. In this respect, the presence of cultural activities and of activities that belong to the creative industry becomes of fundamental importance. They not only contribute

to the attractiveness of Strijp-S but also to the economical sustainability of the development plan (www.strijps.nl).
Strijp-S has developed into a hotbed for creative industries and is also targeted at these specific users, by offering small-scale business space or studios to students or graduates who want to start their own business: *"The development occurring at Strijp-S is internationally very attractive, the combination of old factory buildings with all kinds of new functions. So then you talk about buildings where all sorts of small companies are located, who make use of each other's knowledge, experience and support, in which all kinds of cultural activities take place as well." (SRE)*

Figure 4.7 Strijp-S: Philitelaan (left, a) and Klokgebouw (right, b)

Apart from industrial heritage, reconstruction after World War II has done very little regard for the city's historical heritage. Eindhoven's image is that of a business-like city, rather than of a bubbling city that is attractive for students and young knowledge workers. Making the city centre more attractive is therefore one of the main targets for regional stakeholders and Triple Helix Partners. Several of the local experts acknowledged that Eindhoven is not a touristic city and does not have the typical atmosphere that is found in old city centres such as Amsterdam, Antwerp, or more close by in 's-Hertogenbosch or Breda: *"This is not a city that wants to become a museum" (Municipality of Eindhoven, Sector Strategy).* Eindhoven does not have historic centre, due to a number of fires, bombings and urban restructuring by the municipality during the 1960s. Still this was not considered necessarily as a problem by most of the interviewees. Rather, they emphasized the excellent work climate that the region offers, which is more appealing to technical workers than soft factors: *"Eindhoven is not a city with attraction for tourists. If that is something a knowledge worker is looking for, you will not find that in Eindhoven in first instance. That is something we need to work on, to have that kind of look, in our own way of. We have to course, because we will never be a touristic city with canals and nice squares. It is a less well-known city in that respect, especially internationally, but on the other hand, we do have a fantastic work environment and that is what attracts people." (Sector Strategy, Municipality of Eindhoven).*
The lack of an historic inner city also has a positive side. Several local experts mentioned that the absence of historic building and the related regulations makes it possible to create the city centre exactly according to wish. As such, the inner city can be used as a laboratory for modern highrise buildings and other architectural experiments. Examples are the two large 'bulbs' at 18 Septemberplein, right in front of the monumental *Lichttoren*. Also, modern architecture has been placed

alongside historic buildings. The Bruine Heer is connected to the *Admirant*, a 105 metres high residential tower. The first five stories of the tower are built in the same style of the Bruine Heer. Also the *Van Abbemuseum* has a new wing that was opened in 2003, adding modern architecture to the original 1930's building. This combination of old and modern was mentioned by some of the experts as being part of the 'new identity' of Eindhoven, of which local residents increasingly are proud: *"The nice thing is that in Eindhoven you can do things in urban development, which give you much freedom because you cannot mess up much…So we think culture history is important, but we deal with that in a way that fits Eindhoven: renewing, innovative, seeking boundaries and wanting to stand out in that respect…Respecting the old building, and that is best done by clearly marking the difference between what is old and what is new." (Sector Strategy, Municipality of Eindhoven)*

In addition, the relatively short distance and good connections to historic cities was mentioned regularly as a compensation for the lack of a historic inner city. According to some of the interviewees, the relevance attached to historic buildings is also different for each group of knowledge workers, especially depending on the culture they come from: *"Germans or Belgians will be more sensitive if they want to live here, for [they will think] 'hey, I miss that historic character', whereas someone from Asia thinks 'fine, that is modern'. If you can make technology and design visible in the city, with a 'blob', a 'Piazza', Strijp-S, where there is historical heritage - but a different type of heritage- then you can be an attractive city for those groups." (Sector Area Development, Municipality of Eindhoven)*

A strategy in Eindhoven to deal with vacant industrial heritage is to grant potential investors the freedom to design their own working or living spaces. In terms of policy, the municipality does not come up with ideas, but is open to plans and facilitates where possible. Its role depends on the situation: *"If you have the possibility to design your own housing preference, then you can create your own place, and that is what appeals to many people, and especially the creative sector who see many chances there." (Economic Affairs and Culture, Municipality of Eindhoven)* Prominent examples of this policy are the NRE-site, a former gas plant which now has mixed function. The municipality makes use of market consultation to find interested parties who want to do something with that land. The municipality does not have concrete plans for the site, but rather facilitates projects by potential users (Sector Strategy, Municipality of Eindhoven). Other examples are Mariënhage, Bouwflat F at Strijp-S, and the site of architect Piet Hein Eek at the mixed living and working area of Strijp-R, adjacent to Strijp-S. Piet Hein Eek has bought a building there, with helkp of the municipality, which apart from his office hosts a restaurant and workspaces for creative workers. Eek was given the freedom to design his own company building, and his presence further attracts other creative workers and residents: *"He owns 10,000 square metres. In an old Philips building, he has his own company. That is a nice example of how creatives look at locations. His workspace is totally made out of glass, and through the glass you can smell the wood, so you can smell the craftsmanship he stands for with his product. And outside there is a street and everywhere there are windows. So the people who come to live there can see what happens inside…Amvest has realized that attracting Piet Hein Eek at that site is a certain attraction factor, because it is a residential location." (Economic Affairs and Culture, Municipality of Eindhoven)*
"Piet Hein Eek is one example of that, both national and international appeal and re-use of old materials in new products. Piet Hein Eek does that in the same manner. He bought an old Philips building in which he is located with his company, but he combines that with other suppliers of products and culture. He is exhibiting part of the collection of the Van Abbemuseum there permanently…there are also catering amenities, because in the weekend that is a well-visited spot for people who want to combine things. So in that sense, it has a double function." (SRE)

Eindhoven’s active policy to stimulate the use of empty real estate for ateliers and the attraction and retaining of big names in the design sector have significantly improved Eindhoven’s attractiveness for young creative workers, who previously would trade Eindhoven for Amsterdam immediately after graduating: *“That is an active policy that has resulted in students from the Design Academy, many of them are international especially in the masters, because of the reputation of the Design Academy, but also the Dutch students in the bachelors: once they had their diplomas, they immediately went off to Amsterdam or Rotterdam, because you did not want to be found dead in Eindhoven. That image has been changed, not in the last place because a number of big names in that sector moved here or stayed here. You can think of Piet Hein Eek, Kiki and Joost, Nacho Carbonel, Andre Amago. They are icons in that scene. And that way, you also create clusters and ecosystems.”* (Sector Strategy, Municipality of Eindhoven).

The interviewees were more critical regarding Eindhoven’s ability to show what it is good at. Some of them suggested that the city should be used as a laboratory for its own innovations to a much larger extent: *“If we say that we are the top technological region, we should be in front in terms of, for example, Brainport applications in street lightning, and then we have a project that shows that you can use them as wifi spots. And we are the first to do that…We have lots of technology in the region, but the strange thing is that the place where this is shown is sometimes not in Eindhoven, but elsewhere. We are still not very good at expressing these things in our own environment…We have of course the HOV [high quality public transport] concept driving here in the city, the Phileas. And there you can see: the technology is in the Phileas. And there are many things that we want to show, literally as a laboratory, here in the city.” (Economic Affairs and Culture, Municipality of Eindhoven).*

“If we realize a creative breeding space, we are aware that if there are windows, they are not being covered with paint because the person working inside prefers to be in a closed space or only with windows on the square side. But that at the street side, like a shop-window, it is being shown what happens inside.” (Economic Affairs and Culture, Municipality of Eindhoven)

Furthermore, there are concrete plans by the municipality to use creativity, design and technique as solutions for solving quality of life issues. Examples are the use of light in public space, and the creation of quiet spaces or dynamic spaces. Students are actively stimulated to contribute to these projects by coming up with innovative ideas through the *Brainport Innovation Award*: a prize for the best plan. *“These are things are not really hard, but they contribute to the entrepreneurial and innovative climate, which we think is also good for knowledge workers.” (Economic Affairs and Culture, Municipality of Eindhoven).*

<u>*Cultural and leisure amenities*</u>

Culture has been high on the political agenda in Eindhoven for several years, since it is seen as both an important precondition for the attractiveness of Eindhoven for innovative activities and for the human capital that these activities require, and for the creative industry that may flourish around more traditional R&D activities. New museums, concert venues and several restaurants and bars have been added over the past decade and special attention is paid to offering English programmes for international audiences. This strategy, titled *Eindhoven Innovative City of Culture* has improved Eindhoven’s reputation as a culturally interesting place (Van der Borg & Russo, 2005). Eindhoven is currently a candidate for European Capital of Culture 2018.

This emphasis on culture is relatively new for Eindhoven and is a deliberate strategy to make the city more attractive for (international) knowledge workers: *“What is present in terms of culture has to be made more visible, not only in public space, but also from places where culture is present or being developed. Much still takes place behind closed doors… Much is being connected to* *events such as Dutch Design Week or Dutch Technology Week, but that may be more structurally present, visible, in the city, also to increase the attractiveness of the city. Because especially the creative sector is really good to look what the consumer, the user of the city, what his needs are, and then connect to that." (Economic Affairs and Culture, Municipality of Eindhoven)*

"When I started working here in 1998, there was a discussion whether we needed a new Effenaar or a new Dynamo, both youth centres, or rather a new hall at the theatre. And then the chairman of the university at the time said: no, we should not do or/or, we should do and/and. We need all of these things in order to make these people, who apparently have the whole world as their workplace, choose for Eindhoven" (Senior policy advisor Public Space, Municipality of Eindhoven)

Currently, in terms of cultural amenities, Eindhoven has a small but high quality supply of museums, theatre and music venues. The city hosts several museums, the *Van Abbemuseum* of modern and contemporary arts being the best known and most visited (approximately 98,000 visitors). In April 2013, the *Philips Museum* opened in the factory plant where Philips' first light bulb was manufactured. In *De Witte Dame*, one can find the museum *Mu*, whose collection combines contemporary arts with design, fashion, music architecture and new media. Other museums include *DAF Museum*, *Ton Smits House*, *Milieu Educatie Centrum* (environment education centre), the pre-historic open air museum *Eindhoven Museum* and the photo archive of the *Regional Historic Centre Eindhoven*.

The city also offers a number of venues for classical and popular music. *Muziekgebouw Frits Philips* is a venue for musical performances, covering a broad range of styles in both the classical, popular and world music genres. *Effenaar* is a cultural youth centre, which accommodates popular music concerts and dance events, as well as a restaurant. Over the past years, *Klokgebouw,* a former Philips plant located in the Strijp-S district, has become one of the main pop venues of the southern part of the Netherlands, listing performances by Dutch and international bands and artists in the main hall with a capacity of 4,000. A smaller venue aimed at young and more alternative target groups is *Dynamo*.

Park theatre is a theatre venue, previously known as Stadsschouwburg, which after 2007 has been enlarged with the multifunctional Philipszaal and a restaurant. The programme also includes performances in English in order to be attractive for the international community in the city. *Plaza Futura* is a multifunctional cultural venue in the city centre, combining music, theatre and cinema, avant-garde and local artists.

Although no longer in use as a science museum, *Evoluon* is a landmark building in Eindhoven, with a futuristic design from 1966 resembling a flying saucer. Nowadays, Evoluon functions as a conference centre, but could be used more intensively as venue for important cultural events (Van der Borg & Russo, 2005).

Being the fifth city of the Netherlands without a capital function, Eindhoven does not possess the cultural tradition and the supply of cultural facilities that characterises cities like Amsterdam, Helsinki and Copenhagen. Especially by young international knowledge workers, this is sometimes regarded problematic, since some of them use the large cities in their home countries as a reference: *"These highly urban amenities, that is something which you especially hear from young international knowledge workers, that certain groups are missing certain aspects. I think that is less of an issue for knowledge workers from elsewhere in the Netherlands, since you will find that nowhere in the Netherlands. So you do not have that reference, I think that causes the main difference." (SRE)*

Still, the local experts mentioned that for a city of its size, the cultural supply is above standard: *"But I think that for such a small city, 220,000 inhabitants, we have a very high level of amenities. Both in terms of culture, with a Muziekcentrum that in terms of acoustics but also in terms of* *programme, ranks second in the Netherlands, but also a theatre, nowadays called Parktheatre, and sports amenities that surpass an average city of 220,000 inhabitants. So in that sense, being small is compensated, by the high-quality amenities and the relative proximity of these other cities." (Senior policy advisor public space, Municipality of Eindhoven)*

In addition, the relatively short distance – certainly from an international perspective – and the good road and rail connections to larger cities with a rich cultural supply, such as Amsterdam or Antwerp, were mentioned as strongholds that can compensate for the small scale of Eindhoven during several of the expert interviews. One of Eindhoven's most distinctive hard factors, its good accessibility by road, rail and air traffic, is therefore seen as a means of accessing the soft conditions in other cities: *"Dutch people think everything is far, but for international people, driving 100 kilometres is not far at all. So it is also very good that from Eindhoven, for work but especially also for culture, you can be in Amsterdam, in Rotterdam in Antwerp, in Cologne or in Aachen within one hour."(Senior policy advisor public space, Municipality of Eindhoven)*

Eindhoven is particularly active in the organization of events related to high tech and design, and in this respect Eindhoven distinguishes itself from other cities. The Glow festival, the Dutch Design Week and the Dutch Technology Week are visited by an increasing number of people from the whole country. These festivals are regarded an attraction factor for knowledge workers and are also seen as a way for Eindhoven to distinguish and promote itself as a technology and design city where interesting and unique things are happening: *"It is an illusion to think that we can create an ambiance like in Antwerp or Amsterdam here in ten years. We simply do not have that. So then we have to cherish that proximity and also do nice things ourselves, which you do not have in Amsterdam or Antwerp…Light festival Glow is here every Fall, which is very popular with everyone, and which is also free. Dutch Design Week always attracts a lot of people. These are things Eindhoven is good at and for which people travel from Amsterdam and Antwerp to here. And that makes it interesting also for international workers, I think, that these things happen in the city where they live". (Senior policy advisor public space, Municipality of Eindhoven)*

"These festivals become bigger and bigger and are increasingly known internationally. Glow was even too crowded last year…It really is an attracting factor, and people come from all of the Netherlands especially for that. It is also a nice way to show your city and let people think 'well, have I ever. Perhaps if I can find a nice job here I would want to live here'…If you can be in different parts of the world, then it is fun if you can be somewhere where you not only work but where you also experience nice things…As a city: it is no Den Bosch or Breda, with an old historic centre. But speaking for myself, I started to appreciate Eindhoven more and more; it appeals to me that so many things happen in all fields. The Glow Festival, Design Week, these are really things you would not experience in other cities." (SRE)

One of the interviewees mentioned that the cultural amenities, especially the Muziekcentrum and Park Theatre, still largely attract an older Dutch audience, which may be related to the fact that ticket prices are high and many young knowledge workers are not in the highest income groups, contrary to what is often thought (Interview Sector Public Space, Municipality of Eindhoven).

A study by Buiskool & Grijpstra (2006) indicated that international knowledge workers valued with the quality of cultural amenities, such as theatre, popular concerts, classical concerts, as average, whereas sports activities and the library are valued more positively. Workers under 35 expressed lower satisfaction with all amenities, except the library, than older workers. Specifically the following points for improvement related to amenities were mentioned by international knowledge workers:

- Improving atmosphere and image of the city of Eindhoven, especially in terms of a more international character

- More diversity in night life (pubs and restaurants)
- More international / English programme (festivals, theatre plays etc.)
- More restaurants with an international kitchen
- More information about cultural and sport activities in English
- More flexible opening hours of shops and cafes (evening and weekends)
- Lower prices of theatre and sport facilities
- More social gatherings for intercultural contacts
- More open places for recreation (natural environment) (Buiskool & Grijpstra, 2006)

Particularly the lack of catering outlets in the higher segments was recognized by some of the interviewees, and considered an important point for improvement. The bar-restaurant Usine, in the Lichttoren, was mentioned as a good example of such high-standard catering outlets that are attractive for highly-educated (international) workers (Interview Sector Strategy, Municipality of Eindhoven).

Still, the importance of cultural amenities was nuanced by the interviewees, as these play only a secondary role behind work: *"It is important, but not crucial for a knowledge worker. I do not think that the Philips Museum and Glow are crucial; it is rather a combination of aspects. Housing is important, however, because if in the battle with Munich you can find a cheaper house here, that could make the difference… I think it is an integral story: you always include it in your branding. What they want to know in the first place is: what is the salary like? How does the tax system work? How much does a house cost, or an insurance, childcare?... I think the real living in aspects are related to people not leaving after half a year… And still then it makes a difference if it is someone from Ireland or from Shanghai." (Brainport Development)*

Also, one of the interviewees considered these urban amenities only important for certain international knowledge workers, depending on the reference points in their home country: *"I think there is a difference between international knowledge workers and people from the Netherlands. These highly urban amenities, that is something you hear from young international knowledge workers, that certain groups are missing things in that respect. I think that for knowledge workers coming from other parts of the Netherlands, that is much less important, because you will in fact find that nowhere in the Netherlands, so that reference is absent. I think that in particular makes the difference" (SRE).*

The role of cultural amenities was considered larger in terms of image building, which helps to distinguish the region from other regions that have a similar economic profile: *"It is a matter of image. Your image may never be empty, so you have to fill your image with distinguishing things. And I think we have a couple of such things in Eindhoven, and we are getting better in showing that." (Brainport Development)*

"The balance between the left and right side of the brain…You need both, and both are present. That brings balance in the city...The soft location factors increasingly play a distinguishing role, because every city has business parks and office locations left". (Economic Affairs and Culture, Municipality of Eindhoven)

4.5 Where do knowledge workers live in Brainport Eindhoven?

Previous research on the residential preferences of knowledge workers in Eindhoven

A small number of studies have gained insight in the residential preferences of highly skilled knowledge migrants in the Eindhoven region. The first one, by Buiskool & Grijpstra (2006) de-

scribes a survey among international workers on their valuation of different aspects of living in Eindhoven. Their sample mainly consists of male persons (almost 70 percent) and young persons: almost half of the sample was younger than 30 years and almost 40 percent was between 30 and 40 years old. A clear distinction can be made between workers at the technical university, who in general are younger and have lower incomes, and knowledge workers working for private companies. Most of the respondents included in their survey live in the city of Eindhoven, and outside Eindhoven the largest concentrations are found in Veldhoven, near ASML, or outside the region in 's-Hertogenbosch or the Randstad. From the international knowledge workers 42 percent live in an apartment or flat, whereas 35 percent have a single family dwelling (35 percent), almost equally spread between detached, semidetached, corner house and terraced houses. Excluding the group of international knowledge workers working for the university, a higher share (55 percent) is living in a single family dwelling. Most of the international knowledge workers rent their accommodation in which they are living (around 70 percent), while one fifth is owner-occupier. Almost 10 percent of the international knowledge workers live in an accommodation which is rented or owned by their employer (Buiskool & Grijpstra, 2006).
Regarding the housing situation and their living environment, the international knowledge workers were in general satisfied, but also mentioned a number of points for improvement. These points for improvement are either related to the supply of housing or the accessibility of the housing market. Concerning the supply, the international knowledge workers expressed the need for increasing the volume, diversity and quality of accommodation in the Eindhoven Region. These items were rated as poor or very poor by 40 to 50 percent of all respondents. Particularly, there was high demand for 1-2 bedroom apartments and also for furnished flats. Concerning access, the price of housing was rated negatively by almost 70 percent of all international knowledge workers. In addition, the long waiting lists at agencies were regarded problematic. Furthermore, the international knowledge workers indicated a demand for more information on the housing market, particularly in English language, and more guidance and assistance with finding accommodation, either through a central contact point for foreign workers or through the employer (Buiskool & Grijpstra, 2006).
More than 60 percent of the international knowledge workers came to the Netherlands because they considered it as a career opportunity, and almost 50 percent mentioned the attractive scientific climate. Approximately a quarter of the international knowledge workers considered moving to the Eindhoven Region as a strategy to gain international experience. An equal percentage came to the Eindhoven Region for study reasons. Almost 15 percent came to the Netherlands because of the social, economic, political and cultural climate, but almost none mentioned the Eindhoven Region as place of residence as the main reason for moving to the Netherlands (2 percent) (Buiskool & Grijpstra, 2006).
The second study was conducted by Vriens & Van der Dam (2011), which was based on a survey among international workers. The international knowledge workers in their sample largely came from Asia (China, India), Eastern Europe (Romania and Poland), but also from Brazil, the USA and Turkey. The monthly net income of knowledge workers at education institutes is around €2,000 euros, and these people are in general below 30. Knowledge workers at private companies in general have higher incomes, approximately between € 30,000 and € 40,000 a year.
Based on their results, most of the knowledge workers seek housing in or close to the city centre, with a preference for independent housing, rental dwellings, apartments and studios. Also high demand was expressed for all inclusive housing: furnished dwellings, including internet and telephone connection, and including energy and service costs.

Regarding the price that international knowledge workers are willing to pay, there is a large difference between workers at educational institutes and workers at private companies. Workers at education institutes seek housing up to €550 euro a month, and supply in this category is limited outside the social rented sector. Corporation Vestide has taken care of the accommodation of this group in student housing, leading to the displacement of students for whom also a lack of housing is available in the city. Workers at private companies, on the other hand, hardly face problems with finding accommodation. The larger companies arrange housing for their foreign employees and are familiar with their wishes, or at least they have good contacts with suppliers of private rented dwellings. In some cases the employer pays for housing costs, and their higher income enables them to seek in more expensive segments of the housing market, in which there is a large offer. Problems are thus mainly with younger workers who seek affordable apartments near the centre (Vriens & Van der Dam, 2011).

Popular districts for knowledge workers

It is often presumed that international knowledge workers, certainly those in technical sectors, prefer to live in quiet communities in green areas, in line with Kotkin's (2000) 'nerdistans'. Some of the interviewees confirm this assumption, and mention that technical workers more than alpha knowledge workers tend to have suburban residential preferences: *"The knowledge worker does not exist, that is a very broad category [breed palet]. The technical worker is different than the alpha. Our attractiveness is especially for the technical knowledge workers at the moment. "That is different for each knowledge workers, and therefore many settled outside Eindhoven, in the region…From several studies, it shows that cities become increasingly important for knowledge workers as direct place of settlement. Workers in technical sectors have a somewhat different profile, because, more than in Amsterdam, they tend to settle, at least regarding place of residence, in surrounding regions, not necessarily always here, but it clearly has an increasing attraction factor."(Economic Affairs, Municipality of Eindhoven)*

Other interviewees, however, were more sceptical toward the statement that (international) knowledge workers have different residential preferences than others. Rather, differences in residential preferences are linked to demographic aspects, in line with some of the European literature presented in Chapter 2: *"I do not believe in the housing preferences of international knowledge workers…I think they are just people and it does not matter where they are from. It depends more on their family situation, the moment in their life. They are comparable to their Dutch counterparts, but the group of knowledge workers entering is not necessarily equal to the composition of Dutch society. So if you need certain types of residential milieus in the Netherlands, this looks different for international knowledge workers because the composition of the group is different. I do not believe there is a distinction between international and Dutch knowledge workers, but you will see that Dutch knowledge workers will start a family and get children earlier, etc. Young families with children will leave the inner city earlier. But in general young international knowledge workers, if they live alone or as a couple, want to live in the city…that is our experience. So the wishes are the same, but the route towards those wishes is adapted to and for Dutch people. So that whole process is more difficult to access for an international knowledge worker…that is an issue. And they rent much more often than buying, because of their type of contract, they want to leave after some time." (Brainport Development)*

"The question is: does an international knowledge worker have different residential preferences than regular housing consumers? And I think the answer is no. Except for a small group, since some people come only for a very short period, the real short-stay. You have to arrange something for them…But the people who stay longer have the same wishes as you and I. Do you really

have to make special arrangements for them? In that respect, here in the region we have quite a lot of possibilities for housing amenities, since we have both an urban environment and a rural area." (SRE)

Rather, the interviewees state that many of the international knowledge workers are young and come without a partner, and prefer to live in central parts of the city: *"When we talk about young knowledge workers we understood that they do not want to live in green areas at all, which is often the prejudice, but they want to live in the centre, where it all happens." (SRE)*

According to one of the interviewee, even a housing plan was made by province of Brabant – but never pursued- to create a village near Eersel where international knowledge workers can live together, because it was presumed that they want to live in quiet, green environment. However, no internationals were interviewed and according to the interviewee, such a living environment does not at all match with the residential preferences of many international knowledge workers: *"First, it is not true. You want to stimulate integration, not compulsory, but these are smart people who want that. Second, they prefer to live in the city, and the average age is quite young, 67 percent has no children. And otherwise I think they would rather live in the village of Eersel, next to a normal Dutch neighbor. An international knowledge worker is just a normal human being, with the same preferences as you and I. If 67 percent is young, you have to look at residential preferences of young people and for the other 33 percent you have to look at their social characteristics. So then it does not make a difference if he is from Groningen or from Paris" (Brainport Development).*

According to some of the interviewees, there are also no large concentrations of knowledge workers or even international knowledge workers in certain parts of the region. Still, some parts of the city and region tend to be a bit more popular with international knowledge workers than others: *"I think they live more in southwest than in north. And also a bit in Waalre. But there are no expat neighbourhoods" (Sector Area Development, Municipality of Eindhoven).* The city centre and its surrounding neighbourhoods, including a number of new residential towers (Vesteda-tower, Hartje Eindhoven), as well as the districts near the international school and near the A2-axis (including the High Tech Campus and ASML) are more popular. Especially young international workers prefer diverse inner-city districts: *"North of the centre there is the Kruisstraat, that is a multicultural neighbourhood with a well-known market. And knowledge workers appreciate that: they say we think that is great, we can buy this and that at the Moroccan. And those kind of things, of which you think they do not attract knowledge workers, those things they do find very interesting….So I think also things we have already had for a long time, the multicultural, that can be attractive for knowledge workers." (Sector Area Development, Municipality of Eindhoven).*

However, workers in cultural industries appear to live somewhat more concentrated than professional workers, in line with some of the literature. The interviewees noticed large concentrations in Strijp-S and some of the older neighbourhoods in the central parts of the city. Especially the older neighbourhoods south of the centre are popular: *"They have more feeling with older neighbourhoods, and they are found in the south. And if you live in the south, you never go to the north." (Sector Area Development, Municipality of Eindhoven)* An example is De Bergen, which was first a creative district and is now one of the upmarket shopping streets in Eindhoven. The northern part is made up of many similar looking neighbourhoods, which is considered less interesting for creative workers.

But in particular the earlier mentioned industrial heritages sites are considered the main concentration areas of creative workers, especially in the design industry. These developments are specifically targeted at creative workers: *"The development at Strijp S for example, that is of national importance…You see that especially for people working with design and that sort of things. For* *them it is really an attracting factor…There is much interaction going on, there are many possibilities. And now you hear more and more that people who previously wanted to do something creative and left to Amsterdam are now coming to Eindhoven. So it really is a pull factor for creative industry." (SRE)* Some of the cultural events, which are also targeted at international knowledge workers, partly take place at Strijp-S. Furthermore, creative workers are offered cheap and flexible workspaces (ateliers), and networking possibilities are stimulated. An example is the Seats2Meat: *"That is the motor in Strijp-S, a place where ecosystem comes together, which is partly creative and partly solo entrepreneurs for whom the city does not do that much, because A) they do not want that and B) they organize themselves." (Sector Strategy, Municipality of Eindhoven)*

In addition, a concentration of students in the adjacent neighbourhood Woensel-West was noticed by some. These students are offered cheap accommodation, in exchange for a contribution to the local community.

4.6 Conclusion: Brainport Eindhoven' s strengths and weaknesses for knowledge workers

Clearly, Eindhoven's main strengths are in the hard factors of the region. The city region has a number of well-functioning clusters in high-tech manufacturing, IT, life-tech and automotive, and active policies to strengthen these clusters. Whereas the city is particularly known for, and thanks most of its strong growth in the 20th century to, Philips, the region is nowadays less dependent on one company but is home to three companies in the national Top 5 of R&D investors: Philips, ASML and NXP. According to all of the interviewees, work and career opportunities are also the main reasons for settling in the Eindhoven region. This view is supported by previous surveys among international knowledge workers in Eindhoven.

The city furthermore reinvented itself as a creative city, with a particular focus on design, helped by the presence of the Design Academy and the Technical University TU/e. Another strength of the region that was mentioned by all of the interviewees is the efficient cooperation between the public and private sectors and education institutes in a Triple Helix Structure.

The region's infrastructure is a stronghold, with good rail and road connections to other destinations in the Netherlands but also in Belgium or Germany. There are concrete plans to expand the regional public transport system. The city also has its own airport, although this serves only a limited number of European destinations and is standing in the shadow of Schiphol and the relatively nearby airports of Brussels and Düsseldorf.

On the hard side, a problem that Eindhoven is facing is a shortage of labour for the high tech sector, which is expected to increase further. The companies in Eindhoven demand very specific knowledge, and the Dutch technical universities still deliver too few graduates to fill in these vacancies. As a result, Eindhoven has to attract these workers from abroad, which is reflected in active internationally targeted branding strategies, including visits of Brainport Development to international career fairs, and strong network links with other European regions with a comparable economic profile (e.g., Aachen, Helsinki). The relatively small size of the university also psoses a problem through a lack of critical mass. These issues are tackled at the national level by a 'technique Pact', aimed at motivating youngsters for technical studies.

Another problem recognized by the local authorities is that these international workers are not hard to attract, but rather hard to retain if their spouse is not able to integrate and find a job. The Expat centre therefore has an active spouse program.

The soft side of the city has been given much attention by local policy makers and institutions, in particular through investments in making the inner city more attractive as an urban space, the

transformation of industrial heritage into new urban functions, cultural events and enlarging the cultural supply in English. However, all of the interviewees regarded the soft side as a secondary factor that strengthens the economic qualities of the region, rather than as a major attractor by itself. The cultural supply and, especially, the housing market, become important if other regions have similar career opportunities.
In terms of its cultural supply, Eindhoven is far behind Amsterdam and other large European cities, but has a significant cultural offer for a city of its size. Being the fifth city in the Netherlands, it seems a bit unfair to compare Eindhoven's cultural amenities to three capital cities, two of which are also a primate city in their country. Still, Eindhoven sets itself apart from other cities through its internationally oriented cultural events, which are strongly linked to high-tech and design. In that sense, Eindhoven also uses culture as an instrument to promote its hard side.
Eindhoven's major strength on the soft side is its large amount of green areas and nature, both within the city and in the wider region, and the large supply of relatively affordable –certainly compared to the Randstad region— family dwellings in a green environment. Based on the literature review, these assets make the city attractive for other groups of knowledge workers than those envisaged by Florida, especially older workers and settled workers with young children (Verdich, 2010; Frenkel et al., 2012). The interviewees also emphasized that beta knowledge workers to their knowledge do not have residential preferences that are significantly different from the general population. Rather, residential preferences are determined by household composition and life stage. In that respect, Eindhoven has been lacking residential environments attractive for younger people, e.g. singles, who prefer to live in apartments and near urban amenities. Over the past few years, the city has been active in filling this gap by building apartment blocks in and around the city centre (e.g. Vesteda Tower, Hartje Eindhoven, Strijp-S), and currently is working on a housing pact specifically for international students and knowledge workers.
Eindhoven is an attractive city particularly for its employment base and career opportunities. The city is a Star nicheplayer (Van Winden et al., 2007) that has a strong profile in high tech manufacturing, design and knowledge institutions. The city lacks a diverse economy, but is among Europe's leading regions in terms of R&D. As long as Eindhoven is able to retain its employment base, it will remain attractive to (international) knowledge workers.

5. Copenhagen Capital Region: The 'Human Capital'

5.1 Introduction to the Copenhagen Capital Region

Copenhagen is the capital of Denmark and Scandinavia's largest city. Copenhagen is placed on the east coast of the island of Sealand, and alongside the Øresund (Sound). 550,000 people live in the municipality of Copenhagen, whereas the Capital Region (Region Hovedstaden) has approximately 1,7 Million inhabitants, or 30 per cent of the countries' total population (5,6 Million) (Region Hovedstaden, 2013). Copenhagen is also part of the Øresund region, a crossborder double city region, linking the Copenhagen and Malmö regions via a large bridge. The Øresund region has 3,7 Million inhabitants, including 1,2 Million people living in the southwestern part of Sweden (Skåne). The Øresund region is functioning as a single urban knowledge area (Hospers, 2003). Being the only metropolis in Denmark, Copenhagen may be considered a primate city that is dominant in terms of economic, political and cultural functions.

Figure 5.1 The Capital Region of Denmark (Hovedstaden Region) (Source: www.regionh.dk)

Development path

Copenhagen was founded in the years 1160-67 as a city on the east coast of Zealand to protect trade on the Sound (Øresund). During this period, a little fortress on the Isle of Slotsholmen was built to protect the new city. Copenhagen grew rapidly in the 12th century, as it benefited from its strategic position near the Sound, which offered good harbour facilities. The city developed from a small Viking fishing village into a city and was given official city rights in 1254. The city became the residence of the Danish king for the first time in 1417, and in 1443 Copenhagen replaces Roskilde as the Danish capital. Its strategic location led to Copenhagen's increasing importance as a trading port, as well as a military and political centre.

An important development that laid the basis for Copenhagen as a knowledge city was the foundation of Copenhagen University in 1479, as the first university in Denmark. Nowadays, the Copenhagen region is home to eight universities and higher educational institutions.

During the reign of King Christian IV (1588 until 1648), who is remembered as the most prominent builder and architect of Copenhagen, the city began to take shape. Many remarkable buildings and projects were constructed during this period, such as Rosenborg Castle, the Round Tower, the Old Stock Exchange, the Canals of Copenhagen, and the fortification 'Kastellet' north of the city, of which the bastions would later be used to protect Copenhagen from English attacks during the Battle of Copenhagen in 1807.

Around 1648, the Royal Danish Library was founded as the first library in Copenhagen. The 18th century marked a period of strong economic growth, as Copenhagen benefited from the large flow of traffic through the Sound and growing trade, as well as increasing tax revenues. However, the city was also plagued by a number of disasters, including a plague in 1711, which killed nearly one-third of the population and several fires in 1728, destroying the entire city. The city was rebuilt and completed in 1737, but the medieval part was changed permanently. In 1794, another fire destroyed the first Christiansborg Palace. As a result of these fires, there are hardly any buildings left in the inner city that are older than the 18th century.

Furthermore, important developments in the fields of culture and healthcare took place in the 18th century, with the opening of the Royal Danish Theatre in 1748 and the opening of Denmark's first hospital with free treatment in 1757: the Royal King Frederik's Hospital, which would later be replaced by Copenhagen University Hospital.

The 19th century meant a turbulent period for the city of Copenhagen. Copenhagen faced population loss and severe damage during the naval battle of Copenhagen against England in 1801 and the bombardment of Copenhagen by the British in 1807 during the Napoleonic wars. Denmark faced bankruptcy in 1813, resulting in a slowdown in Copenhagen's growth. The city recovered slowly from the bankruptcy, but started growing again between 1830 and 1840. In this period, the city extended beyond the medieval part into the new working class areas of Vesterbro, Nørrebro and Østerbro.

The 19th century was also an important era in terms of education, economy, culture and infrastructure. A new education Act was accepted in 1814, which introduced free primary schools and compulsory education for all children between 7 and 14. Later, in 1829, the College of Advanced Technology was founded, which offered the first masters programme in Engineering at the highest academic level. The college changed its name into Danish Technical College in 1933 and eventually became the Technical University of Denmark in 1994, which today is one of the leading technical universities in northern Europe. Between 1962 and 1974, DTU moved to its current campus in Lundtofte near Lyngby, north of Copenhagen.

The famous Tivoli amusement park was opened in 1843, attracting over 175,000 visitors in the first year. In 1847, the Carlsberg Brewery was founded just outside of Copenhagen. The Carlsberg Group currently is the fifth largest brewery company in the world with over 30,000 employees worldwide. The establishment of Carlsberg was not only important from an economic point of view, but also had a large impact on the city's cultural scene. Carlsberg's philanthropic founder, J.C. Jacobsen, founded the Carlsberg Foundation in 1876, which is involved in several museums and other social and cultural engagements. The dysfunctional original brewery from 1847 is currently a tourist attraction. FLSmidth & Co. A/S, the world's leading supplier of cement production technology, was founded in Copenhagen in 1882. Today, the FLSmidth & Co. group contributes heavily to the Danish economy by exporting high technology processing plants and services worldwide.

Also Copenhagen's public transport system initiates from the 19th century. In 1847 and 1848, the first central station was built, which served the first railway line in Denmark between Copenhagen and Roskilde. The first tramways were introduced in 1863. An important development regarding Denmark's egalitarian society was the foundation of the Danish Women's Society in 1871, which actively struggled to improve women's educational and financial position.

During the early 20th Century, a number of social and cultural developments took place that laid the basis for Copenhagen's current social and economic climate. The first kindergarten was established in 1901 and in 1915, Danish women were granted the right to vote. Copenhagen's reputation as a bicycle friendly city also started during the early 20th century with the establishment of the first separate bicycle paths in 1910.

In the early 20th century, also the basis was laid for Copenhagen's movie and life-tech industries. In 1906 Nordisk Film was founded as the oldest movie company in the world, which after a merger in 1992 with the Egmont media group, became the largest producer and distributor of electronic entertainment in North Europe. In the 1920s, two insulin companies, Novo and Nordisk, were founded, which would compete with each other for 60 years before merging in 1989 into Novo Nordisk A/S. Today Novo Nordisk is a world leader in diabetes care, exporting its products to 180 countries. The Novo Group contributes strongly to the Danish welfare states by financing parts of the social security systems, health services and educational programmes.

In terms of infrastructure, Kastrup Airport outside of Copenhagen was inaugurated 1925. Today Copenhagen Airport serves about 55,000 passengers per day. Copenhagen Airport Kastrup is the largest airport is Scandinavia and functions as the main hub for several Nordic airlines, including SAS.

During the Second World War, Copenhagen has been occupied by Nazi-German troops and suffered damage from (allied) bombings. In the post-War period, Copenhagen achieved fast growth and its rail and road system, resembling five fingers on one hand, which run outward from the city centre, was developed.

During the 1990s, the construction of the new district of Ørestad on reclaimed land started together with the construction of the metro system, which would eventually be opened in 2002. The metro system, with driverless trains, has two lines, but is currently being expanded with an expected finish in 2017. The region's infrastructure further improved with the construction of the Øresund Bridge in 2000, connecting Copenhagen to Sweden and boosting cross-border cooperation (Copenhagen Portal, 2013). Due to Copenhagen's financial problems in the early 1990s, the Danish national government accounted for several major infrastructural projects in order to revitalize the city's economy, including the bridge, the metro system, expansion of universities and cultural institutions, improved road networks and a very costly neighbourhood programme aimed at modernizing the dwellings of the inner cities (Majoor, 2008; Hansen & Winther, 2010). The government refinanced the debt of the city in return for a series of reforms, which eased the financial burden on the central city in the long term. Consequently, the city grew fast in the second half of the 1990s. The rise of a service- and knowledge-based economy, consisting mainly of business services, a growing entertainment sector and the emergence of creative industries, provided the Copenhagen city region with new competitive industries and new job opportunities (Hansen & Winther, 2010).

Transformation into knowledge economy

The overall economic geography of Copenhagen has changed considerably in the past half century. Up to the early post-war period, Denmark had a clear centre-periphery structure, with Copenhagen being the centre of economic growth with a major concentration of manufacturing. This pattern changed drastically during the 1960s, but especially during the 1970s and 1980s, due to firm closures and downsizing in manufacturing in Copenhagen, and the relocation of manufacturing jobs from Copenhagen to western Denmark. Consequently, the number of industrial jobs, industrial production and industrial firms declined strongly since the 1960s, and this development was still ongoing in the 1990s (Winther & Hansen, 2010).

The 1990s marked an uprising of Copenhagen's economy, and successful evolution from an industrial economy into a service and knowledge economy. Both the central city and the region experienced growth and prosperity in terms of job creation, income and inhabitants. Deindustrialization in Copenhagen has been accompanied by the rise of a service and knowledge-based economy, with strong high-tech clusters. Strong growth occurred in the number of highly skilled jobs that are mainly occupied by talents and professionals with a university degree. Today, an overwhelming concentration of service activities exists in Copenhagen (Winther & Hansen, 2010). In addition, the city has developed into a leading conference city, and is one of the top-ranking fashion convention cities in Europe, competing especially with Barcelona (Hospers, 2003). Copenhagen is the leading conference venue in northern Europe and one of the world's fastest growing congress facilitators. It is the sixth largest congress city in terms of congress events, based on Union of International Associations statistics.

Effective public-private collaborations and a branding strategy resulted in the formation of strong clusters belonging to the new economy. The spearhead theme was '*man and his needs*' and in the media, the Øresund region has been actively branded as 'The Human Capital', offering "good living, working and recreation opportunities for modern man". The brand was made visual through investments in facilities related to human needs, including health (medical technology), contact with others (the Øresund Bridge) and leisure (culture and nature, including the Øresund days) (Hospers, 2003).

Denmark has a long tradition to integrate culture and urban economic boosterism. Since the 1990s, a renewed emphasis on the economic potential of culture and creativity has dominated the policy agenda. The cultural sector is considered an important contributor to Danish economy, and culture is seen as a means to attract people and investments, as it contributes to a vibrant environment and greater quality of life and experiences, which strengthen cities' identity and profile (Bayliss, 2007). The growth of the city coincided with the rise of a lively experience economy, but simultaneously has acknowledged new patterns of crime and increasing social polarization (Andersen, 2005; Hansen & Winther, 2010).

Regional governance and the policy context

Although basically there are only two administrative levels in Denmark with real power, the Copenhagen Region is made up of a number of regional governance structures. The *Hovedstaden*

Region (Capital Region of Denmark) is one of the five legal Danish administrative units. It comprises of the municipalities of Copenhagen and Frederiksberg, the former counties of Copenhagen and Frederiksborg, and the island of Bornholm. Its main objectives are the provision of healthcare, mental healthcare and regional development.
The 'Øresund Committee' has been the official platform for regional political cooperation between Skåne (Sweden) and Zealand (Denmark) since 1993. The committee is a political interest and lobby organization that works to strengthen regional cross-border cooperation. Moreover, the Øresund Committee defends the interests of the Øresund Region before the national parliaments of Sweden and Denmark and before the EU in Brussels. An important part of the Committee's task is to boost integration between the region's citizens, where culture and work life are seen as two important levers for action. The Committee focuses on five development areas:

- Labour Market
- Climate
- Culture and Events
- Accessibility and Mobility
- Knowledge and Innovation

In the field of the labour market, the Øresund Committee focuses on the expansion of cross-border information service. The Committee also strives for harmonisation between the Swedish and Danish tax, social insurance and unemployment benefit systems in order to make it easier for people to live in one country and work in the other. In addition, barriers should be removed so people with the equivalent training or qualifications from Sweden and Denmark can work freely throughout the whole region, also on the other side of the border.
In terms of culture and events, the Øresund Committee aims at diversifying the region's cultural offering, with an emphasis on improved coordination of cultural activities that will result in better, shared use of the region's cultural facilities and arenas. Also new players in the cultural sector are supported through mentoring programmes, and the cooperation between culture workers and trade and industry is stimulated. Regarding this latter point, the establishment of an 'innovative business centre', where creative activities, artists and knowledge-based enterprises are brought together under one roof.
Regarding knowledge and innovation, the Øresund Committee works closely together with other regional players, such as the Copenhagen Cleantech Cluster, the Medicon Valley Alliance, the Øresund Institute and the European Spallation Source, to improve the regional cooperation climate so that knowledge and innovation can flourish. The region's education institutes, on both sides of the border, are encouraged to cooperate and student mobility throughout the region is stimulated, both in terms of education and in-service training. Also, the appeal of the region for international researchers and students should be improved and coordinated efforts to attract international research projects and funding are stimulated, as well as cross-border exchanges of positive experiences about supporting innovation and entrepreneurship (http://www.oresundskomiteen.org; Interview Øresund Committee).

Housing market

In Denmark, 52 percent of the housing stock consists of owner-occupied housing, and 7 percent of all dwellings are cooperative housing: an indirect form of ownership institutionalized in 1979. 37 per cent of all housing in Denmark are rented dwellings, of which 20 percent is in the social sector and 17 percent in the private sector. Danish housing prices have increased rapidly since the mid-1990s (average of 8 percent annually), and at the same time mortgages became more

flexible and interest rates were low. Price increases have been the highest in the Copenhagen region (Penninx, 2007).
The city of Copenhagen has a significantly different housing market structure than the national situation. On the one hand, the share of owner-occupied housing is much lower: 25 percent in the city, and 39 percent in the wider Capital Region. On the other hand, the share of co-operatives is much higher than nationally: 15 percent in the Capital Region and 31 percent in the city (Tsenkova & Vestergaard, 2011).
This high share of co-operatives can be explained by the near-bankruptcy of the city of Copenhagen in the 1990s, leading to the selling of most of the 20,000 dwellings owned by the city, and the rule that tenants have a first right to buy if a private rented dwelling is sold, which is mostly done in the cooperative format. The share of private rented dwellings is slightly higher than the national average in both the city (21 percent) and the Capital Region (20 percent). The share of social housing owned by corporations is 16 percent in the city and 22 percent in the Capital region, which is close to the national average (Penninx, 2007; Tsenkova & Vestergaard, 2011).

5.2 The economic profile of the Copenhagen Capital Region

The economic geography of Copenhagen's knowledge economy

As is shown in figure 5.2, the city of Copenhagen has a large overrepresentation of firms in publishing, television and radio. In total, 1,378 units are located within the core city, which is twice as many as in the rest of the Capital Region (707). A similar picture is shown for advertising and business services: 2,762 units are located in Copenhagen compared to 2,095 in the rest of the region. Copenhagen also has a large number of consultancy and IT firms, and relatively many units in scientific research and development. Both the city and the rest of the region are specialized in financial service and insurance. Manufacturing of electronic components and electrical equipment only have a modest representation in the core city and Frederiksberg, but are found to a larger degree in the surrounding municipalities.

	Copenhagen	Frederiksberg	Rest Hovedstaden Region
26 Manufacture of electronic components	39	3	184
27 Electrical equipment	18	1	96
58-60 Publishing, TV and radio	1378	197	707
62-63 IT and information services	1765	289	2616
64-66 Financial and insurance	646	92	963
69-71 Consultancy etc.	3085	562	5470
72 Scientific R&D	96	16	157
73-75 Advertising and business services	2762	407	2095

Figure 5.2 The number of local units per NACE rev. 2.0 (DB07 in Denmark) in Copenhagen, Frederiksberg and the rest of the Capital Region of Denmark (Source: Statistics Denmark, 2010)

The economic geography of Denmark shows an unequal pattern with regard to the distribution of knowledge intensive sectors across municipalities and regions. The Copenhagen region dominates the Danish economy and accounts for approximately 40 percent of national GDP (Interviews scholar University of Copenhagen). Hansen & Winther (2010) showed that talents have a large concentration in the Copenhagen region, and also have a significant share in the three dominant (university) cities of Aarhus, Odense and Aalborg. Also Andersen & Lorenzen (2005), in their study on the Danish creative class, found significant concentrations of creative industries and workers in the municipalities of Copenhagen, Frederiksberg and Aarhus, and at a regional scale the Copenhagen region is clearly the dominant region for creative industries.

But also within the Copenhagen region, creative and knowledge intensive industries are unequally dispersed. Between 1982 and 2002, the central city lost employment whereas the corridors, suburban axes stretching from the city centre –the so-called *fingerplan*- acknowledged an increase in employment of over 25 percent. Different economic activities tend to concentrate in different parts of the city. A new economic geography based on human capital rather than industries has emerged, with a clear concentration of talents and knowledge-intensive employment in the central and northern municipalities of Copenhagen, and an underrepresentation in the southwestern part of the region. Apart from a resurgence of the inner city, several new locations in the northern suburbs have emerged as creative centres, including Lingby-Taarbæk where the technical university DTU is located (Hansen & Winther, 2010).

Also the division of labour between the corridors has changed. There has been a marked shift in manufacturing employment from the northern towards the southern corridors. The central areas of the city include the main retail and tourist areas of the city. In the suburban areas, several specialized concentrations of service activities and manufacturing can be found. There is an axis running northward from the Copenhagen city centre, which has strong concentrations of business services, retail and wholesale. The two western 'fingers' of the region show large concentrations of finance and insurance, as a result of relocation of these activities from the city centre since the 1980s. The southwestern axis, the Køge corridor, has an underrepresentation of knowledge-intensive employment and workers, but has strong concentrations of manufacturing, retail and wholesale. Thus, the corridors of Copenhagen with the best connections to the neighbouring regions have the least knowledge-intensive industrial characteristics. Transportation and communication services are concentrated south of the city centre, close to the motorway and the airport (Hansen & Winther, 2010).

Thus, apart from the resurgence of the inner city, a polycentric structure has emerged which includes knowledge intensive nodes in suburbia and even in the outer city. In fact, the outer city has increasingly become a place of urban living and working, and now has an industrial structure which resembles the urban area, including the accommodation of more and more service and knowledge-based economic activities. In general, the service firms in the outer city are smaller than the firms in the built-up area and the levels of formal education of their employees are lower than in the built-up area. There are also some areas of Copenhagen have faced development that even in some cases is considerably less knowledge intensive than in the neighbouring regions (Winther & Hansen, 2006; Hansen & Winther, 2010).

Winther & Hansen (2006), conceptualized the locational preference of firms as 'imaginary spaces of location', based on both personal beliefs and discursive practice. They noticed differences between the imaginary spaces of location in the core city and the outer city. In the outer city, soft factors, such as personal reasons (including family strategies and an affinity to places), attractive housing, social and cultural facilities and nature, are emphasized, rather than the economic rationale that is more common in the core city (Winther & Hansen, 2006).

Copenhagen's marketing strategy: the C-OPEN-hagen brand and rankings

The overarching slogan that Copenhagen Capacity is using in order to market the region is *"C-OPEN-hagen, Open for Business"*. It emphasizes the strategic location of Copenhagen, linking the

Scandinavian, Northern European and Baltic markets, with access to 25 Million consumers in total, and the presence of high quality industry clusters. Furthermore, the presence of over 4,000 internationally-owned companies, including 500 Scandinavian headquarters, and a knowledge hub with universities, science parks, knowledge institutions and researchers are highlighted as pull factors for the Copenhagen Region.

Copenhagen also performs well in international rankings in terms of its human capital and business climate, which is highlighted in Copenhagen Capacity's propaganda. The World Bank ranked Copenhagen Capacity as the world's best regional investment promotion agency in its "Global Investment Promotion Benchmarking 2009" report. The report compares marketing and services offered by 181 national and 32 regional investment promotion agencies.

A new survey from The Economist Intelligence Unit has benchmarked the global competitiveness in 120 of the world's largest cities, acknowledging that cities are more important than ever to the world's societal and economic development. The Economist Intelligence Unit looked at eight criteria of competitiveness in assessing major cities: human capital, economic strength, social and cultural character, institutional effectiveness, financial maturity, environmental and natural hazards, global appeal and physical capital. In the human capital category, Copenhagen ranks third, only surpassed by Dublin and Hong Kong. Overall, however, the Danish capital ranks 23 in the 120 city competitiveness survey due to its low ranking for economic strength. In terms of economic strength, Copenhagen ranked outside the top 60 behind cities like Bogota, Krakow and Panama City (Copenhagen Post, 10-4-2012; Ministry of Foreign Affairs of Denmark, 2012).

In addition, Greater Copenhagen was ranked as the third best city in Europe for foreign companies to place their investments in British fDi Magazine's *European Cities & Regions of the Future* ranking of 2012. Within the same report, Copenhagen also has positive scores in other rankings:

- Copenhagen 12th in Top 25 European cities overall
- Copenhagen 5th in Top 10 major cities regarding economic potential
- Copenhagen 3rd in Top 10 major cities regarding quality of life
- Copenhagen 4th in Top 10 major cities regarding infrastructure
- Copenhagen 7th in Top 10 major cities regarding business friendliness
- Region 3rd in Top 25 European regions overall
- Region 3rd in Top 25 European regions regarding FDI strategy
- Copenhagen scores 9 out of 10 based on Labour force with tertiary education, only surpassed by Oslo and London (fDi Intelligence, 2012).

Cities and regions in northern and western Europe dominated the rankings; Moscow is the only city outside these regions to feature in the top 10 overall (Ministry of Foreign Affairs of Denmark)

Medicon Valley, ICT and cleantech

Essential for Copenhagen's economic transition since the mid-1990s has been the growth of biotech cluster *Medicon Valley*, a joint venture between local biotech and biopharma companies, universities and hospitals. Copenhagen has had a tradition with biotech since the late 1800s, ranging from important research taking place at the Carlsberg Breweries to the traditional strong focus on biological and medical research by the region's universities. Furthermore, the presence of a number of research-intensive and fully integrated pharmaceutical companies since the early 20th century, such as Novo Nordisk, H. Lundbeck, AstraZeneca and LEO Pharma, have strengthened abilities within applied research, attracting suppliers and producing spin-offs.

An effective branding strategy has been set up in the mid-1990s, through a cooperation between the public authorities and life science companies in Copenhagen and southern Sweden. The com-

mon goal was to be the most attractive bioregion in Europe. Since 1997 *Copenhagen Capacity* and its Swedish counterpart *Invest in Skåne* have branded the region as *Medicon Valley*.
Medicon Valley spans the entire Øresund Region and is currently Copenhagen's strongest employment cluster and one of Europe's strongest life sciences clusters. The Medicon Valley cluster consists of more than 100 biotech companies with own R&D, large R&D bases pharmaceutical companies, more than 200 medtech companies, 26 hospitals and 12 universities.
The companies within the cluster excel in research within a number of the most commercially attractive disease areas, such as cancer, diabetes, inflammation and neuroscience as well as diagnostics. An attractive selling point of the region for life science companies is the opportunities for clinical trials. All Danish and Swedish citizens have equal access to free health care and medical data is tracked from birth onwards, ensuring a comprehensive patient database.
In Medicon Valley, there has been both private and public R&D spending, and both the Danish and Swedish governments are dedicated to increasing R&D spending over the coming years. Consequently, Medicon Valley not only produces a high number of scientific articles, but also the quality of scientific output, measured as citations per article, shows that Medicon Valley is at the forefront in Europe. With several hundreds of drug candidates in preclinical and clinical development, Medicon Valley is in the top rank of Europe. And the pipeline growth is the highest in Europe.
Academia are supporting research of the very highest international standard and the focus on biotechnology and medicine has created several brand new research centres like BioMedical Center, BMC in Lund.
In terms of production, Medicon Valley is one of the world's largest exporters of pharmaceuticals Large-scale manufacturing is undertaken in Medicon Valley and consequently Denmark ranks third and Sweden fifth among the world's largest pharmaceutical exporters per capita. Among Medicon Valley's major companies with production facilities in the region are Novozymes, Novo Nordisk, LEO Pharma, H. Lundbeck and Nycomed (www.mediconvalley.com).
Another specialization of Copenhagen is ICT. Greater Copenhagen is Denmark's largest IT cluster, and the entire Øresund region, including Skåne in Southern Sweden, offers approximately 100,000 IT jobs. Furthermore, Copenhagen has established itself as a leader in the cleantech sector. There are more than 600 cleantech companies in the region, the Copenhagen Cleantech Cluster, employing 77,500 people. Of these companies, 51 percent has grown in 2011, whereas 37 percent maintained their market position. Furthermore, 51 percent increased R&D budgets, and 70 percent have activities outside Denmark (Copenhagen Capacity, 2013).

Creative industries

Apart from the life sciences, clean-tech and ICT clusters, Copenhagen has long been an important creative city, and the city is recently experiencing strong growth in creative industries. Copenhagen has above-average employment in the high-tech sector, with a share of 23 percent for the central city and 13 percent for the city region. The Milken Tech-pole index, taking into account both the share of high tech employment in the area and the national share, is 47.7 for the city of Copenhagen and 87.4 for the city region (Andersen & Lorenzen, 2005).
Copenhagen is ranked the fourth most specialized city in Europe in terms of creative industries, alongside cities like London, Berlin and Stockholm. Currently, 85,000 people are employed in creative industries, with the fastest growing clusters being design, fashion and clothing, and film and video. The Copenhagen creative cluster furthermore consists of various enterprises in architecture, literature & press, art & handicrafts, Radio & TV, content production, music, advertising and furniture (including interior design). The creative industries constitute 6-7 percent of the total Danish employment and revenue, while the creative professions contribute with 10 percent of the

Danish export. In the period 2003-2010 the business areas Fashion & Clothing, Architecture and Design experienced revenue growth of between 19-60 percent. Between 2010 and 2011, the export of Danish fashion has increased with 13 percent (Copenhagen Capacity, 2013).

The city is known internationally for its growing movie production cluster, which has been put on the map over the years by successful Danish film directors such as Lars von Trier, Bille August and Ingmar Bergman. The film industries currently account for over 70 highly skilled innovative production companies, which makes the region competitive to other movie cities such as London or Berlin.

More recently, a cluster of computer game developers has been developing in Copenhagen. To identify ways of furthering future growth in the local computer game industry and in the film industry, Copenhagen Capacity runs the project Copenhagen Entertainment. Copenhagen Entertainment, which is supported by the European Union's Regional Development Fund, provides the industries with a development strategy for the next ten years. (Copenhagen Capacity, 2013)

5.3 Copenhagen's hard conditions: labour market, infrastructure and the institutional context

Copenhagen's main strengths on the hard side are its high educated population and economic clusters, e.g. Medicon Valley, on the one hand, and the well-functioning infrastructure and low congestion on the other hand. These aspects were mentioned as the regions' strongholds by the interviewees.

Labour market and human capital

In terms of the economic conditions, Copenhagen's main strongholds are its highly educated population and its cluster policies, especially the Medicon Valley cluster. Copenhagen has a primate city status in Denmark and therefore has a natural attraction for Danish talents. Outside Copenhagen and Aarhus, labour markets are quite thin, and therefore people, especially with a university degree, tend to concentrate in thick labour markets (Scholar, University of Copenhagen). For many people, the reason to move to Copenhagen is therefore related to the availability of appropriate work. The following quotes from the expert interviews illustrate the dominant role of Copenhagen within the Danish labour market: *"Much employment or higher education is only available in Copenhagen, people have to come here" (Scholars, DTU).*

[In Scandinavia] There are relatively few places with thick labour markets for knowledge workers…You could go to Copenhagen, you could go to Copenhagen or you could go to Copenhagen if you want this job. Aarhus might be a second chance to go to…When you only have few places to choose from, you go for the job first and [amenities] come secondary". (Scholar, University of Copenhagen)

Copenhagen was furthermore regarded a strong *brand*. All the interviewees mentioned Denmark's excellent education system as a major strength. Around 25 percent of the population has a university degree, which implies that there is plenty of skilled labour available for knowledge intensive companies (Interview Scholar University of Copenhagen).

Particularly the Medicon Valley cluster was mentioned as one of the main attractors on the hard side. Also one of the interviewees from Amsterdam, when comparing Amsterdam to other European cities, mentioned that Copenhagen is particularly known for its strong cluster policies:

"Copenhagen is not seen as a heterogeneous supercluster within Europe, and they are also not really homogeneous. They have a number of strong sectors, including fashion. The only thing they do really well there is the cluster approach, which is very actively and well approached" (Amsterdam Economic Board).

But also some critical notes were heard. One of the interviewees was critical toward the strong policy focus on R&D, and the lack of attention for low-tech industries and creative industries. The knowledge economy is broader than R&D, and a lot of competing firms are not in R&D. In addition, he felt that policies have long focused too much on the upgrading of the city according to Richard Florida's paradigm –attract creative people, then jobs will follow—rather than on job creation. However, due to the recent economic crisis, a shift in the policy agenda at regional and, especially, national level toward more job creation can be observed. It is realized that diversification of the labour market is needed. According to the interviewed scholar, people move because of jobs, whereas amenities play a secondary role: *"It is not all about urban spaces…In urban policies in Denmark, there has been a focus on attracting knowledge workers or high-income families…We pay tax by residential municipality, so you are actually interested in having high-income people living in the area. On the other hand, of course they also found the inspiration in a sort of Richard Florida paradigm, that if you can attract knowledge workers, creative people, then the creative people will produce creativity and innovation, and then you will actually produce economic growth and competitiveness of firms, and then you will have creation of jobs. But I think it is shifting at the moment. The financial crisis is also part of that, but I think it is also about creating jobs. If you want to attract people, you need to attract people with jobs, because you actually need a job." (Scholar, University of Copenhagen).*

Another concern that was mentioned by the local experts was the high level of economic competition between the municipalities and universities in the region. Particularly competition from Lund is expected to have an impact on the local labour market. Also, with regard to international competition, several interviewees mentioned that Copenhagen is still not a very international city, and has attracted fewer foreign direct investments than was hoped for. This problem is partly the result of, or has worsened, because of, restrictive immigration policies by the previous government at the national level, which conflict with Copenhagen's economic interests: *"On a general note, there is a conflict between local and national policies, and that has been there for quite a while. As it is in many countries, the major city, the capital city, is more diverse, globalized, and more liberal and left wing…The interests of Copenhagen in attracting international labour is very big. And that is in conflict with some of the national policies for the last 10 or 15 years that are very, very restrictive of immigration." (Scholar, CBS)* This is problematic, since a shortage of labour is expected for the near future due to demographic transitions: *"In the long run, there is an expectancy that there will be a shortage of labour in many industries, also within the knowledge intensive industries. That is also the reason to attract young middle-income families, to cure the labour shortage of the future." (Scholar, University of Copenhagen)*

Copenhagen is more active in integration policies than elsewhere in the country, and local government has taken care of facilities and actions to integrate foreigners into the labour market. Still, the Copenhagen region is a magnet for Danish talent, rather than for international talent:

In terms of international competition, Copenhagen still achieves less economic growth than Stockholm, which is considered Copenhagen's main competitor. A related problem according to one of the interviewees is that Copenhagen is not very good at showing the world what it is good at (Interview Øresund Committee). However, it was recognized that there is a limited scope of what you can do in local policy. Business taxes are national policy, and an attempt to implement a tax advantage for knowledge workers failed. Since most R&D workers did not qualify because of their lower incomes, this law became known as the 'footballer's law' (Interview Scholar, CBS).

Infrastructure

Another strength that was frequently emphasized during some of the expert interviews, is the excellent public transport and cycling infrastructure. The bicycle infrastructure is being improved strongly and is central in urban design and planning, which is referred to as "Copenhagenization". Copenhagen was regarded a "city where everything works" by some of the interviewees. Partly as a result of the public transport system, the low level of congestion:

"We have less traffic here. The pressure from the cars is less intense, the pollution and noise level is not that intense and you can move from one side of the city to the other side easier… Predictability in business is very important…I can take my car and drive from Kastrup to Tuborg harbour north of Copenhagen, and I can be pretty sure that it will take me so and so many minutes. I can pass through the city. And that is also part of daily life quality, because I do not have to get up earlier in the morning, like one hour before, because I never know if I can get to the office. It is very compressed in some ways, not urban sprawl like in America. I can take my bicycle if I want to… you have special paths for people on bicycles, so that you will not get killed by a bus on the road to work." (Housing economist, Realdania)

Partly this is the result of location at the seaside, which implies that all traffic axes end at Copenhagen, rather than crossing through the city (Interview scholars at DTU).

In addition, Copenhagen is home to the largest airport in northern Europe and Copenhagen-Malmö Port is one of northern Europe's largest ports. Due to its location, Copenhagen functions as a gateway between Western Europe and the Baltic region.

Regional governance and the institutional context

Although in some of the literature, the Øresund region was considered as a role model for regional governance (Hospers, 2003), the local experts were more critical on the effectiveness of regional governance. In fact, it was regularly mentioned that regional cooperation is not going smoothly and efficiently. Besides the earlier mentioned economic competition, there is also strong competition between Denmark and Sweden with regard to the attracting of high income groups. Also on the Danish side, municipalities compete to attract high income workers through local tax policies, and an overarching housing policy is absent. Building attractive living environments can help to attract high income groups. *"There is huge competition…Until recently, there has been the Greater Copenhagen Council, which was actually a very close collaboration between all the municipalities in the Greater Copenhagen area, that is half of Sealand more or less. They shared a huge amount of interests, including all the transportation system and housing and all that. That, however, was dismantled during the previous government, because that was viewed partly as a social democratic project…So now we have a situation where there is only very loose bilateral collaboration between municpalites. Of course, Copenhagen and Frederiksberg collaborate, and there is a collaboration between the neighbouring municipalities, but we have lack now of this overarching collaboration council…For many of the things we are discussing right now, it is obvious that they should collaborate…If you are international highly educated worker, or for that matter a Danish person, you are attracted to Copenhagen. You are not necessarily attracted to only one of the municipalities, you are attracted to the package. So collaboration should be central; we do not have much of that now…Their concern is often: are we going to lose tax payers to the other municipality? How can we make our municipality more attractive to attract the creative class or knowledge workers from the other municipalities. It is very much a sense of competition there, which there should not be." (Scholar, CBS)*

Apart from the municipalities, there is also competition between the region's universities, especially between Copenhagen and Lund (Interview Øresund Committee). There are also hardly any cross-border commutes, less happened than was hoped for.
Partly as a result of the Danish welfare state system, Denmark and Copenhagen in particular have high tax levels and high costs of living, both in terms of housing and consumption, as was mentioned in several interviews: *"It is very expensive to live in most Scandinavian capitals…you have high prices for real estate and for consumer goods, so you have some disadvantages in this area, and you cannot compete with that." (Housing economist, Realdania)* The other side of the coin is that Denmark also has high wages, which partly compensates for the high costs of living.

5.4 Copenhagen's soft conditions: image and social climate, authenticity, cultural amenities

Housing and the living environment
In 2008, Copenhagen was ranked as 'the best city in the world that offers its residents the highest quality of life' by the British Magazine Monocle, and furthermore the Monocle announces that Copenhagen is also the best design city in the world amongst the world's Top 25 cities for quality life. In 2010, the British Magazine Monocle awarded the Danish capital to be the second best in the world as the "Most Liveable City", behind Munich.
In 2013, Copenhagen was awarded the most liveable city again by Monocle: *"World-conquering urban quality of life requires the trickiest of balancing acts between progress and preservation, stimulation and security, global and local. Perfection is unobtainable but Copenhagen is striking one of the best deals right now"* (www.monocle.com).
What sets Copenhagen apart from other European cities, according to one of the interviewed scholar, is the work-life balance: people with families have the possibility to combine an urban career with family life. Housing quality is good and the city (and Denmark) offers easy daycare facilities which makes work-life balance easier: *"People move from London to Copenhagen for that" (Scholar, Copenhagen Business School)*
Although in one of the expert interviews, housing quality was mentioned as a strength of the region, the accessibility of the housing market is problematic. In general, there is a shortage of housing in the city (Penninx, 2007), which has contributed to the exploding housing prices over the past decade: *"The housing market has been very, very hot for a number of years, so prices increased enormously in the past ten years and Copenhagen, and then decreased, but differences are still very huge between the central and [the rest of the country]." (Scholars, DTU)*
In the core city, there is a particular shortage of larger family dwellings, whereas small flats are overrepresented. The social housing share is too small in relation to the tasks and obligations of this sector to house the vulnerable part of the tenants. New building is the social sector is low due to high land prices, high building costs, constraints of balanced rent rates, lack of investments from the city and changed national regulations for social housing (Penninx, 2007).
Apart from housing shortages and rising prices, also the creative city strategies of the Copenhagen municipality have been criticized in the literature for the displacement of marginalized groups. According to Hansen et al. (2001), urban policies have shifted from "traditional reactive governmental management of public resources to a proactive entrepreneurial strategy involving close cooperation with private organizations and firms" (p.866). Several interviewees mentioned the lack of regional coordination on the housing market. Danish municipalities have a high degree of freedom with regard to local residential taxes, and neighbouring municipalities are in strong competition for the 'economically sustainable population' (Hansen et al, 2001), and are building espe-

cially for higher income groups. As a result, the socially and economically marginalized population are gradually displaced in the central parts of the city, where large-scale urban regeneration, followed by both bottom-up and policy-driven gentrification. One of the interviewees touched upon the increasing popularity of Copenhagen's inner city districts and it consequences for the local population composition: *"The city of Copenhagen and the city of Frederiksberg, that is very much the economic core, and there has been a replacement, you could say, of population in the last decades. There used to be a lot of workers and students 25 years ago, and there still are a lot of students, because education is a big business and it stayed in the core and it is still there and planned to keep it there, but incomes have been increasing, car ownership has been increasing in Copenhagen, reflecting of course that the people who live there are different kinds of people, earning more money, having more jobs… I think the polarization reflects the popularity of city living." (Scholars, DTU)*

In their empirical study on gentrification in Copenhagen, Larsen & Hansen (2008) described the example of Vesterbro as an example of policy-driven gentrification. A large-scale urban renewal process has changed the neighbourhood from a slum area into a middle class district. Although the policy was initially aimed at the conditions of the pre-renewal population, the project also aimed to attract 'underrepresented' groups in order to socially uplift the area. Through rent increases, low income groups have been largely pushed out of the area.

Apart from the renewal of existing housing stock in inner city areas, the interviewees also mention the transformation of harbour areas into residential districts for higher income people: *"Lots of infill has been constructed in the city of Copenhagen in the last 20 years. A lot of former harbour areas have been developed into urban areas with very expensive flats."(Scholars, DTU)*

Most prominent housing development plans have been Ørestad and waterfront developments, where highly attractive areas have been created, including eccentric modern architecture. One early example of these developments is the Langelinie district, which used to be a derelict harbor area north of the city centre, but is now a neighbourhood with expensive apartments. More recently, similar developments have taken place south of the city centre alongside the Sound. In Fisketorvet, a modern shopping mall surrounded by modern apartment blocks has been developed, and at the other side of the river, in the Islands Brygge district, dysfunctional silos have been converted into luxury apartments (figure 5.3).

Figure 5.3 Silo's at Islands Brygge: industrial heritage transformed into apartments

Also in the former naval area, a new flagship opera house and a school of architecture have arisen, and developments are planned at the site of the old Carlsberg brewery (Carlsberg City), where some monumental industrial buildings make the area potentially attractive for creative workers. This project still has to be developed: *"So that will be housing, that will be apartments, and they are going to be very attractive for people with higher education, maybe people involved in information technology, communication, young professionals of different kind. That is the kind of people that would want to buy an apartment there. Young architects, designers, people in fashion, communication. Many types of high income, high educated, young people and young professionals also. It is very fashionable" (Housing economist, Realdania).*

Furthermore, Ørestad, a new urban development in the southern part of Copenhagen, in between the inner city and the protected meadows on the island of Amager, was meant to speed up the transformation of the Danish economy from one based on industrial production to one based on knowledge intensive products and services. Ørestad is built on reclaimed land with low value. The income generated from the selling of the first building sites was used to develop the first phase of the elevated Metro. It was a deliberate strategy to first develop an impressive infrastructure before selling the majority of the plots: the Metro increased the attractiveness of the area and building sites could be sold for a better price. The second phase of the Metro and new train and road connections to Sweden were developed as a result of economic growth (Hospers, 2003; Majoor, 2008).

Developments started in the late 1990s. When finished, the district will house 20,000 inhabitants, provide 60,000 jobs and offer education to 20,000 students. Ørestad is divided into four districts, linked by the Metro. The Metro is the backbone in Ørestad's traffic system and symbolizes the importance of good public transport. Another important symbolic aspect is water: waterholes, ponds and canals have been characteristic elements of the area. Currently, Ørestad Nord is almost fully completed and is a busy area during daytime due to the location of a university. The second phase, Ørestad City is almost half built and is still affected by construction sites and unfinished buildings. However, the largest shopping centre in North Europe, Fields, is completed and so is most of the residential area around the city park. Over the past few years, a number of cafes and restaurants have opened. The development of Ørestad Syd has just begun, whereas the final phase will be Amager Fælled. The area has attracted a number of investors and functions as an important economic district. A number of sporting and cultural events have been organized by CPH City and Port Development in cooperation with developers and their partners, to help create a pleasant living environment during the years in which the population is relatively small, and the large scale of the site may seem overwhelming. There have been more than 40 events per year, which are supposed to be taken over by local initiatives and amenities later on (www.orestad.dk).

Image and social climate

Copenhagen, and Denmark in general, is known for its openness toward homosexuality (Lorenzen, 2007). The city has an open social climate and an active gay culture. There are several gay bars, including the oldest one in Denmark. In 1948, the National Association for Gays and Lesbians was founded in Copenhagen. In 1989, registered partnership for same-sex couples became possible, in 2009 it became possible to adopt children, and in 2012 same-sex couple could get married in church.

However, in recent years, this tolerance has become point of debate. Support for populist and nationalist right-wing parties has been rising parallel with increasing immigration and integration problems since the 1990s. Between 2001 and 2011, there has been a minority government with support by the populist People's Party. During this government, immigration rules have become stricter than anywhere else in the European Union. Also, it was mentioned during the interviews that there are increasing xenophobic attitudes in Danish society. This social and political climate was seen as a significant threat to Copenhagen's international competitiveness:

"In Denmark you have a government who is putting a break on the influx of workers, generally. It is getting more liberal because we have the EU, but still we have quite strict labour rules, you have to live up to Danish working standards and so forth. So you do not have a huge number of people with a non-Danish background coming in, so most people still have a Danish background. That what you have to fit in to as a foreigner" (Scholars, DTU)

"That is clearly a threat…That you do not feel you can stay here, because people are not talking to you. Sometimes you get very clear messages. These right-wing parties send clear messages to foreigners, like 'leave'. Even though it is not true, in real life I think Denmark is very much depending on some of these foreigners"(Scholars, DTU)

Also the social climate in Denmark in general was described by several interviewees as being not very open when compared to other cultures. Denmark is a relatively homogeneous society and people are not used to interacting with people from other backgrounds. The Danish language is an additional problem, which is difficult to learn for foreigners but needed in order to fully integrate into Danish society: *"A problem often mentioned in public debate is that Denmark is not a very open society. It is not a closed society, but it is not open in the sense that we are used to have a blend of people with different backgrounds. It is a very homogeneous society, and we are not used to listening to poor Danish…They will immediately switch to English. You are not allowed to learn Danish, you cannot practice. (Scholars, DTU)*

In addition, Danish people are not known for their outgoing nature, and social life is very strongly scheduled and organized around activities: "*The difference is how you find friends. You need a network to meet people, you cannot just hang out, you need to at least do an activity, like play basketball after work, but you have to do something…In another part of Europe—we have some guys from Italy here, some guys from Spain and I am from Bosnia, so we have the same issue. Like you find friends basically to do nothing, to hang out. This is a huge difference, and that is why it is complicated for some people to find friends. And then you feel like the Danish society is very closed… Life is very much organized around your activities during the day. And you schedule your appointments with friends. And you invite people home for dinner or go to people's homes… If you go to Brussels they all hang out at the bar after work Thursday night, that is not common in Denmark…For my personal view that is probably the biggest threat, the biggest problem in Denmark for attracting foreign knowledge workers, that is the social climate. The difficulty of just connecting to people, just being part of normal life…It is being said that Denmark is very cold, not only physically but also socially very cold… And then, before you learn how it works in Denmark you get tired and you disappear." (Scholars, DTU)*

Another aspect related to the social climate of the city that was regularly mentioned is the high level of safety. According to the interviewees, Copenhagen is in general a friendly and safe city with low levels of crime: *"We have low level of criminal activity…The risk of getting mocked in Copenhagen is rather low, you will not get jumped here at the ATM or hi-jacked, car-jacked and taken out to empty your credit card…You can walk around in the city centre in the nighttime, you can walk around rather safe" (Housing economist, Realdania)* However, lately there have been problems with drug-related violence among gang members in some neighbourhoods, especially in parts of Nörrebro with high shares of social housing. Although it does not involve general public, this increase in violent crime is regarded a clear threat to Copenhagen's competitiveness and attractiveness for highly-educated (international) workers: *"This is certainly not going to help to* *attract well-educated people. Nörrebro is an area that attracted a lot of well-educated people, because they were attracted by the differences, you had many people from different cultures. That is one of the most fascinating thing about this part of Copenhagen, like Vesterbro and Nörrebro and also Österbro, you have so many different restaurants, cafes, people selling food, exotic food, everywhere, this total mixture of many different cultures… a stronghold in the city, that people find it interesting that you have this mixing of cultures. But then this shooting episode comes and destroyed everything…If the government does not control this, this is going to hurt Copenhagen, because there is a lot of media exposure." (Housing economist, Realdania)*

Authenticity and historical amenities

Copenhagen has been plagued by numerous city fires and wars throughout the past centuries, which implies that most of the current building stock in the inner city dates from the 18th century and beyond. Still, many buildings have been rebuilt in their original form and the inner city has the feel of an old city and a lively character (figure 5.4).

Figure 5.4 View of the 'medieval' city from the Round Tower

Also, as mentioned before, Copenhagen is using industrial heritage to attract high-income residents, as former harbour districts have been transformed into residential districts, and also the former Carlsberg brewery site is to be developed into new residential districts, specifically aimed at knowledge workers.

The central city has been resurgent for the past years, with empty spaces being filled up, waterfront developments and lately a rise in creative industries and the entertainment sector. Also four lakes around the city have been preserved. Plans to fill them up and build motorway met resistance and were cancelled. These lakes and their boardwalks are now popular spots for jogging and spending leisure time: *"What is attracting knowledge labour? What is attracting international labour? It is the urban amenities, it is the green spaces, it is the living quality. And having lakes in the middle of the city centre, like a river, is very attractive" (Scholar, Copenhagen Business School).*

One of the local experts expressed concerns about the uniform policies are likely to reduce the diversity of amenities and may in the end even undermine the attractiveness of the region for certain types of creative or knowledge workers, particularly those who are not within the highest

income categories: *"Basically, it seems to be a friendly and open city when you live here. But there might be a chance that you are making a uniform policy. You are making uniform urban spaces, reducing the diversity of the amenities and on the other hand making it more difficult to attract various segments of labour and people, so kind of undermining some of the diversity that makes the attractiveness of large city regions…You can get the feeling that everytime you see something that is a bit trashy, someone comes and paints it nicely…This might make the city more segregated" (Scholar, University of Copenhagen).*
But rather than emphasizing its past, Copenhagen is particularly seeking its authenticity through modern architecture. Copenhagen is home to internationally acclaimed local architects, such as Henning Larsen and *Bjarke Ingels Group*, and the 'New Golden Age' of Danish architecture is also visible in the urban landscape. Especially the new district Ørestad, a major urban development located on the island of Amager, in between the inner city and the airport and built on reclaimed land, is characterised by impressive modern architecture. Examples are the apartment buildings *8Tallet* (figure 5.5) and *VM Mountain*, and the *Bella Sky Hotel.* The district was developed with the idea to attract national and international investors, in order to improve Copenhagen's position in the competition for international investments (Majoor, 2008). The area combines interesting architecture with rich green amenities. The area accommodates a concert hall, a university campus, a convention centre, a large shopping centre (Field's). Other modern architectural landmarks are to be found at the various waterfront developments. For example, in the Holmen former naval district, alongside the river directly opposite of Amalienborg Palace, The new Royal Opera House is situated since 2004. Although opinions on its architecture are mixed, it has also become an architectural landmark.

Figure 5.5 Modern architecture: 8Tallet, Ørestad

Cultural amenities

Being the largest and capital city of Denmark, Copenhagen and its metropolitan region have a rich supply of cultural amenities. The city is also a popular tourist destination. The Copenhagen region offers over 60 museums, including some of international standard. The *Statens Museum for Kunst* (National Gallery of Denmark) is the largest art collection in Denmark, featuring works from the past seven centuries by both Danish and international artists. Other art museums and collections in the core city include, such as *Thorvaldsen's Museum* and *Kunsthal Charlottenborg*, the *Hirsch-*

sprung Collection, the *David Collection*, *Den Frie Centre of Contemporary Art*, and *Ny Carlsberg Glyptotek*. The wider region also has a significant offer of arts museums. *ARKEN Museum of Modern Art*, located in Ishøj, just south of the city, is one of the most visited art museums in Copenhagen. In the northern part of the region *Louisiana Museum of Modern Art* can be found in Humlebæk and *Ordrupgaard* in Charlottenlund.

Apart from art museums, the region also offers a number of high standard history museums. The *Nationaalmuseet* (National Museum) is an ethnographic museum, which displays the history of Denmark from the Stone Age up to modern Danish society. The *Frihedsmuseet* (Museum of Danish Resistance), displaying objects from the Danish resistance during World War II suffered severe fire damage in April 2013, but the collection has largely been saved. The *Museum of Copenhagen* shows the history of the city. In Kongens-Lingby, the *Open Air Museum* gives an impression of rural life from the past centuries.

Copenhagen is also clearly Copenhagen's cultural capital in terms of theatre plays, operettas, musicals and music performances. The city houses the *Royal Danish Opera House*, in a modern landmark building at the waterfront, and also the *Royal Danish Theatre* and the *Royal Danish Playhouse*. *Det Ny Theater* is one of Denmark's largest theatres (capacity main hall: 1,000), while the city's other main theatres include the *Bellevue Theatre*, *Café Teatret* and *Husets Teater*.

There are a number of venues for live music. In Vesterbrö, there is the live venue and nightclub *Vega*, which hosts approximately 300 performances by Danish and international artists per year, covering all genres of popular music. Its large hall (*Big Vega*) has a capacity of 1,500, whereas the small hall (*Little Vega*) has room for 500 visitors and is therefore more oriented at new upcoming artists. *Amager Bio* Smaller popular music venues include the more alternative stages *Stengade*, *Rust*, *Loppen* and *The Grey Hall* in Christiania. *Tivoli* amusement park offers open air rock concerts with Danish and international artists and bands every Friday night, which are free once the entrance to the park has been paid. Amager Bio offers a broad range of music performance, ranging from classic, opera, choir song to rock. Furthermore, the city offers a number of jazz venues, such as *Copenhagen Jazz House* or *Jazzhuzet Montmartre*.

In addition to the permanent cultural amenities, Copenhagen also hosts a number of cultural events, such as the *International Film Festival* and the *Copenhagen Jazz Festival*, which is one of Europe's largest jazz festivals (Bayliss, 2007). The *Copenhell* festival is an annual festival for heavy metal. In nearby Roskilde, the annual *Roskilde Festival* is Northern Europe's largest pop and rock music festival.

Copenhagen has developed into an important gastronomic center. The 2012 Michelin Guide has awarded 12 Copenhagen's restaurants with a total of 13 stars, four of which were newly awarded in 2012. *Noma*, which has two Michelin stars, has been on the World's Best Restaurants list for eight years, and ranked first from 2010 to 2012 and second in 2013 (http://www.theworlds50best.com). In addition, chef Rasmus Kofoed of restaurant *Geranium* was named world's best chef at Bocuse d'Or, considered the world championship for professional chefs. According to one of the interviewees, this food culture dominated by experimenting kitchen is increasingly becoming a stronghold of Copenhagen: *"For young people it is more important to find a local restaurant with a Michelin star…In Copenhagen you have a huge amount of very good restaurants…Advanced, avant-garde restaurants. Young people want to experience that and save money to go there…Highly educated people are focusing on that." (Housing economist, Realdania).* The popularity of some of the Michelin star restaurants is so big, that at *Noma*, one has to book months in advance to go there.

However, urban amenities were considered to play only a secondary role, and rather determine the place to live *within* the region, whereas a job is the main reason *to* move to the region: *"If* *you move to Copenhagen for a job, then where in the city you would want to live, amenities could play a role in that matter" (Scholar, University of Copenhagen)*

Besides, regarding the relevance of amenities for knowledge workers, it was noted by some of the interviewees that knowledge workers are not a uniform group and different subgroups express preferences for different amenities. A problem with policies is that they focus at a uniform group, which in practice is very diverse: *"I think it highly depends on who you are…Are knowledge workers a uniform group that are attracted by the same kind of amenities? Or are people in creative industries attracted by a different kind of amenities than for instance engineers? Are different kinds of knowledge workers occupying different kinds of urban spaces, with a specific set of amenities?" (Scholar, University of Copenhagen)*

One of the interviewees mentioned that a cultural consumption survey has shown large differences in consumption patterns between the creative and non-creative classes in Denmark. Whereas the creative class mostly visits theatres, cafés, libraries and cultural offers that are individualized and flexible, the non-creative class (routine and service) is more interested in cinemas and big events, such as spectator sports or large concerts, mainly outside the city of Copenhagen. It is exactly the smaller, more grass-roots offer that can be easily accessed without making a reservation, which makes the core city of Copenhagen attractive for knowledge workers, rather than the big theatres and concert halls. The following quote by an interviewee from Copenhagen Business School illustrate this:

"That is the way you live in the city: okay, let's go out tonight. Or if you work as an architect: the project is done, we're finished, let's go out and celebrate. What can we do? So it is very spontaneous and also very individualized. And Copenhagen has a major share of these kind of workers…If you look at cultural consumption in Copenhagen and what attracts knowledge workers, would be the diversity and the flexibility of the amenities offer, rather than the big conspicuous institutions like the opera, the royal theatre or the big concert halls. They are of course an important part of the offer, but when you do surveys and interviews among knowledge workers they usually state that it is the flexibility and the small offerings they are after, because when it comes to these big events, they may not actually be so much different from the average worker. You will also find people that are not knowledge workers. They may also book a ticket for the Royal Theatre a couple of months in advance, but they will not go for the smaller and more diverse offer. This is the game Copenhagen is playing with London or Frankfurt, and in the Netherlands Amsterdam can probably offer that." (Scholar, Copenhagen Business School)

According to the interviewee at Copenhagen Business School, international people often mention that the cultural offering in Copenhagen is not outstanding, but rather what can be expected of a big city. However, they value the relative accessibility of the amenities, which gives Copenhagen an advantage over larger metropolises: *"They would for instance say: Ok, I lived in London, there is a much bigger offer, we can see and buy everything, there is so much going on every day. But transport times are so bad, so we actually often don't do it. It is too much of an effort to go there. But in Copenhagen, a smaller city, there is not so much offer, but transport is so easy: cycling, efficient public transport, and relatively short working hours. That means that now we can actually start going to the theatre and we can start visiting this specialized shop to get all these interesting things that we want to buy, because we have the time and opportunity to do that. So suddenly they feel themselves become more active cultural consumers in Copenhagen than they were in London or in Berlin. Not because Copenhagen has a better offer, but because it is more accessible." (Scholar, Copenhagen Business School)*

5.5 Where do knowledge workers live in the Copenhagen region?

Previous studies on knowledge workers in Copenhagen

Based on Andersen and Lorenzen's (2005) study on the Danish creative class, Copenhagen and Aarhus are the cities with the highest concentration of creative people. Of all municipalities with the highest concentrations of creative people, all but two are located in the Copenhagen Area, and the other two in the Aarhus region. Aarhus and Copenhagen are the only city regions with an above country-level localization of bohemians. At the municipality level, only Aarhus, Odense and Copenhagen have above country-level location quotients of the creative class. The highest scores are found in Copenhagen and Frederiksberg, but also in prosperous municipalities north of Copenhagen, such as Gentofte.

The creative class in Denmark makes up about 40 percent of the Danish labour force and has had stabile localization patterns, also within regions. The Copenhagen area, especially the areas north and north-west of the core city, has a very high presence of the creative class, and the city of Copenhagen itself is on the rise in terms of popularity among skilled workers. The Roskilde area has a high localization of the creative class, as have Aarhus, Odense and Aalborg. Other major Danish cities, such as Viborg, Svendborg, and especially Soenderborg, have high localization of the creative class. The suburban areas close to Aarhus and Aalborg also have high localization of subgroups of the creative class (Andersen & Lorenzen, 2005).

There are statistically significant relations between the localization of the creative class and indicators on quality of place. Tested individually, all the indicators of quality of place (except openness and unemployment) correlate with the localization of the creative class, having the expected effect. Tested in a common model controlling for interactions between the independent variables, all variables correlate significantly with the localization of the creative class. Andersen and Lorenzen (2005) also found that two out of three of Florida's (2002) indicators of tolerance are positively correlated with localization of the creative class: high quotients for diversity and bohemians correlate positively with large concentrations of the creative class and its sub groups. The localization of the creative class is also positively related to the availability of cultural and recreational opportunities. Copenhagen, Aarhus and Odense have the highest concentrations of cultural opportunities and also have high localization quotients for the creative class. Also in line with Florida's findings for the US context, Andersen & Lorenzen found that the presence of the creative class is positively correlated with high indexes of diversity and bohemians, as well as a large supply of cultural and recreational amenities (Andersen & Lorenzen, 2005).

Most popular districts with knowledge workers

Some of the interviewees were familiar with the residential patterns of knowledge workers in Copenhagen. In general, they mentioned that the residential patterns of knowledge workers overlap with employment patterns and with districts with a large share of high-income households. Particularly the corridor running from the city centre northwards was considered a major concentration of skilled workers: *"By workplace, it is the central city…and then you have some municipalities stretching north of Copenhagen…That is by workplace, so you might have a different kind of pattern if you look at people by residential...But it kind of matches almost the workplaces…There might be a lot of commuting back and forth, but you will see similar kind of concentration patterns." (Scholar, University of Copenhagen).*

Inside the city of Copenhagen itself, the most popular districts according to some of the interviewees are the districts surrounding the city centre where urban renewal has taken place, and some of the new harbour developments *"Inside Copenhagen municipality itself, Frederiksberg is* *attractive, the harbour is attractive and the Ørestad area is attractive…And the inner city has always been attractive…Around the canals and around the parliament, Copenhagen has never had these inner city industrial developments, where just next to the centre, you have this old industrial soul that has been collapsing and that is only being redeveloped now. It is never really been there, because you had the medieval city, parliament, the royal palace has always been in the city centre, so just like Stockholm and these other places you do not have that ugly area." (Scholar, Copenhagen Business School)*

The city has been transformed into a place of living, where also families with children and higher income groups want to live and keep living. The municipality of Copenhagen actively tries to attract high income groups, including knowledge workers, through the revitalization of the city and the creation of attractive urban milieus: *"The city has become a place of living again, and the population is increasing at a high pace…People with children, families with children are remaining in the city… so instead of becoming DINKI's – double income no kids- they have become double income with kids…The gentrification of various parts has contributed to making this possible…There is a large proportion of people with a university degree remaining in the city" (Scholar, University of Copenhagen).* Urban renewal has taken place in Copenhagen since the 1980s, but there has been an investment boom since the 1990s. Some kinds of gentrification are bottom-up, with students moving into the neighbourhood, but also some are policy-driven, including Vesterbro. But some of these regenerations are needed to retain high income groups in the city (Interview scholar, University of Copenhagen).

Two of the interviewees recognized different residential patterns of workers in cultural industries on the one hand, and workers in other knowledge intensive sectors on the other. One interviewee referred to a study in which residential patterns of workers were mapped on the basis of Asheim & Gertler's (2005) different knowledge bases: synthetic knowledge bases, analytic knowledge bases and symbolic knowledge bases. Whereas the symbolic knowledge bases are generally associated with the cultural industries, analytic knowledge bases are related more to technical sectors such as the life-tech industries that are largely present in Copenhagen. Particularly these two groups were occupying different districts within Copenhagen: *"Just within the municipality, you have different kinds of concentrations of people. So you could say there is also a division of amenities by knowledge bases, by industry. So that points to that different kinds of neighbourhoods attracts different kinds of people. And it was kind of clear that you have symbolic knowledge bases in the central parts of the city, and in the parts of the municipality where you have more family houses, you have more analytical knowledge bases. And of course there are some more mixed areas of the two. But especially the analytic knowledge bases were completely different than the symbolic knowledge bases" (Interview Scholar, University of Copenhagen)* For this reason, the respondent was highly critical of the uniform policies aimed at attracting knowledge workers to Copenhagen. In his view, policies are too much focusing on symbolic knowledge bases, whereas the more technical workers that make up a considerable degree of Copenhagen's creative class appear to have preferences regarding amenities and living spaces that do not match this profile: "*As the City of Copenhagen, you should be well aware that you are not focusing urban amenities directed towards one segment of knowledge workers, especially if you have large knowledge base within the analytical industries, for instance pharmaceutical, electronic industries, engineers, and things like that. They seem to occupy different urban space than people working in advertising, architecture, film, music, so you have this kind of variety of preferences in the urban space, and I think some of these policies have been rather uniform…It is kind of directed toward the symbolic knowledge base, in the sense that it is traditional inner city environment, urban life that has been promoted.*

Which is not necessarily the urban environment that people in other knowledge bases are asking for." (Interview Scholar, University of Copenhagen)

These symbolic knowledge bases are mainly found in the medieval city and the surrounding neighbourhoods of Vesterbro (figure 5.6) and Nørrebro, and these are the neighbourhoods where many workers in cultural industries live. These areas have long been popular with students, many of which stay there after graduation and started companies, which triggered the development of new shops and bars. Also, these districts offered cheap small office space in, for example, vacant shops. Vesterbro, just west of central station used to be a seedy red-light district, but transformed into the trendiest neighbourhood of Copenhagen due to a large-scale municipality-led urban renewal project. This renewal process involved a shift from public housing to privately, but collectively-owned, housing in private co-ops. Housing prices have exploded, apartment blocks and public space have been renovated and trendy fashion shops and hip bars have popped up (Larsen & Lund Hansen, 2008; Boterman, 2012).

Figure 5.6 Halmtorvet, central square in Vesterbro

Since the 1990s, Nörrebro and Vesterbro have developed into attractive neighbourhoods for highlye educated workers. In the beginning of the 1990s, Nörrebro all of a sudden became very attractive because of urban renewal. The area changed and prices for owner-occupied apartments went up. Prices in Nörrebro became higher than in Gentofte, traditionally the most expensive part of the region, because it is closer to the university and city centre, and culture was considered interesting. The neighbourhood is also more internationally diverse than other parts of Copenhagen, which also explains its popularity with cultural workers: *"So many small companies, architects and consulting companies, they want to live in Nörrebro. They do not want to live in the banking district, that is a no-go for them… I talked to the director [of a company] about that and het told me that he could not see himself live in [the inner city]. People like him, they will lose face you know. You have in shipping agencies or banking down there; he could not be seen together with people like that. That would ruin his image. But down here you have architects, and NGO organizations, that was perfect for him. That is a very funny story, because 20 years ago, people would just run away and move out. Now it is totally different…Next door there is Nörrebro Hallen…A sports centre in an old building that used to have tramcars inside. Now you have a sports centre and a lot of immigrants working out there… Everything is totally mixed. That is the* *area where you will find this young consultancy, NGO's and architects. They want to go there. They do not want to be seen near the headquarters of a Danish bank. That is low image." (Housing economist, Realdania)*

When the bubble in housing prices culminated in 2006, Nörrebro and Vesterbro still remained very attractive. Prices in Nörrebro not rising as fast anymore. Vesterbro was renovated later than Nörrebro, but has now copied price developments: *"After the bubble bursted in 2007, prices went down for a couple of years, but already in 2010, they began to go up again. At that time housing prices were going down everywhere in Denmark, but not in Vesterbro, they began to go up. You can only explain that by that some people want to move into this area, and it must be people with some income and education." (Housing economist, Realdania)*

Since urban renewal, Vesterbro has undergone drastic changes in terms of population composition, the supply of shops and also in terms of crime rates: *"The crime rate in Vesterbo was the same, but it has changed. Before…we had working-class people there, most violence was domestic violence. That went down. Instead, people made insurance fraud…So you could see the differences in inhabitants only by changing crime statistics…But you could also see it in differences in shops that opened in the area, and that has gone up and up and up." (Housing economist, Realdania)* There are still some drug problems and alcohol problems near the central station, but these have not affected housing prices, because the area is so popular. Vesterbro was renovated at higher costs than it would have cost to build new houses (Interview Realdania).

One of the interviewees explained the high degree of residential clustering of cultural workers compared to analytic workers not only by income, but also largely by cultural workers' high need for face-to-face interactions: *"We have a very neat distribution of different types of the creative class…And some of this can simply be explained by income, but some of it can also be explained by preferences…If you work in the cultural industries, if you are a knowledge worker in film, music advertising and so on, you need to be very close in your daily life, but also in your free time, to what is going on, to the cultural offer, to the scene. Because your work continues in the evening. You meet people in galleries, at openings and parties and so on. This is part of the way you set up new projects. This the way you do innovation. But if you work as a bio technician, or a doctor, or a researcher or something, you do not need to be in the buzz, the urban buzz. You can go and live in a really nice house along the coast and drive into the laboratory in the morning. That lifestyle, among those knowledge workers it is different. They do not innovate by mingling."(Scholar, Copenhagen Business School)*

Outside the inner city districts, Hellerop, Frederiksberg and Osterbro are the most expensive districts in the Copenhagen region and are also popular with knowledge workers. The harbour districts are –relatively- not yet very expensive, but housing prices are expected to increase there in the next ten years, as these areas are very attractive and popular with the entire workforce. Interestingly, Ørestad is not yet very popular with Danish knowledge workers and housing prices are not as high as in the central parts of the city. Danish knowledge workers prefer to live in lively districts, and Ørestad is still lacking the vibrant street life and amenities that are available in inner city districts: *"Even if you have some of the most interesting architecture there, it is not up there yet…These are areas that are built for people with a car…People come home from work with their car, and drive straight into the parking and take the elevator up to their apartment. Super luxury, that would bring up the housing prices in America. But in Copenhagen, that is not very attractive, because it means that nobody is on the street. There are very few local restaurants and cafés and shops. And that underscores the emphasis that people in Copenhagen have on the accessibility to amenities and shopping and offers" (Scholar Copenhagen Business School)*

Rather, Ørestad is transforming into a residential space for international workers. It has a large availability of more expensive apartments that are more easily accessible for people from abroad due to the structure of the housing market (1/3 social housing). Huge investments have been cut down as a result of the crisis, offering new opportunities for the area: *"Ørestad is transforming at the moment, not necessarily into in what is what expected to be…It is becoming a residential area for people coming from abroad, international workers…Probably because it is not that expensive compared to the rest of Copenhagen, it is available, there are a lot of residential spaces and small flats, a place also for mixed couples…That image of Ørestad is a failure, I do not know if that is the case…Instead it is becoming something else…You have some opportunities for people coming from the outside to get into the city…Two thirds [of the housing market] are not accessible. It is probable easier to get into Ørestad than it is to get into a co-op" (Scholar, University of Copenhagen).* In general, the international community is relatively small and under researched in Copenhagen, and therefore no other expat communities are known (Interview Scholar, University of Copenhagen).

5.6 Conclusions: strengths and weaknesses

Copenhagen's main strengths on the hard side are related to the regions' strong cluster policy, the excellent public transport system and corresponding low levels of congestion, and the good international connectivity through Kastrup Airport. There are, however, also a number of points for improvement that were mentioned during the expert interviews. Although the region has a number of strong economic clusters, particularly Medicon Valley, the region still attracts little foreign direct investment. The city region functions as a magnet for Danish talent, but attracts relatively few international workers. Also regional governance is relatively weak. Although there are strong Triple Helix constructions related to individual clusters and regional healthcare is governed by a regional institution, there is strong intermunicipal competition regarding housing and economic policy, both on the Danish side of the Øresund and, internationally, between Zealand and Skåne. Despite the efforts by Øresund Committee, both cross-border cooperation and the number of cross-border commutes leave room for improvement.

Copenhagen is known as a city with a high level of quality of life. It has a compact size, but being the capital of Denmark, it still has the cultural and leisure amenities of a world city. Also, crime rates are relatively low, making Copenhagen a safe city to live in. Although most of the inner city is in fact not older than 300 years, it has the look and feel of a historic city. In addition, Copenhagen is experimenting with modern architecture, leading to an impressive mix of old and new buildings.

Traditionally, Denmark and Copenhagen in particular are also known as a tolerant and open-minded society. However, over the past decade, this tolerant image is being contested due to xenophobic incidents and the popularity of right-wing nationalist parties in national parliament. Particularly the previous government has set severe barriers on immigration, which conflicts with Copenhagen's interests to attract foreign companies, students and knowledge workers. Therefore, Copenhagen has not only attracted relatively few foreign direct investments, but its population is also rather homogeneous in terms of ethnicity. In addition, Denmark is known as a closed society, and without good command of the Danish language, it is difficult to integrate into Danish society. Another problem is the 'underlying squalor' (Scott, 2008) that accompanies the new economy: increasing social polarization and a recent rise in violent crime levels in certain areas in the city, e.g. parts of Nörrebro.

The Copenhagen region is by far the most popular destination for highly educated and creative workers in Denmark, followed by Aarhus. Within the Copenhagen region, however, the rise of the knowledge economy has been accompanied by an unequal development within the region. Large concentrations of knowledge-intensive labour are found in the centre and in a corridor running north from the centre toward Kongens Lingby, whereas the southwestern part of the region has low concentrations of knowledge-intensive jobs and is more specialized in manufacturing. According to some of the local experts, residential preferences of knowledge workers follow the same patterns. Whereas creative workers show a clear preference for diverse and lively neighbourhoods in and around the city centre, e.g. Vesterbro, Nørrebro and Østerbro, the preferences of (non-creative) knowledge workers seem to overlap largely with higher income districts: an axis running from the centre northwards, and especially alongside the coast line. An earlier study has found that increasingly, small firms active in the knowledge economy are found in the outer city, and their location preferences are largely explained by personal reasons and the availability of attractive housing and a high-quality living environment. This confirms that demographic aspects and personal trajectories are the most important factors underlying location decisions. Only for workers in cultural industries, the image of neighbourhoods plays an important role in their location decisions.

6. Helsinki Metropolitan Area: the ‘Finnish Miracle’

6.1 Introduction of Helsinki region

Development path

Helsinki is the capital and largest city of Finland. The city was founded in 1550 by king Gustavas I Vasa from Sweden as a new commercial centre on the trade route between Stockholm, Tallinn and Novgorod, but its development stagnated as a result of wars between Sweden, Poland and Russia in the 16th century and the demise of Novgorod after the emergence of Moscow. Helsinki gained importance after the foundation of Saint Petersburg in 1703. After Finland became a grand duchy within the Russian empire in 1809, following the Swedish-Russian peace treaty, Helsinki’s main function became the protection of St. Petersburg, through the military fortress Suomenlinna that has been constructed since 1748.

Helsinki gained capital rights from Turku in 1812, which spurred the development of the city and its surrounding region in terms of both population and business. Although Finland was part of the Russian empire, it had a large degree of autonomy. The new capital status had consequences for the spatial design of the city. The city needed to be rebuilt after a big fire, and a more monumental and impressive inner city was designed, including the Senate building, the St. Nicholas church and the university library (Bontje et al., 2011; Taskinen, 2013).

Traditionally, Helsinki has been Finland’s knowledge capital, since the city is home to the oldest and most important educational institutions in Finland, including the University of Helsinki, Helsinki University of Technology and University of Art and Design (the latter two have merged in the new Aalto University since 2010), which were developed in the 19th century. Also the development of a welfare society has contributed to the development of the capital region as the administrative centre of the country (Inkinen & Vaattovaara, 2007).

The early 20th century has been marked by Finnish independence from Russia in 1917, followed by a civil war that eventually ended with the declaration of a republic in 1919. Ever since, Finland has been a stable democracy, and Finland was one of the few European countries left unaffected by right-wing dictatorial regimes or Nazi-German occupation during the Second World War. During the post-war period, Finland remained neutral and stayed outside both the Sovjet sphere of influence and partnerships of Western allies. Still, Finland kept strong economic ties with the Sovjet Union and signed a Treaty of Friendship, Co-Operation and Mutual Assistance in 1948 (Bontje et al., 2011).

An important event in Helsinki’s history has been the 1952 Olympic Games, which spurred modernisation and internationalisation, lead to an upgrading of the city’s infrastructure, including Vantaa airport, and stimulated national unity and pride. Finland’s post-war development path mainly followed Western development trends like suburbanisation, expansion and improvement of the infrastructure, urban renewal and restructuring, and the introduction of high-rise buildings (Bontje et al., 2011).

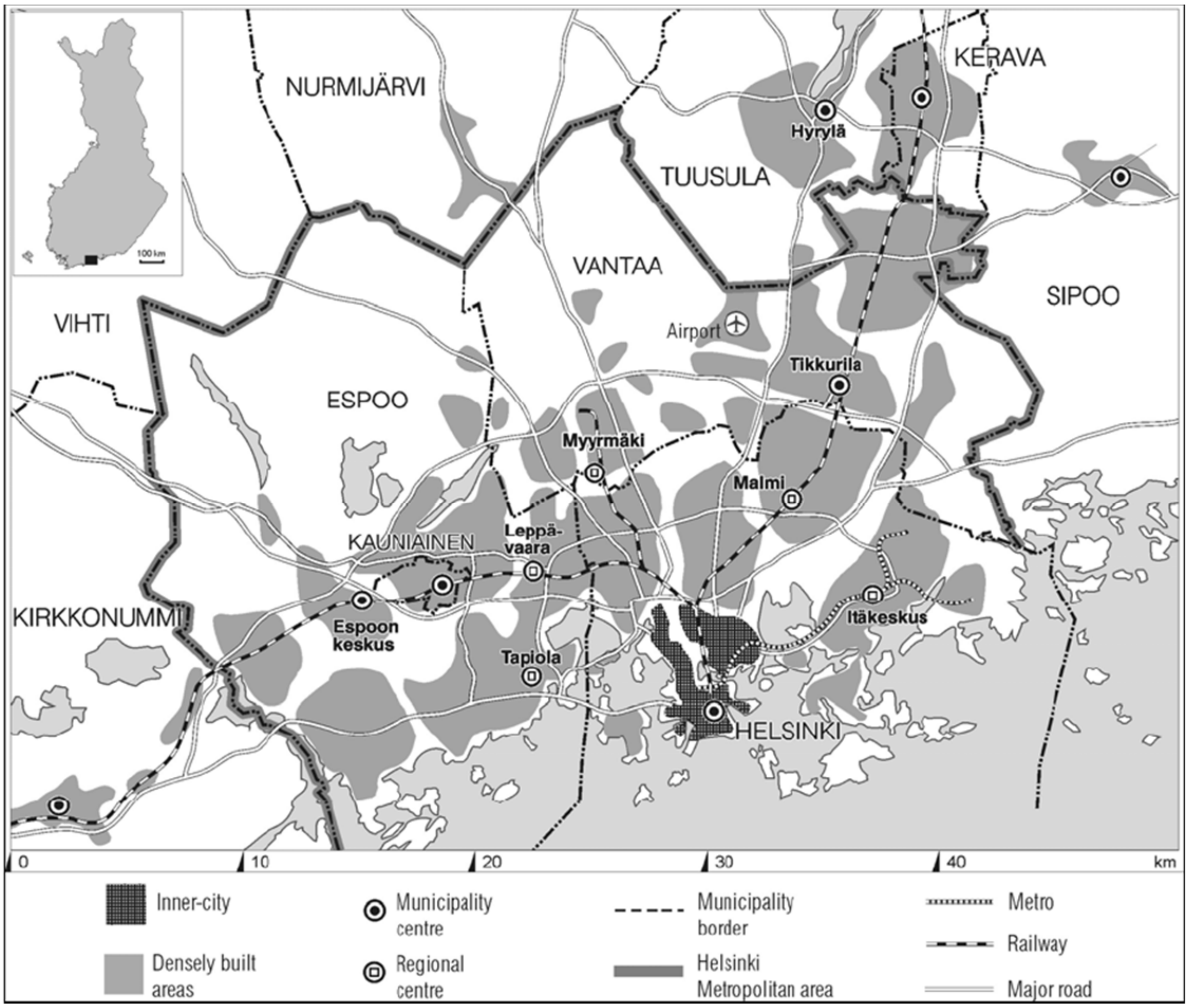

Figure 6.1 The Helsinki Metropolitan Area (HMA) (Source: Vaattovaara et al., 2010)

Currently, the core city has over 600,000 inhabitants but 1,4 Million people live in the wider metropolitan region. Although relatively small from a European perspectives, it is the only international sized agglomeration in Finland, accommodating 20 percent of the total population of Finland and one third of all economic activity (Urban Facts, 2013). It can be seen as Finland's primate city, since it is dominant in terms of political, cultural and demographic relevance. All Finnish companies of national or international significance have their headquarters in Helsinki or its neighbouring city Espoo, including leading company Nokia. Helsinki is also the seat of all national government institutions, and hosts several universities, polytechnics and cultural institutions (Bontje et al., 2011).
The region has been one of the fastest growing metropolitan areas in Europe. This growth is the result of both natural population increase and a positive net migration in the largest municipalities within the city region. As a result of increasing suburbanisation, growth levels are highest in the suburban surrounding municipalities are higher than in the core city. Finland in general and Helsinki have a relatively low, but increasing level of international migration.

In their typology of European knowledge cities, Van Winden et al. (2007) ranked Helsinki as a *Star city*, scoring high on each foundation of the knowledge economy and on all progress indicators. According to their study, Helsinki managed to attract and retain both human capital and knowledge-based industries. Also, there are many synergies between academic institutions and private companies. One side-effect of this success is an increase in the cost of living, mainly because of the booming property market and increasing rent levels.

Regional governance and the policy context

The government driven regional policy has aimed at regional equity according to the welfare state model. Urban policy has been a part of the government driven regional policy, according to the Centre of Expertise Programme, aiming at strengthening the economic development and innovativeness of selected urban regions. The larger urban regions and their own specific challenges have not received much policy attention. Rather, the Helsinki region is expected to create a competitive edge for the whole country without any major investments (Inkinen & Vaattovaara, 2007).

Although currently no region functions as a political entity, two regional administrative institutions can be identified: 'Uusimaa Regional Council and Helsinki Metropolitan Area Council' (YTV). Helsinki Metropolitan Area Council (YTV) was formed in 2004 with the main aim to produce key services for inhabitants of the expanding Helsinki Metropolitan Area in order to promote a pleasant high-quality urban environment. Its principal duties were transport planning system planning, regional public transport provision, waste management and air quality monitoring for the four member municipalities. The YTV has now been replaced by two target-specific institutions: 'HSL', responsible for regional transport and the 'Helsinki Region Environmental Services Authority' (YTV). Uusimaa Regional Council is one of the 20 Regional Councils in Finland and operates as a regional development and regional planning authority. It is in charge of regional and land-use planning and looking after regional interests. The Council formulates common regional needs, long term development goals and conditions for sustainable development. To support economic growth, the Council cooperates closely with member municipalities –its delegates on the decision making bodies are political representatives from the municipalities –, the government, the business sector, universities and other research institutions, and civic organisations. Uusimaa Regional Council is the official regional political entity and represents the region in the European Union. As a result, EU funds for regional development are distributed through the Regional Council. Its main focus is on the Baltic Sea Region, where its most strategic partners are found (Bontje et al., 2011; www.uudenmaanliitto.fi).

A third regional body is the *Helsinki Region*, which can be seen as a functional region in terms of labour market, commuting and housing market, but is less formally institutionalised.. It consists of the Helsinki Metropolitan Area (Helsinki, Espoo, Vantaa and Kauniainen), the surrounding municipalities Hyvinkää, Järvenpää, Kereva, Kirkkonummi, Nurmijärvi, Sipoo, Tuusula, Vihti, and was recently expanded with Mäntsälä and Pornainen on the eastern side of the region (Bontje et al., 2011).

However, the demand for large-scale, inter-municipal local policies and development strategies is currently intensifying, due to an aging population and intensifying international competition for labour between cities. Cities are looking to shape and create their own visions, strategies and policies for competition and growth and are more moving away from national policies (Vaattovaara, 2009). Finland needs to focus more on developing the metropolitan region, the economic engine of the whole country. Thus, the formation of the first metropolitan program in the government in 2007 is an important shift on the national level towards addressing urban or city-regional problems aside the national or regional balance (Inkinen & Vaattovaara, 2007).

Housing market

The housing market in the Helsinki region is different from the rest of the country. Helsinki has relatively more apartment houses, household sizes are smaller and the living space per person is smaller than elsewhere. Housing prices have increased since the 1993, even with 40% between 2000 and 2006 in the entire Helsinki metropolitan area (Inkinen & Vaattovaara, 2007).
The housing market can be considered a threat to Helsinki's future development, both in quantitative and qualitative terms. Housing prices are rising due to a general scarcity of houses. Furthermore, as a result of a top-down way of planning with a focus on quantity rather than quality, the monotonous housing stock, especially in the core city, does not always meet the demand of the highly educated working population. As a result, higher educated people increasingly suburbanize to the suburban areas where larger dwellings can be found. A related problem is the increasing congestion. Policy should especially focus its efforts regarding the housing market and living environment at the neighbourhood level, since this is the spatial scale at which knowledge workers value the soft aspects of the city and which is most important for their residential satisfaction (Vaattovaara et al., 2010; Bontje et al., 2011).

6.2 Economic profile of Helsinki region

The Finnish economy used to be mainly based on manufacturing and forest-related products, and depended heavily on the Soviet Union. During the Cold War, Finland remained outside the direct Soviet political and military sphere of influence, but the Finnish economy depended strongly on the Soviet Union as its main trade partner. From 1980s on, Finland became increasingly connected to and integrated in Europe, and the dissolution of the Soviet Union coincided with a downturn in the traditional forest-related industries, a speculative bubble in the domestic real estate market and mismanaged financial liberalisation. In 1980, the *Technology Committee* was founded with the aim to slow down the process of replacement of human labour force by machines, robots and computers. However, the committee concluded that Finland should invest in computerization to become more competitive internationally and to generate more jobs in the longer term. This has led to the foundation of institutions that became very influential in the move of Finland towards an ICT-intensive and knowledge-intensive economy and society. The national technology agency, *Tekes*, was founded in 1983 to encourage research and development activities. This was followed by the Science and Technology Council in 1986, which advices are usually followed by Finnish government.
Finland developed into the country with the highest share of GDP spent on R&D worldwide. The transition from a manufacturing based to a knowledge-based economy in the late 20th and early 21st century is often referred to as the 'Finnish miracle'. Over the past decade, Helsinki is one of the fastest growing regional economies in Europe, based on an increase of private companies in knowledge-intensive industries, telecommunication and business-to-business services. Today, it is one of the leading ICT clusters worldwide. The city region has a strong specialization in ICT, and particularly in telecommunication in general and mobile telephones and infrastructure in particular (Bontje et al., 2011). The main company active in this field is *Nokia*, which in 2012 ranked second worldwide in terms of its market share in mobile handsets (22,5 percent) and is the third supplier of smartphones worldwide, with a market share of 8 percent. (Thomson Reuters, 2012).
Over 30 percent of the working population is currently employed in creative or knowledge-intensive sectors (Vaattovaara et al., 2010). However, the city of Helsinki profited less than its

neighbouring cities Vantaa and particularly Espoo, where the Nokia headquarters have been established.
The most important growth fields in the terms of employment vacancies and positions are all in the services sector, especially in terms of the number of jobs. Art and culture services are a large employer in Helsinki metropolitan area, which provides work for approximately 7 percent of employed persons in the Helsinki metropolitan area and even 8.5 percent in the city of Helsinki. These figures are above the national average of 4 percent. Another growing creative sector is publishing and the production of literature. Over 41 percent of all published books in Finland are published in Helsinki and the number is increasing. The increase is particularly the result of the proportion of translated books, which has doubled between 1980 and 2005. The development of publishing industry demonstrates the transformation towards "a knowledge based society" because books and printed media is one of the major information distribution channels also in the era of digital publishing (Inkinen & Vaattovaara, 2007).

Helsinki's economic geography

The Helsinki Metropolitan Area has three main employment centres: the city of Helsinki, Espoo and Vantaa. Most knowledge-intensive employment is found in Helsinki and Espoo, where most ICT companies and knowledge institutes are located. Espoo is home to the largest companies, including Nokia, KONE and Rovio, whereas in Helsinki knowledge institutes and creative industries are overrepresented. Vantaa is more specialized in in retail and wholesale, as well as the hospitality industry, which together have 25 percent of total employment. Also, due to the location of the airport in Vantaa, the municipality is strong in logistics and transport.
Figure 6.2 shows that the city of Helsinki has a strong specialization in financial services. The share of jobs in this sector is significantly higher than in the metropolitan area and the region, and even twice as high as in the whole of Finland. Although its impact on total employment is smaller, also the insurance sector is twice as big in both the city and the region than at the national level.
The region as a whole has a strong specialization in information technology; the share of this sector in total employment is twice as high in the metropolitan area than at the national level. Although the differences within the region are rather small with regard to the information technology sector, the metropolitan area and the city of Helsinki have somewhat higher shares of IT employment than the rest of the region, explained by the strong position of Helsinki and especially Espoo, where Nokia's headquarters are located. The IT services sector has a much smaller impact in terms of its share in total employment, but the Helsinki, the metropolitan area and the region show an overrepresentation of this sector compared to the national level. The share in Helsinki (0.5 percent) is twice as high as the national level (0.24 percent).
In terms of jobs in tertiary education, especially the city of Helsinki and the metropolitan area stand out, explained by the presence of four (after mergers) large universities in Helsinki and Espoo, e.g. University of Helsinki and Aalto University. Regarding Research and Development, differences within the region are small, but this sector is overrepresented in Helsinki (1,4 percent) compared to the national level (0,7 percent). The production of electronic equipment is overrepresented in the region and the metropolitan area, but the city of Helsinki has a lower share of employment in this sector than the national level.
61 percent of all cultural industries are located in Uusimaa region, and also 51 percent of all employers are found there. This is the result of universities, design companies and municipal institutions that are located in the region (Taskinen, 2013). Figure 6.2 confirms that with the exception of architecture, all sectors within creative industries are strongly overrepresented in the Helsinki

region, and particularly in the city of Helsinki. In terms of impact on total employment, publishing (2 percent in Helsinki) and architecture (over 2 percent in both Helsinki, the HMA and the region) are the most prominent creative sectors. Within the region, publishing is strongly concentrated in the city of Helsinki (2 percent, compared to 1,4 percent in the metropolitan area). Architecture has somewhat higher shares in total employment in the region than in the city but the shares are more or less in line with the national picture. Advertising, industrial design, film and television, and arts have the highest shares in total employment in the city of Helsinki (2-3 times the national share), but also the metropolitan areas and region show overrepresentations compared to the national level.

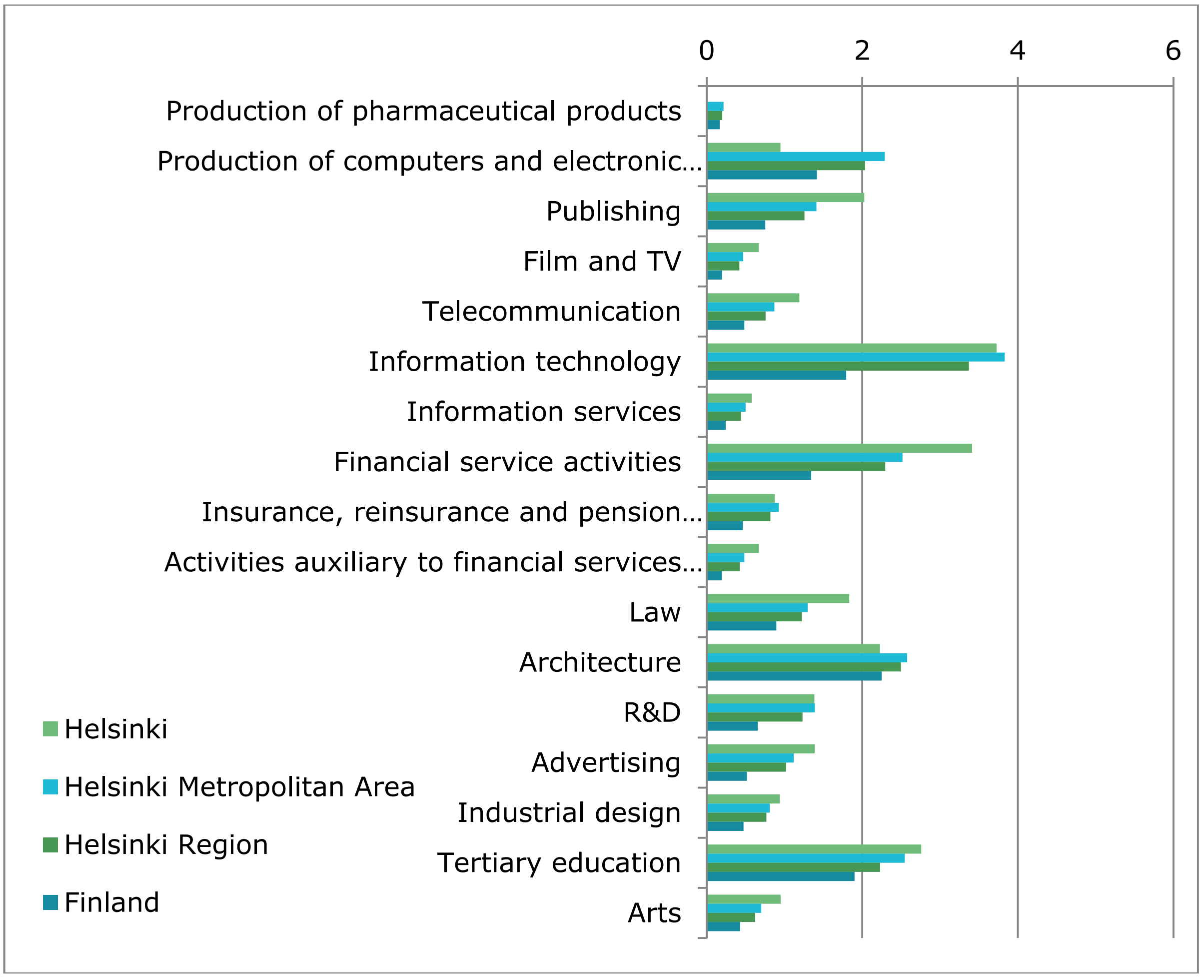

Figure 6.2: Employment in knowledge intensive and creative sectors in 2010, a comparison between Helsinki, Helsinki Metropolitan Area, Helsinki Region and Finland (Source: Statistics Finland, Employment Statistics)

Figure 6.3 indicates that the number of jobs in high-tech manufacturing and information technology have decreased slightly in the Helsinki Region between 2008 and 2010, whereas the number of jobs in tertiary education has risen. The sectors telecommunication, R&D and information services remained more or less stable during the same period.

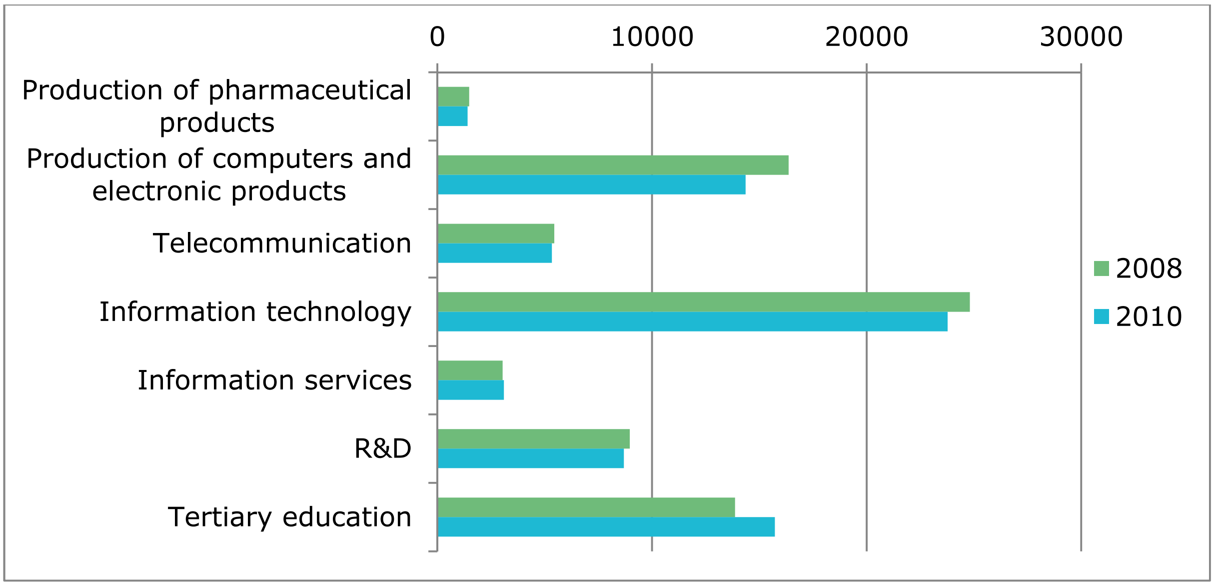

Figure 6.3: The number of jobs in R&D, ICT and high tech manufacturing in the Helsinki Region in 2008 and 2010 (Source: Statistics Finland, Employment Statistics)

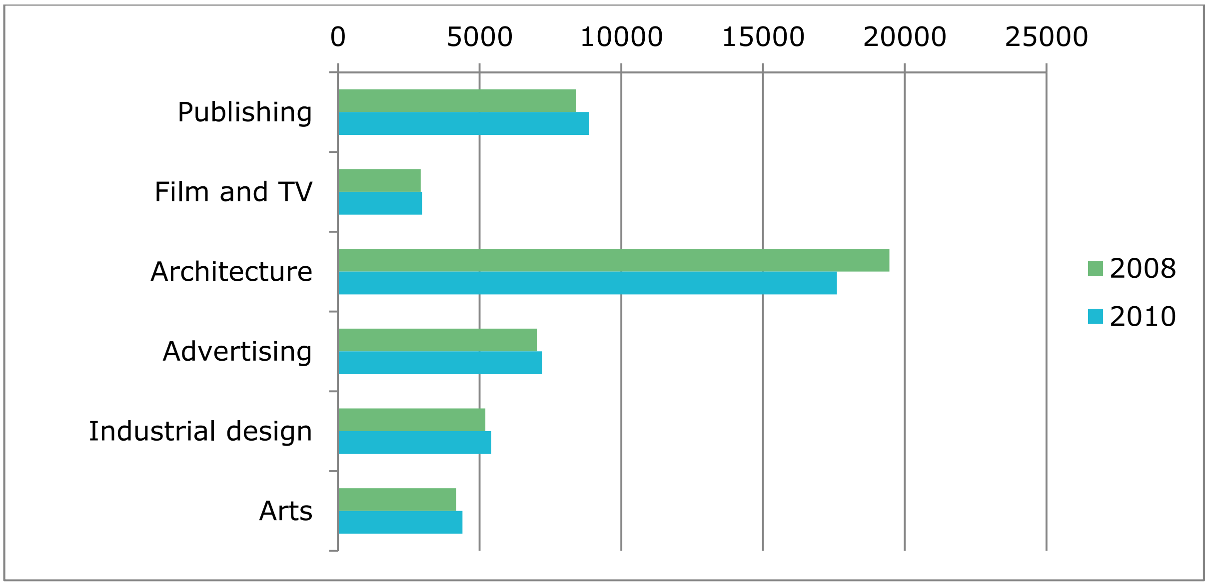

Figure 6.4: The number of jobs in creative industries in the Helsinki Region in 2008 and 2010 (Source: Statistics Finland, Employment Statistics)

Figure 6.4 shows that the creative sectors in the Helsinki Region have all acknowledged slight increases in the number of jobs. Only architecture has acknowledged a significant decrease in employment during the 2008-2010 period. More recently, the gaming industry has been booming in the Helsinki region. *Rovio*, situated in Espoo and known for their successful 'Angry Birds' game, and mobile game producer *Supercell* are the main companies in this sector, but a whole cluster including many smaller studios has emerged. The gaming industry has received strong support from the national government and its investment agency TEKES. Currently, Helsinki is considered one of the world's hotspots for video gaming (YLE, 2013). Finnish game companies typically small, employing 3-4 employees on average. 1,800 people work in the field in Finland as a whole. Companies are well-networked and exchange programmers and designers on project basis. Often companies are set-up around a specific theme and taken over by a larger company later on. Game industries are born global: they have to be interested in and direct operations to the global game market from day one. Greater Helsinki Promotion is active partner in Finnish game industry: supporting the industry's international networks and relations in the international game events. It strives to bring out new companies and innovations in order to raise interest towards acquisitions or investing in R&D (Urban Facts).

6.3 Hard factors of Helsinki region

The Helsinki case has been studied in the ACRE project (2006-2010) and the Inventive City-Regions project, which both focused on the attractiveness of city regions for creative and knowledge-intensive industries and their workers. These projects offered a clear overview of the city region's strengths and weaknesses.

Human capital and the labour market

Based on these studies, the strongest feature of the Helsinki region is the highly educated population, particularly among people under 35. Higher education in Finland is high quality and is highly appreciated both by workers and managers in creative and knowledge intensive sectors. The quality of higher education institutions is one of the main reasons for locating in the Helsinki metropolitan area (Vaattovaara et al., 2010). Helsinki also scores well in international comparisons in this regard. In the 2011 Pisa survey by OECD, the Finnish education system was rated among the best in the world (Monocle, 2011). The education level of the region's population is above the national average: 80 percent of the labour force has an academic or a vocational degree, of which 45 percent has an academic degree, which is higher than the national average of 37 percent (Taskinen, 2013). This may be due to the fact that 4 out of 14 universities in Finland are located in the Helsinki Region:

- University of Helsinki (oldest)
- Hanken School of Economics (Swedish language)
- Aalto University: a merger between Helsinki University of Technology, the Helsinki School of Economics, and the University of Art and Design Helsinki.
- University of Arts: merger of the Finnish Academy of Fine Arts, the Sibelius Academy and the Theatre Academy Helsinki

The high education level is in line with the national education strategy, aiming that 70% of an age cohort should have a tertiary education. The Finnish higher education has open and equal access for all, without tuition fees for Finnish or EU students. Fees may be charged for non-EU students, but this does not happen in practice (Urban Facts).

The importance of the education system and a highly educated workforce for the region's competitiveness was confirmed in all of the expert interviews: *"Our workforce is very competent; we have a very good level of education. According to surveys, we have the best school system in the world, and of course that reflects through higher education as well…The percentage with a university degree is one of the highest in Europe" (Interview Economic Department, City of Helsinki)*

"Education in all the levels, from the primary school to university, in Finland has been awarded in the PISA for the school systems, so I think that attracts also people internationally." (Economic Department, City of Espoo)

Finland is also actively stimulating students in high school to study advanced maths and natural sciences, in order to keep the competences up and running and in line with the region's strongest sectors (Interview Economic Department, City of Helsinki).

The city region also has an efficient private sector and strong partnerships between education and business institutions. For example, Nokia participates in the funding of research projects (Van Winden et al., 2007). The region's strong profile in ICT was also regularly mentioned by the interviewees as a major strength of the region that attracts knowledge workers. From the perspective of workers, especially the strong ICT cluster, the emerging game industry and the entrepreneurial climate were mentioned as regional strongholds. ICT has been very strongly represented due to Nokia's ecosystem: *"The whole region has the image, for a good reason, for a high level of ICT skills, and that attracts both companies and individuals to come to work" (Interview Economic Department, Espoo).*

The Inventive City project, however, concluded that Helsinki's strong specialization in ICT has a turning side, since other sectors are underdeveloped. Also, other sections within the ICT sector, such as software, computer production and trade, are relatively underdeveloped. Rather, the urban economy depends strongly on only one firm, Nokia, which makes the economy relatively vulnerable (Bontje et al., 2011). Furthermore, the region's shift to the new economy has left marks of structural unemployment especially among older people.

In this respect, the recent job losses at Nokia are an interesting development, as this would be expected to have dramatic effects on the region's employment. However, the recent job losses at Nokia were regarded an opportunity, rather than a disaster, for the region by several of the interviewees. Two developments have taken place that partly fill in the gap left by Nokia's demise. One the one hand, the game industry has been booming for the last couple of years and is creating many jobs. More in general, the economy is shifting from an exclusive focus on hardware to the production of software. On the other hand, small and medium-sized startups, many of which are spin-offs from larger companies such as Nokia, have shown significant growth over the past years. These developments have diminished the dependency of Helsinki on one company, as the following quotes illustrate: *"Nokia is laying off people. That is good and bad. For a short period it is bad, but on the other hand, it is an opportunity for Finland to establish new businesses. It is good to have a very strong company, but Finland had only one: Nokia. And that is the risk and now we see what happens…But we will build something new on that. There is a lot going on now, like the game industry…Angry Birds, Supercell" (Enterprise Helsinki)*

"Fortunately, there is something good about Nokia's collapse. There is more room for small growth companies, for small ideas to grow. And there is more and more new companies are just being established and are growing. So new ideas now have room. Because beforehand, Nokia took all the competent people to work for them, and it was just like a really big companies that, with our population, just sucked everything there and all the competence there, but now it is spread all over. And now there is a new movement that small companies are growing, and that is something the government and the cities really try to help…Of course we do not want these competent people, and also the competent international people, to move back home or move out of Finland; we want to keep them. That applies especially to the people of Nokia who are many international knowledgeable people who are now looking for a job, and we have services for them and we try to match them with companies who are looking for these people." (Economic Department, City of Helsinki).

"What is really positive is that 430 new companies have been founded in Finland by ex-Nokians. That is really good news…At the moment we have some of these gaming companies, like Rovio, behind Angry Birds, last year they had 200 employees, now they have more than 600, and a big part of their employees are from outside of Finland, that is their policy also." (Economic Department, City of Espoo)

"Our reliance on one particular company has diminished. We might have a more broad spectrum of companies. However, they are not going to employ as many people as Nokia did in the past, but it might open up some opportunities…The gaming industry has developed into an international hub." (Urban Facts)

The Helsinki region thus acknowledged an increase in the number of growing small- and medium sized companies, and their relevance has been recognized by local authorities. Compared to other European cities, Helsinki has a good entrepreneurial climate: Helsinki won ECER prize in 2009 overall and in 2010 for best start-up and incubator services (Enterprise Helsinki). Entrepreneurship has been actively stimulated each city in the region offers subsidized (both by city and EU) early phase and incubator services free of charge. An example is the 'Helsinki Think Company', a common initiative by the City of Helsinki and The University of Helsinki since 2009, which is a meeting place for young (nascent) entrepreneurs, attracting highly educated people, many of which have been working as employees before. The Helsinki Think Company is focusing on businesses with high growth potential and the potential to go global, which are in need of services. Companies are selected by a team, based on weekly rehearsal pitch sessions. The selected companies are helped with legal matters, networks with Europe and US, financial matters, e.g. risk money from business angels and crowd funding, and start-up funds, and finally links to people with outside knowledge (http://www.yrityshelsinki.fi; interview Enterprise Helsinki).

Entrepreneurship is increasingly regarded as a viable career option and is actively stimulated by universities: *"The interesting thing is that we were very worried that we would not get visitors from university, and now it is full. Students are queuing. It seems that there is a change of attitude and culture going on now towards entrepreneurship… All the big companies are laying off in Helsinki. All. And that is a problem…Unemployment is increasing a little bit, but it is not yet a catastrophe… And the structure of the employment is changing. While the big companies are laying up, the high growth startups are employing people…Start-up companies have created 60,000 jobs in 2010 and 2011, which in Finland is quite a lot. That is why we are working with high-growth start-ups, because we believe that is the way to employ people. Otherwise the economy would not be good." (Enterprise Helsinki)*

Regarding job creation, local authorities are playing the role of enabler: *"What the cities themselves can do is basically making sure that all of this works. You cannot create private jobs, the city itself cannot do that. But if this works, something must come out of it." (Economic Department, City of Helsinki)*

"The cities have a big role as partners for these companies, they need to have customers in early stages." (Economic Department, City of Espoo)

Espoo is undertaking similar initiatives. 'Talent Match' is an electronic platform to match international people seeking for a job and companies seeking international people. Also pitching sessions, or 'Talent Talks', are being funded, through which new ideas can be presented and selected for assistance (Economic Department, City of Espoo): *"What we are trying to do is to create enablers. Our community for entrepreneurship is booming at the moment, and especially for the growth–oriented technology start-ups, and of course Espoo city with our neighbours, we want to support them on their way. Not giving directly money to the companies, but provide them with services that could support them in the early stages of the companies." (Economic Development, City of Espoo)*

"Here in the Otaniemi area, which is the home base of not only Aalto University with around 20,000 students, but also for around 5,000 researchers, and we have 25 research institutes located here. We have a company called 'Otaniemi Marketing' and it is funded by the City of Espoo. It is a marketing tool for all the players in this area, both for providing the international community

with services they need to feel at home here, but also activities related to invest in this area." (Economic Department, City of Espoo)

In addition, Aalto University also has an active focus on entrepreneurship. The aim of 'Aalto Center for Entrepreneurship' (ACE) is to commercialize research that originates in Aalto University. Both researchers and students of Aalto University can get help to develop their inventions or business ideas further. The core services of ACE are evaluation of inventions and business ideas, as well as managing and coaching of commercialization projects (Interview Enterprise Helsinki; http://ace.aalto.fi).

Other strengths regarding human capital and the labour market are Finland's high and increasing spending in R&D and the number of patents per inhabitant that ranks among the top in Europe (Van den Berg et al., 2004; Inkinen & Vaattovaara, 2007). Finland, however, attracts still too little foreign direct investments and, consequently, fewer international workers than was wished for (Economic Department, City of Helsinki). A problem related to the relatively low R&D Although most Finns speak English well, it is hard to find your way at the job market, outside the large international companies, if you do not speak Finnish. This was considered a problem by all of the interviewees. Given the fact that the large international companies are laying people off, there is a fear that highly-skilled talents with a non-Finnish background will leave the region. In Espoo, for example, 10 percent of the population has a different mother tongue than Finnish or Swedish. For that reason, local authorities are stimulating companies to adopt a more international focus: *"At the moment there are lots of highly educated and skilled people unemployed, in this area also. Also even thousands of people. And it is not a question about attracting them to stay here, but to hiring new jobs for them. Especially I think it is challenging for international people who do not have Finnish as a working language, In the big companies like Nokia you do not need Finnish, English is always the working language, but on smaller companies or the public sector all the documents are still in Finnish. So it is quite challenging to jump into new business if you do not have a Finnish background. And that is also a policy we want to be create and be active on with our neighbor cities, that we also want to challenge the companies to recruit international people, also in this stage when we have lots of people available". (Economic Department, city of Espoo)*

Through Greater Helsinki Promotion, the region also tries to stimulate foreign direct investments. Also KAATO, a community of ex Nokia employees and other professionals with an international background who are currently unemployed, is trying to attract foreign companies to the region by linking talents to employees looking for skilled workers (Economic Department, City of Espoo; Economic Department, City of Helsinki). These efforts appear to have some success, since recently Samsung opened an R&D plant in Espoo (www.androidbeat.com). Also 32 percent of the customers at Enterprise Helsinki has a foreign background, most of which from Russia and Estonia. Also, 70 percent of all applicants at Aalto University are from outside of Finland (Economic Department, City of Espoo).

Infrastructure and transport

Another main strength of the metropolitan region is the functionality of the city region's infrastructure, public transport and life in the city overall. Helsinki is known as a city where "everything works" (Vaattovaara et al., 2010; Bontje et al., 2011). Monocle's Quality of Life survey declared Helsinki the most liveable city in 2011, partly based on its excellent public transport system. During the expert interviews, the reliable and efficient public transport system was considered a strong aspect of the city. The local public transport system will be expanded by the end of 2015, when Espoo is connected to the subway system, after years of reluctance due to fears of negative externalities (Interview Urban Facts).

In addition, Helsinki's accessibility to the rest of the world is rather good. Helsinki historically has strong connections with St. Petersburg and forms a twin-city together with Tallinn. It has an international airport, Vantaa airport, which was awarded the best airport of northern Europe in 2013, a seaport connecting the city to the Baltic region, and a high-speed train connection to St. Petersburg. This infrastructure, combined with a shift in the economic world order in which Russia and Asia play a more prominent role, was regarded a major stronghold of the region that compensates for its relatively peripheral location within Europe: *"A few years ago I would have said location [is a downside], but nowadays, Finland, and the Helsinki region, is actually a really attractive hub, also logistically. Our direct flights from Asia and the US are really, really convenient. And also our location next to Russia. We have excellent train connections to St Petersburg, we are 3.5 hours from St. Petersburg. It is really close." (Economic Department, City of Espoo).*
"A new order of the world has not been going for so long, but now there is this big change. Before people uses to think that Finland is somewhere up north, a bit exotic but not so interesting in the a business mind…Our growth companies get more investments than any other cities in Europe. So it tells that there is a change." (Economic Department, City of Helsinki)
Opportunities related to the infrastructure and location that were mentioned include the new north sea route and high speed train connections to the northern Finland and Scandinavia.

The institutional context
At the regional level, competition, rather than cooperation, between municipalities is threatening the competitiveness of the region overall, although regional cooperation has been improving recently (Bontje et al., 2011). Finland has two major government levels: the local and the national level. Municipalities have a large degree of autonomy, whereas there is no significant regional policy level. The municipal autonomy creates flexibility in the decision-making and encourages localised democracy, but also causes competition between municipalities. The dependency on local taxes creates tensions between the municipalities within the same functional region, as the municipalities are competing for businesses and tax-payers and do not always have the same interests. This forms an obstacle to cooperation initiatives in the Helsinki region (Vaattovaara, 2009).
This issue was mentioned during most of the expert interviews. Finnish municipalities are strongly independent in terms of their tax policies, and are in strong competition for both companies and tax payers. Especially in the domain of housing, municipalities are trying to attract 'good tax payers' through the creation of attractive living environments: *"There is a body that coordinates, but that does not lead into practice." (Urban Facts)*
There is a heated discussion going on about mergers of municipalities, which Helsinki is in favour of but which has received strong opposition from neighbouring cities Espoo and Vantaa. One of the major issues underlying Helsinki's eagerness to merge municipalites, according some of the interviewed local experts, is that Helsinki has the impression that other municipalities in the region, especially the smaller ones, do not take enough responsibility to supply social housing. In addition, people living in the region use the amenities in Helsinki but do not pay for them.
The original proposal for this merger was made by the state, but the state drew back because Espoo and Vantaa do not want to merge (Interviews Economic Department, City of Helsinki and Scholar, University of Helsinki): *"There are political borders. There is a very heated discussion going on about mergers. And of course, the neighbouring cities do not want to become part of Helsinki. They want to stay independent. The fact is that these cities are competing against each other…Vantaa and Espoo tried to get enterprises from Helsinki to their area…We would be stronger if we would have joint operations… We should have something, but if you do not have shared*

goals or common goals, then it is different to cooperate. We would be much stronger together. Because this is not a too big area…We should not compete against each other; we should compete internationally…There are some discussions going on, but at the same time there is very strong opposition from Espoo and Vantaa to merge on a political level. So on the hand we would like to work together, but then the politicians do not agree." (Enterprise Helsinki)

"In Finland we do not have a metropolis like this area. It is difficult to see a reason why we should have one city with more than a Million inhabitants. I think we are more agile when we are very well-networked and do a lot together, but also have our separate administration for some stuff" (Economic Department, City of Espoo).

However, cooperation on economic issues appears to be increasing over the past years. The economic departments of the three main cities in the Helsinki Metropolitan Area, Helsinki, Espoo and Vantaa, seem to place economic issues above the local political discussions, and are negotiating regularly about their economic strategies. A 'city-regional economic plan' has recently been implemented in order to improve the regional cooperation. In this document, the strategic vision for the entire Helsinki Metropolitan Area, a functional region with 14 municipalities, has been outlined, emphasizing what is best for the region as a whole: *"We had a steering group, whose duty was to make sure that we keep the helicopter view, so that we do not start talking about what is good for your municipality and what is good for mine. Because if you do that, you lose sight, you do not see the future anymore. It was not easy…Working for Helsinki, we always think we are working for the whole country. The other municipalities are more fighting for themselves. In Helsinki, we are looking at the bigger picture." (Economic Department, City of Helsinki).*

"This mergers of municipalities has been a hot potatoe in all of Finland, but I think with these questions we have to be above this discussion. For example a Chinese investor who is considering to open up a site in Europe, there is no reason to think about the borders of Helsinki and Espoo. Because this Chinese company or US company is first making a decision to come to Europe, and then they begin to scan for example the Amsterdam, Copenhagen or maybe Helsinki area. So we are not competing against each other within Finland, but we are competing against the rest of the world…From my professional point of view, we have really open collaboration with our colleagues from Helsinki and Vantaa and meet basically on daily basis" (Economic Department, City of Espoo).

According to the city-regional economic plan, three aspects are crucial: competences, or the presence of highly educated people, different players who are striving for the same goal through cooperation and partnerships, and the will to do it together. The main focus of the document is threefold. First, 'easy living', or making sure everything in the region works out and everything is flexible and accessible. Second, Helsinki's spirit of piloting should be strengthened, so that people feel allowed and encouraged to try out new things. The third focus point of the plan is to improve well-being in the broadest sense, by not only solving one problem at the time, but looking at the whole picture (Interview Economic Department, City of Helsinki).

Finally, the public sector faces a number of challenges, since there is still considerable bureaucracy (Bontje et al., 2011). One of the interviewees mentioned was that some systems are not so flexible as they should be. (Economic Department, City of Helsinki)

The egalitarian society also has negative effects. No specific investments have been made to increase the Helsinki region's international competitiveness. A challenge for Finland is to find balance between social equity and international competitiveness. The focus on social equity has resulted in the support of other Finnish regions at the expense of Helsinki. This is regarded as a threat to international competitiveness of the Helsinki region. As the engine of Finland and the only Finnish city that has the preconditions for international competition, the Helsinki region must

obtain sufficient means to further improve its international competitiveness (Van den Berg et al., 2004; Inkinen & Vaattovaara, 2007).
A weakness of the Helsinki region that was mentioned several times during the expert interviews was that Helsinki in general is an expensive city. Company taxes and wages are high, making it expensive for companies to settle in the region. The city is also expensive to live in, due to high rents and housing prices, and high general costs of living: *"The level of wages is too high, the cost of living in this region is high, maybe that is the biggest weakness I would say…The cost of living is high, price of apartments is quite expensive." (Economic Department, City of Helsinki)*
However, this is compensated for partly by the fact that high tax levels also enable free education, free healthcare and highly subsidized public transport: *"Many things are free: schools, healthcare, well subsidized public transport. "There are many, many things that are actually makes this city quite affordable." (Interview Economic Department, City of Helsinki)*

6.4 Soft factors of Helsinki region

Housing and living environment
The Accommodating Create Knowledge (ACRE) project, which compared 13 European cities in terms of their attractiveness for creative knowledge workers between 2006 and 2010, included a Helsinki case study. In this project, interviews have been conducted with workers, both Finnish and transnational, and managers within creative knowledge sectors. These interviews showed that the soft factors of Helsinki and the quality of everyday life are highly valued by both Finnish and transnational workers, especially when settling in the city for a longer period of time. Especially safety, the human scale of the city and closeness to nature are considered as strengths. However, the lack of interesting, varied architecture and high-quality public space in the new neighbourhoods was criticized. Particularly transnational migrants also experienced difficulties in accessing social networks, both professionally and in private life, as a result of the private and exclusive character of Finnish social life. In the perception of transnational migrants, the region also lacks international recognition and image (Vaattovaara et al., 2010).
One of the most positive features of the HMA relates to the high quality of life. The Monocle survey of Quality of Life rated Helsinki the 'best city to live and work' in 2011, after Munich and Zurich won this title in 2010 and 2009 respectively. This title was based on the city's sustainable urban development policies, its excellent healthcare and education system and low levels of pollution (Urban Facts, Monocle, 2011). Furthermore, the 2012 Economist Intelligence Unit (EIU) city ranking, ranked Helsinki the eight "most liveable" city in the world after Melbourne, Vienna, Vancouver, Toronto, Calgary, Adelaide and Sydney and the second most liveable city in Europe. This ranking was based on political and social stability, health care, culture and environment, education and infrastructure (EIU, 2012). Helsinki has been among the top ten of the cities in this ranking for several years, and the city usually scores high in similar quality of life indices. The soft factors and quality of life are well supported by national and local policies and are also recognized in regional policy cooperation efforts (Vaattovaara et al., 2010).
The city has a compact 'human' size and is considered a clean and safe city, with a good social infrastructure and green structure (Van den Berg et al., 2004; Bontje et al., 2011).
The compact size of the city was mentioned as a stronghold as well by several of the interviewees, since this enables people to combine living close to nature and making use of the services of a large metropolis: *"This is like a pocket-sized metropolitan. It is a green place, but all the services are here." (Urban Facts)*

Helsinki is focusing strongly on easy living, which is also central in its policy strategies: *"The soft things are that Helsinki is a metropolitan, you have everything you could possibly need or want here. There are so many events going on all the time. Then at the same time it is still like a small city, it is very easy to get around, there are hardly any traffic jams. In half an hour you are right in the middle of the forest or in the sea, or you can enjoy the opera or very good theatre or superstars concerts or whatever…That was something that I was asking people who have lived here for some time: 'what is the first thing that comes to mind'? And that was: 'easy'…And that is something also we like to work on, that everything become even easier for people coming here, visiting, people living here, people doing business here" (Economic Department, City of Helsinki).*
A number of housing projects in the city are targeted especially at attracting higher income groups, including knowledge workers: *"One idea in the background is to build attractive environments to have as many workers from whatever area, as long as they pay taxes". (Urban Facts)*
Prominent examples that deserve special mentioning here are Arabianranta, just north of the city centre, and the former harbour district, just west of the city centre: *"Our future plans in Helsinki is to emphasize the seaside development. In the old days, Helsinki had many harbor areas and now they are not working as harbour areas anymore, and we need dwellings for people. So in twenty years from now, this area will be totally different" (Urban Facts)*
Two problems related to the housing market deserve mentioning. One problem already came to the fore during the ACRE project, namely the problem of a monotonous housing stock. The development of the Arabianranta district and developments in former harbour areas are meant to tackle the problem and to create a more diverse housing stock: *"One of the outcomes [of ACRE] was that even if we have very high qualified housing, it is very monotonous. They are like LEGO's. I would say that now the new openings might bring something new. So far it was quite boring." (Mari Vaattovaara)* The second problem concerns the exploded housing prices in the city, combined with the large social rented sector, which have made large parts of the city badly accessible for workers with lower incomes or for newcomers without knowledge of the housing system.

Image and social climate

Just like Finland in general, the Helsinki region is characterized by a relatively high degree of social equality. The national-level social equity policy has prevented large social inequalities and extreme poverty. Also, it has diminished regional disparities and stimulated the growth of Finish cities all across the country. However, inequality has been increasing of late both within the core city and within the region (Vaattovaara et al., 2010; Bontje et al., 2011). Unemployment is rising particularly among youths and immigrants (Urban Facts).
Helsinki is generally considered a very safe city to live in, and this was mentioned by most of the interviewees. Crime levels are relatively low, compared to other large European cities, and kids can walk to school safely.
The Inventive City and ACRE projects' conclusions were, however, skeptical concerning Helsinki's creative character. The number of foreigners is relatively small and, partly as a result of this, the city is lacking a multicultural mixture and atmosphere. Its remote location within Europe makes it difficult to attract highly skilled people from abroad. Respondents from the Inventive City Regions project were skeptical of the idea of Helsinki as a creative city and stated that Helsinki's policy focus should be on attracting creative and knowledge intensive companies rather than people, countering Florida's claim that jobs follow people. Apart from geographical reasons, also a conservative mentality among stakeholders has prevented Helsinki from becoming a truly creative city. Helsinki's way of planning is pretty much top-down and structured, resulting in a lack of risk-taking, inventiveness and creativity. Bottom-up, grass-roots creativity and new innovative pro-

jects are hardly stimulated. Finland's egalitarian mentality discourages otherness and divergence from the mainstream (Bontje et al., 2011). Helsinki is not good at attracting foreign people, but rather is a magnet for Finnish talent. As a result, the city is lacking an international population and ethnic diversity (Vaattovaara et al., 2010; Bontje et al., 2011). The cultural models of social interaction- the Finns tend to be reserved, rather than open - and the cold climate are also barriers to urban "buzz".

The local expert interviews partly confirmed these statements, but also saw signs of improvement. In terms of tolerance, one of Florida's (2002) three indicators of a creative city, the city has an open and active gay culture and several gay bars and restaurants can be found in Helsinki (www.visithelsinki.fi). However, some of the interviewees mentioned that tolerance towards foreigners is still a point for improvement. Without speaking the Finnish language, it is hard to integrate in society. At the national level, there is increasing support for a right-wing populist party, 'True Finns', that aims to limit immigration. The rise of this party coincides with increasing racist attitudes in Finland: *"Racist attitude have been expressed more than in the past…Some of their [True Finns] politicians have said that migrants—as if they were one group—are bad for us. Unfortunately there are some tendencies not to accept migrant people" (Urban Facts).*

"We people tend to think that foreigners are different and they are a threat...that is the basic behaviour of people… I think you can integrate, but all over you need to work for that." (Enterprise Helsinki)

However, Helsinki was seen as more tolerant than the rest of the country. People in Helsinki are more used to living with different people, and the True Finns receive much less political support in Helsinki than at the national level: *"In Helsinki we are more tolerant than in the rest of the country. That is also reflected in politics, the True Finns did not gain so many votes here at all as in the rest of the country."(Urban Facts). "60 percent of Finland's international community lives here, so tolerance is probably a bit different than in smaller cities in Finland." (Economic Department, City of Espoo)*

Local authorities in the Helsinki region are also aware of the importance of international talent moving to the region. The local expert at Enterprise Helsinki mentioned that political decisions are a barrier to international migration. The Finnish government does not have a clear policy for international migration and does not offer enough services to foreign workers: *"The government is not providing enough services to foreigners. You need for example the Finnish language to be able to live here or to make your business here. And what happens within Helsinki? Most of the immigrants come to Helsinki, so we have to do something. It is a must for us. We do not go and market in Russia or Estonia, they come here, because we already have too much work to manage. But compared to, for example, Canada, Toronto…there the state has a clear policy: they want to have immigrants and they have set an amount of around 250,000 a year, and then they have services for them, so they can integrate these people." (Enterprise Helsinki)*

In the City of Espoo, where 10 percent of the population has a foreign background, the international character is actively promoted through its slogan for the internationalization strategy: 'Espoo is international in everyday life'. In this internationalization strategy, employment and integration are seen as one (Economic Department, City of Espoo).

This awareness that more should be done for foreign workers is justified by empirical research on foreign knowledge workers. A lack of international services was mentioned as a weakness of the city region by international workers in the ACRE project (Vaattovaara et al., 2010). In addition, preliminary results from the EXPAT project, a research on expat services in the Baltic region published later in 2013, in which Uusimaa Regional Council is participating, suggest that expats in the Helsinki Region face problems with high costs of living, bureaucracy and, especially, in the social domain. Registration takes a long time, and expats working as entrepreneurs acknowledged bureaucracy as a significant barrier to start your own company. Although expats feel that in general they are treated with respect in public and at the workplace, they find it hard to connect to local people and integration takes a long time. Also, dissatisfaction with social events in English has been noted as a major weakness of the Helsinki region. On the positive side, safety, childcare facilities, education and medical aid were regarded as the main strengths of the region according to expats (Interview Uusimaa Regional Council; Chang, 2013).

Besides the immigrant issue, it was mentioned that Finnish people are in general not very open to new ideas, although the mentality appears to be changing with the current generation of students: *"Florida's argument is the 3T's. I think Helsinki is quite strong in terms of talent, and also I think we are quite good with coming up with new innovations. The negative side is tolerance…Not only in terms of the migrant issue, but perhaps also opening up to new ideas…But the Aalto University people are more open. That is a whole new generation who are doing things differently." (Urban Facts)*

Authenticity and historical amenities

Helsinki is not known for its skyline or eccentric architecture, but has a number of distinguishing aspects. The Suomenlinna fortress (figure 6.5) is a fortress on an island in front of Helsinki's coastline from 1748. It was built during the Swedish era as a maritime fortress and a base for the Archipelago Fleet. Today, it is a UNESCO World Heritage Site and one of Finland's most popular tourist attractions. Suomenlinna is also a district of the city of Helsinki, with a permanent population of more than 800, many of which are artists.

A distinguishing feature of the city is water. Located at the seaside, it is built on several peninsulas, connected by bridges. The city region has several harbour districts and beaches, but also within the city region, there is a large number of lakes.

Due to large fires and the relatively young capital status, most of the inner city (figure 6.6) was built in the early 19th century. Although the city is lacking a medieval core, it has a number of impressive buildings and squares. Particularly the Senate Square, the market square and Esplanade park give the city the look and feel of a capital.

Figure 6.5 A historical amenity: Suomenlinna Fortress

Figure 6.6 View on Helsinki's inner city from the water

The Post Second World War period has seen an uprising in modern architecture, which is mainly visible alongside Töölönlahti lake. Here, the *Finlandia House* and the Opera house are found, and nearby the *Kiasma Museum of Contemporary Art*, the *Helsinki Music Centre* are more recent examples of modern architecture.
The city has been redeveloping harbor districts and industrial areas since the 1990s. For example, the Arabianranta district is redeveloped around a former dinnerware manufacturing plant, which is currently in use as a shopping centre. After the relocation of harbour activities, the former docks are subject of gigantic development projects, emphasizing quality planning, architecture and design (Interview Urban Facts).
Furthermore, although the climate – e.g. cold and dark winters- was generally considered a negative aspect of the Helsinki region, the 'Nordic oddity', with long light periods in Summer and long dark periods in Winter is also seen as a factor that makes Helsinki (and Finland) unique compared to other parts of Europe (Urban Facts).

Cultural and leisure amenities
Helsinki has a diverse and extensive supply of cultural services (Inkinen & Vaattovaara, 2007), which according to theorists focusing on the creative class (Florida, 2002) and amenities (Clark et al., 2004) should increase Helsinki's attractiveness for creative knowledge workers. Most cultural activity is concentrated in the city of Helsinki, which houses several symphony orchestras, theatres, cinemas and museums (Inkinen & Vaattovaraa, 2007). Due to the capital status, size and economic wealth, Helsinki metropolitan area has developed as the centre of cultural attractions and cultural life in Finland, although it faces competition in the field of culture from the old capital Turku (Inkinen & Vaattovaara, 2007). The city and the region offer a large variety of over 80 museums, including the largest art collection in Finland (over 20,000 works) at the *Ateneum Art Museum*. The Museum of *Contemporary Art Kiasma* has a large collection of Finnish art and works by artists from other Nordic and Baltic countries. The Amos Anderson Art Museum offers the biggest private art collection of Finland. Other arts museums include the Helsinki Art Museum Tennispalatsi, located in a former tennis palace, the *Didrichsen Art Museum* in a private house on Kuusisaari island, *Kunsthalle Helsinki* and the *Finnish Photography Museum*. The city also offers

museums related to Finland's and Helsinki's history and culture. The *National Museum of Finland* illustrates Finnish history through archeological and ethnological collection, and the *Helsinki City Museum*, on several locations, illustrates the history of the city. Outside the core city, the *Seurasaari Open-Air Museum*, which displays Finnish housing of days gone by.

Helsinki is also known as a design city. It has a *Design Museum* where the development of industrial art handicraft and industrial design since the late 19th century are displayed and a Design District, where apart from shopping facilities the latest trends are promoted at the *Design Forum Finland*. Outside the city, the *Museum of Technology* presents the Finnish history of technology and industry.

Helsinki has an active pop and rock music scene, and various bars, restaurants and music venues offer live performances by Finnish artists and bands.

Furthermore, Helsinki is a green city with a variety of parks and nature in the direct vicinity. The oldest and best known park is *Kaivopuisto Park*, with a view over the waterfront. *Esplanade Park* in the city centre is used by tourists and residents as a place to relax and as a venue for cultural events, including fashions shows, folk dancing and jazz concerts in summer. Other green amenities include the *Gardenia* tropical garden, the *University Botanical Garden*, *Sibelius Park* and the *Töölönlahti Bay* area (Helsinki Tourist Information, 2013).

Metropolitan governance is also concerned with maintaining the greenness and tidiness of the city. In addition, the urban infrastructure and the overall functionality are key foci of the political and administrative systems (Vaattovaara et al., 2010).

The city was designated European City of Culture for the year 2000, but this had only limited international effect as there were eight other European Cities of Culture that year. Still, cultural policy has become a crucial part of economic policy and is seen as a means to prevent social exclusion. The combination of business activities and design is regarded as one of the strength of the Finnish economy. The *Eurocult21 Compendium* (Silvanto, 2005) stresses the importance of artists living and working in the city. Artists are therefore supported by the cultural policy of the city. The *Cultural Office* fosters an encouraging atmosphere and a climate suitable for producing and experiencing art and culture in Helsinki. The Cultural Office has the following priorities: support for professional artists, arts education, regional cultural work, international cooperation and multiculturalism (Bontje et al., 2011). These efforts have resulted in Helsinki being awarded World Design Capital of the year 2012, which according to the interviewees has had a large impact on the city as a creative knowledge hub.

One of Helsinki's main challenges is still to create urban "buzz" and a varied street life. Both Helsinki and Finland in general, have not had the long urban tradition that has contributed to a rich urban life in some other European cities. Still, based on a study on (transnational) knowledge workers in Helsinki, urban life has improved over the past few years, particularly as a result of recent positive developments in urban culture. There has been a steady increase in the number of entertainment facilities, such as bars and clubs in the city centre (Vaattovaara et al., 2010). In addition, in the "Fun and Functionality"-strategy, a lively urban culture is seen as part of the overall competitiveness and quality of urban life. There has been increasing municipal cooperation within the region regarding the successful development of urban life. According to the Competitiveness Strategy, cities in the Helsinki region jointly organize, provide and market cultural events and develop cultural services and tourism. As a result of the abovementioned efforts to make the city more interesting from a cultural point of view, the city has become much more "buzzing" than ten years ago (Vaattovaara et al., 2010).

The lack of urban buzz indeed seems to have been taken up actively by local governments, since cities' policies are very much focusing on making the city attractive in terms of its cultural and leisure offering. Cultural policy is not yet strongly included in regional strategies, but is still in hands of the municipalities. Helsinki has acknowledged the importance of the cultural sector since the city's uprising in the late 1990s and early 2000s and has linked culture to all domains in the city's strategy. In the 2011 Quality of Life survey by Monocle, in which Helsinki ranked first, it was also noted that Finland is gaining ground in design, architecture and food culture (Monocle, 2011). For example, design and arts included strongly in branding strategies: *"Helsinki want to be or claims itself to be a 'fun and functional' city. People choose to live here for the fun part…Culture is very heavily in our strategy as well, in the Helsinki strategy, but it was not touched upon in the city regional strategy. We put a lot of effort into organizing all sorts of events in the city and also we are hosting big events. Last year we were World Design Capital, which was a big, big thing … Design is one of the things we always like to raise, and we want to be the design metropolitan. Helsinki is where the creative industries, 80 or 90% of creative industries is here in Helsinki area, so it very, very much centralized here. So it is very natural for us that culture and all the fun part is very much looked after". (Economic Department, City of Helsinki)*

"Indirect, the cultural sector is a key part of Helsinki's future...Helsinki wants to be a fun and functional city. We want to make sure that things work fine, that the buses are on time…public services are operating ok, its transparent the system and equal to everybody, schools are working fine. All of the services are working fine. Simultaneously it is a city where you can have fun. It is not a dull city at all…People might feel that this is worth a place to live in; there is more happening. It is not only ballet, opera and theatres, but in addition, there is more happening." (Urban Facts)

The mayor of Helsinki spoke of a *New Era of Culture*, in which young people are making a lot of things happen (Urban Facts). Examples are the initiatives *Restaurant Day* and *Cleaning Day*. These are days, several times a year, at which everyone can sell their own food or sell old things in their homes or on the street. These events are spreading through social media, and even a mobile application has been made by Aalto University student, through which people can see where in their neighbourhood they can find 'restaurants': *"They have come up with an idea that everyone can open a restaurant, literally we have hundreds of restaurants on one day, a few times per year. And topics range from different kinds of ethnic food to traditional things." (Urban Facts)*. These bottom-up initiatives were seen as symbolizing a more relaxed view toward creative ideas and using the city as a leisure space: *"Life in Helsinki was quite controlled. If you wanted to play music in the street, you needed to go to the police station to ask for permission to perform. Nowadays it is much more relaxed. Anyone can play out there. The idea is that all of the knowledge how to organize things like that is not within the city's organization…But we provide the framework, the platform…But the basic idea is that the city is for people to use, come up with ideas, that is quite a turnaround."(Urban Facts)*

Apart from these grassroots activities, Finland is also a country where many festivals take place. Although most of them are situated in smaller towns, the *Helsinki Festival* is the largest arts festival in Finland. The 2012 programme line-up featured classical and world music, circus, dance, theatre, a children's programme, cinema and a range of urban events. The festival takes place annually in late Summer and lasts for about a month, including many smaller sub festivals. (Urban Facts)

Espoo has not yet adopted the Florida-paradigm, but is planning to do so in the future since the local expert from Espoo believed that on the long term, jobs follow people and an attractive climate in terms of amenities has to be offered. Already, there are some high quality cultural amenities in the Tapiola district, and Espoo also has annual cultural events. After the metro line is finished and the University for Art, Design and Architecture has moved to Espoo, the Otaniemi area is expected to become a creative hub, more than it is already: *"We have to create new areas for restaurants and bars and cultural activities more than we have had, and that is on the agenda definitely…The main focus will be on Otaniemi and Keilaniemie, with the international headquarters of Nokia and Rovio are located, and Tapiola…There is already now a Museum for Contemporary Art called and an exhibition centre and a cultural centre with excellent facilities for our city orchestra and library…In autumn there is a film festival called Espoo Cine. There is already a lot going on with long traditions, and we just want to foster them and create new ones in the future." (Economic Department, City of Espoo)*

6.5 Where do knowledge workers live in the Helsinki region?

Previous research on residential preferences in Helsinki

Unlike Florida's claim that soft location factors are among the main attractors of creative people in the U.S. context, the ACRE project's empirical study concluded that soft factors play at most a secondary role in attracting creative workers to the Helsinki metropolitan area. Most relocation decisions resulted from personal reasons, and in particular people's personal trajectories: being born in the region, having studied in the region or knowing family in the region. Over 40 percent of the Finnish employees was born in the region, and the majority of the Finnish workers and employees had either been born, had family or had studied in the region. For the international knowledge workers, following a partner was an important driver of migration. Besides personal reasons, hard factors, or 'classic location factors' were the main drivers of relocation. Particularly the quality of higher education and employment opportunities are major attractors of knowledge workers to the region (Vaattovaara et al., 2010).

Besides economic and personal aspects, two thirds of the Finnish workers and even 85 percent of the international migrants mentioned at least one soft condition as a reason to settle in the Helsinki region. Among the soft factors most mentioned by creative knowledge workers were safety, diversity of leisure and entertainment, the tolerant atmosphere and proximity to a natural environment. These positive soft factors were also considered important for retaining creative knowledge workers.

Soft factors in particular steer the choice of neighbourhood or business location within the metropolitan region. Both Finnish and transnational knowledge workers attached most importance to the quality of their neighbourhood, in particular, the neighbourhood's atmosphere and the availability of private open space. Many interviewed knowledge workers were more satisfied with their neighbourhood than with the city as a whole. In general, the knowledge workers expressed a willingness to stay in the Helsinki region (Vaattovaara et al., 2010).

Interestingly, the creative knowledge workers in Helsinki do not completely match with Florida's (2002) 'typical creative knowledge worker'. Much more than closeness to entertainment and the city centre, they value a comfortable and welcoming neighbourhood and spend most of their free time at home in their suburban neighbourhood or in parks or other green areas. Most of them also lived in suburban locations (Kepsu & Vaattovaara, 2008). Attractive residential areas are important for attracting and retaining creative knowledge workers into the city. However, so far no policy efforts are undertaken at the neighbourhood level (Vaattovaara et al., 2010).

For creative and knowledge-intensive companies, especially those in the highly creative fields, soft factors were considered important because of their influence on the customer base and business networks, and were also considered helpful for the recruiting of staff (Vaattovaara et al., 2010).

The ACRE project has also shown a number of weaknesses of the Helsinki regarding the residential milieus, expressed by both employees and managers. The increasing costs of housing and lack of diversity in residential spaces were considered a threat to the competitiveness of the region and the availability of a skilled labour force in the future (Vaattovaara et al., 2010). There is dissatisfaction among consumers in Helsinki with the rather monotonous looking housing locations. For many knowledge workers, location is considered more important than the housing quality, and a sufficiently spacious environment, and in particular accessibility and 'pleasantness' are highly valued. These consumer preferences deserve more policy attention, especially at the neighbourhood level (Kauko, 2006).

Popular districts for knowledge workers

According to the interviewees, the residential patterns of knowledge workers more or less overlap with patterns of employment. They are overrepresented in the western part of the city and in Espoo, but hardly live in the eastern part of the city, which is far from their workplaces. People working in creative industries, however, are more strongly concentrated in the inner city of Helsinki (e.g., the Design District) and the Kallio district (figure 6.7) adjacent to it: *"We can say roughly that engineers, ICT sector people tend to live in the western side of Helsinki or in Espoo. Their housing preferences are detached or semi-detached housing, not apartment buildings as much as the cultural workers… While people in the culture sector tend to concentrate very heavily in the city centre of Helsinki and also in the Kaalio district. Traditional working class area, within walking distance from the centre, very lively, sometimes too lively street life for some. But they concentrate in such way that their jobs are in the city centre and their housing, while the engineering type of people tend to have jobs in Espoo. So there is some concentration going on. One problem for us is that the eastern part does not attract that many people from these sectors, and also in terms of jobs…They built quite a number of high-quality housing where you have to buy housing, owner-occupied housing, relatively high-rise: 6-8 floors…This is a very attractive area, you can live by the sea…I would say very attractive, but there are still some people consider the eastern part of Helsinki is not for them…These areas so far have not attracted that many knowledge workers, even if there is one particular house built particular for artists… But they tend to live and work close to the city centre." (Urban Facts)*

Figure 6.7 The centrally located Kallio district

Arabianranta (figure 6.8), developed since the 1990s, has an old linkage with the Arabia dinnerware factory, which contributes to a long history of design in the area. Currently, the University of Art, Design and Architecture is located there, and it is also located close to one of the Helsinki University campuses. According to the local expert at Urban Facts, the intention was that this neighbourhood would become a creative hub. In practice, however, there are more families with kids living there than was anticipated, but the area also has attracted a number of artists. The design of the area's housing stock and public space sets it apart from other neighbourhoods in Helsinki. Different styles of modern architecture have been applied and many housing blocks have their own public art projects, which are also paid for by the local community. The reference to its industrial design history is made explicit in one apartment block, where parts of Arabia dinnerware are integrated in the facades.

Figure 6.8 The Arabianranta district

Also the Cable Factory in Salmisaari (figure 6.9) has developed into a creative hub (Bontje & Musterd, 2009). In this former Nokia plant, creative workplaces as well as bars have been established. The harbour is being moved to the eastern part of the city, and at its current site, Jätkäsaari, a new residential district is being constructed in order to accommodate the city's population growth: *"Helsinki is expanding a lot, because we have three or four really big areas, very, very nice areas by the seaside, because we moved or harbor to the other side of Helsinki. And we are building 5,000 new apartments a year. That is quite a lot… These new areas, they will be such fantastic areas, and we hope, we are quite confident that –they are only like 10 minutes from the city centre, so they are very close— and they will be very appealing to highly educated knowledge people. So I do not think that will be the problem that we would not have suitable housing." (Economic Department, City of Helsinki)*

Figure 6.9 Transformed industrial heritage: Nokia Cable factory at the Salmasaari harbour district

Espoo has so far been particularly attractive for IT workers and, particularly, for families with children: *"Especially in Espoo, it is mostly for the job that has been attracting people to move here. Or possibilities for studying and working…People working for the IT sector are living all around Espoo and also on the Helsinki side. But generally I would say Espoo is a city for families, many families move to Espoo when they have kids. They might have a small flat in the downtown, but when they want to have more room then they move here." (Economic Department, City of Espoo)*
Creative workers have so far not concentrated in Espoo, but the metro line is expected to lead to some changes, as this improves the connectivity to the inner city of Helsinki: *"I think when the metro line is here it will change a lot. So far we do not have any specific area for the creative industry people, but I think that after the metro will be here it is possible that there will be these areas." (Economic Department, City of Espoo).*
Also the relocation of the University of Arts, Design and Architecture from Arabianranta to Espoo is expected to have an impact on the creative character of Espoo: *"The main campus of Aalto University will be here, and the new building for the school of Arts and Design and Architecture will be built here, and that means that in the future there will be working, studying and hopefully also living a lot of people who are related to industries of media or fashion or design more than nowadays. But so far Espoo has been more like a Tech City." (Economic Department, City of Espoo)*

6.6 Conclusions: strengths and weaknesses of the Helsinki region

The Helsinki region's main strengths are clearly on the hard side of the city. The city has a strong economic profile, dominated by ICT, a highly skilled working population and Finland's education system is rated among the best in the world. Helsinki's economy is not diverse, however. Apart from the very large public sector, the city regional economy is rather specialized in ICT. Still, within the ICT sector, Helsinki seems to be becoming less dependent on one large company.

Whereas previously, Nokia attracted all talents to work for them, the recent job losses at Nokia have not yet led to concerning unemployment shares—though unemployment is increasing—but rather created space for new ideas. The region is now concentration more on software development, and particularly the gaming industry has been booming over the past few years. In addition, a renewed focus on stimulating entrepreneurship appears to be successful, since small and medium-sized high-growth startups are employing more and more people.

Although remote from a European perspective, Helsinki's location close to Russia opens up new opportunities given the new economic world order, in which Russia and Asia play a more prominent role. The region's transport infrastructure, and particularly the direct connections to Asia and the US, may open up new opportunities.

In general, Helsinki is regarded as a city where everything works. In particular, the public transport system and healthcare system are highly valued. Still, the very large public sector is still suffering from bureaucracy, which is especially seen as a problem by foreign workers.

On the soft side of the city, the capital and primate city status of Helsinki within Finland naturally has led to all major cultural amenities being located in the city, including the opera house and the national art gallery. A renewed policy-focus on culture has eventually resulted in the designation of World Design Capital in 2012. Apart from cultural amenities and festivals, the city is also characterized by a large supply of green areas and water. With a region of 1,4 Million inhabitants, the city is too small to be a real metropolis from an international perspective, but the compact size also enables 'easy living' and short commuting times, which makes the city competitive for exactly these knowledge workers who are not attracted by the density and congestion of the larger world cities, but still prefer to live close to urban amenities.

The major challenges on the soft side are related to affordable and attractive housing on the one hand, and tolerance on the other. In general, Helsinki is an expensive city to live in, and this certainly concerns the housing market, with exploding housing prices making parts of the city unaffordable outside the social rented sector. The problem of a monotonous housing stock, which was mentioned in previous studies, is partly being challenged through housing projects like Arabianranta and waterfront developments, where more daring architecture and design are being conducted. But also these areas are targeted mainly at households with higher incomes.

Tolerance towards foreigners is still a point of attention, since integration into Finnish society is experienced by expats and local experts as a long and difficult process and national immigration discourses are still rather exclusive. Although large companies like Nokia have employed many international workers for years, the region is still lacking an 'international vibe'. In addition, there are too few services for foreign people, and especially at the job market it is difficult to find your way if one does not master the Finnish language. Still, Helsinki is perceived to be more tolerant than the rest of the country and local authorities in the Helsinki region also have recently been intensifying services for foreign knowledge workers, since it is acknowledged that the regional economy partly depends on them.

7. Conclusions

7.1 Insights from the literature

Since the 2000s, location theory has been dominated by a so-called 'people-based perspective', implying that soft conditions such as diversity, tolerance and amenities play a decisive role for the location choices of knowledge-intensive companies and their workers. This literature has been largely criticized for overestimating the role of soft factors and underestimating the role of classic conditions such as employment opportunities and personal networks and life trajectories. Furthermore, these studies suggest the existence of one homogeneous 'creative class' with uniform preferences regarding residential locations and amenities, whereas others doubt te existence of this group and suggest to at least divide it into several sub groups. In addition, these studies are highly US-centred and their policy implications are considered hardly applicable in the European context.

Empirical studies from the US, Europe, but also Israel and Australia have shown that residential preferences of knowledge workers indeed are highly diverse. Residential preferences are not so much different between knowledge workers and the population in general, but tend to differ between and even among different subgroups of knowledge workers. The importance attached to soft conditions often tends to be correlated with demographic aspects and lifestyle. Age and the stage in the family life cycle are the main determinants of residential location choice, and residential preferences tend to change during various stages of the life cycle. One the one hand, young households, particularly singles and families without children, and persons with a 'bohemian' lifestyle, tend to prefer central urban residential milieus. On the other hand, settled households, particularly families with children, and careerists tend to prefer larger dwellings in a quiet environment.

The location preferences sketched by Florida appear to reflect the preferences of one specific occupational group within the creative class: workers in cultural industries. These workers have a stronger preference for central urban milieus that are rich in amenities, offer ample meeting opportunities and have a high profile housing stock and public space. On the other hand, the preferences of workers in ICT or other technical professions do not appear to be that much different from the general population. Both urban and suburban locations tend to be popular among this group, again mainly related to demographic aspects and personal lifestyle.

Furthermore, a vast number of studies have highlighted the ongoing dominance of hard factors and the importance of personal trajectories and social capital for making location choices. People move in the first place because of work opportunities and career perspectives, or because of personal motives and relationships. Although amenities, according to a number of studies, indeed play a role for residential preferences of knowledge workers, they are not the primary reason to choose a location and they also do not appear to be more important for highly-skilled than for low-skilled workers. In fact, work opportunities were found to matter more for the relocation choices of highly educated workers than for those of low educated workers. Thus, if at all, soft

conditions play a secondary role, and should therefore be considered as necessary, but not sufficient to attract knowledge workers.
The critique that 'the creative class' is a too diverse category to study as a single entity therefore seems justified. The empirical part of the HELP project will therefore make this distinction between cultural workers on the one hand, and technical workers on the other, while also distinguishing between workers according to their demographic features.

7.2 Insights from the expert interviews

The strengths and weaknesses of four European knowledge regions: hard factors
All four cities have a highly skilled labour force and strong higher education institutes. In terms of the labour market, Amsterdam has a very diverse profile, ranging from financial and business services to ICT and a broad range of cultural industries. This diversity makes the city region attractive for a diverse group of workers and less vulnerable to economic crises. Eindhoven and Helsinki have a strongly specialized economic profile, respectively high-tech manufacturing and ICT, but are also ranked among the top regions in their respective segments. Despite the economic crisis, Eindhoven has continued to achieve economic growth. Copenhagen takes in a position somewhere in-between, since the region's economic profile is not as homogeneous as Helsinki's and Eindhoven's, but also not as diverse as Amsterdam's. The region excels in medical technology and life tech. Although also Amsterdam has a strong beta cluster (e.g., ICT and Shell laboratory), Eindhoven offers jobs that are unique within the Netherlands. Whereas Amsterdam also emphasizes its diversity and focuses its policy-making on seven clusters, Eindhoven, Copenhagen and Helsinki have strong cluster policies and a number of large multinationals that attract both native and international knowledge workers. All four cities have achieved growth in cultural industries over the past years. For international knowledge workers, the position of their spouse deserves specific attention. If their spouse is not happy or cannot find employment, expats are less likely to stay. Particularly Eindhoven appears to be aware of this and has adopted an active spouse programme through the Expatcenter.
In terms of infrastructure, Amsterdam's main strength is Schiphol Airport, Europe's fourth largest airport, which ensures Amsterdam's global connectivity and is also an economic hub. Copenhagen and Helsinki are both known for their excellent public transport system and low levels of congestion. Both cities have an international airport that ranks among the top 20 of best airports worldwide. Copenhagen, in addition, is also known for its high standard bicycle infrastructure. Although Eindhoven has a peripheral location from a Dutch perspective, it is located not too far from larger European cities, to which it has good highway connections. Local experts also mentioned that the distance to Amsterdam (1,5 hour by train) is not long when seen from an international perspective. Being the fifth city of the Netherlands, Eindhoven's airport is much smaller than that of the other three case studies, but offers connections to a small number of European destinations.
As was mentioned in the literature, an important aspect of knowledge regions is strong public-private partnerships. Particularly Eindhoven is very strong in this respect, where development organization 'Brainport Development' functions as a joint venture by the municipalities, local companies and the university to promote the region internationally and to attract companies and talents. Also Amsterdam (Amsterdam Economic Board), Copenhagen (Copenhagen Capacity) and Helsinki (Regional Competitiveness Strategy) have public-private-partnerships in the regional economic domain.

On the hard side, all four cities also are facing some difficulties. Although Amsterdam's diverse economy is generally beneficial to the regional economy, it was also mentioned that Amsterdam does not excel in any sector, which makes it difficult to brand the region internationally and to attract specific groups of workers. Amsterdam also has problems with space scarcity in general, as well as high levels of congestion. Eindhoven has some problems related to its limited scale. The city and its university are too small to ensure sufficient critical mass, and, even more important, there is a shortage of qualified labour to fill in job vacancies. Although this problem is being tackled at the national level through the stimulation of studying beta disciplines, Eindhoven is at least on the short run highly dependent on international workers. Copenhagen functions as a magnet for Danish talent, but is struggling to attract sufficient international workers. The restrictive immigration policies at the national level are in conflict with the needs of the regional business sector, which is depending on international talents. Helsinki has long been dominated by the ICT-sector, and mobile telecommunication (Nokia) in particular. This has made Helsinki's economy vulnerable to economic shocks and over the recent years, job losses at Nokia have led to an increase in unemployment. However, Nokia's demise did not turn out to be all bad news, since the rise of other sectors (gaming) and support for high-potential start-ups have partially filled in this gap. Both Copenhagen and Helsinki also have problems related to regional governance. Rather than cooperating, municipalities in the region are competing for high income tax payers. Although the Oresund Committee is aiming for an integrated cross-border labour market, there remains strong competition between municipalities and universities on the Danish and the Swedish side of the Sound.

The strengths and weaknesses of four European knowledge regions: soft conditions

Housing was considered the most important soft factor, and this aspect is problematic in all four cities. In terms of the housing market, Amsterdam, Copenhagen and Helsinki show some similarities. All three cities are characterised by high population density and a housing stock that consists mainly of smaller rented dwellings, many of which are apartments. All cities have a large but decreasing social rented sector, and expensive private rented and owner-occupied sectors. In Amsterdam, Copenhagen and Helsinki high rents and exploded housing prices have made certain central parts of the city almost inaccessible for newcomers with a low income. Eindhoven is the least urbanized of the four investigated city regions, but here lie also its main qualities as a residential environment: natural resources in the direct environment and a large supply of single family dwellings. However, the city lacks the type of dwellings that is generally demanded by younger knowledge workers (apartments) and also lacks a vibrant inner city, although improvements have been made over the past years as a result of large investments in the inner city and the construction of new apartment blocks.

In the two Nordic cities, also low crime levels and the easy way of living ('everything works') were mentioned as strongholds. Interestingly, none of the respondents in the Dutch cities mentioned these factors as a main strong asset of their city region.

With respect to cultural amenities, Amsterdam, Copenhagen and Helsinki have a strong advantage because of their capital status. Eindhoven, compared to the other three regions, is less well-endowed with cultural amenities, although for a city of 200,000 its offer is above-average, especially in the sphere of events. Even more important than having a diverse cultural offer, the accessibility of this cultural offer is important. This is related to short travel distances and low congestion within the region (Copenhagen) and to other cities outside the region (Eindhoven), but also to the barriers to visiting cultural amenities. For example, in Copenhagen, especially the

small cultural offering was highly valued, because knowledge workers want immediate access to them without having to book three months in advance.
With respect to historical amenities and authenticity, Amsterdam has a strong profile with its historical inner city with unique morphology including the canal belt. Copenhagen's inner city is not older than the 18^{th} century due to a number of fires that destroyed most of the medieval city, but many buildings have been rebuilt and the street pattern with many narrow streets has been preserved. Eindhoven and Helsinki seem to have more problems with their image. Eindhoven does not have an historic inner city and is known as a 'large village' rather than a vibrant city. Although Helsinki has some historic buildings in the inner city, the city lacks the image of being a vibrant metropolis. However, in both cities, the interviewees did not consider this as an insurmountable problem.
In terms of image and social climate, Amsterdam and Eindhoven form a contrast to Copenhagen and Helsinki. Whereas both Dutch cities have a large international population and an image of being tolerant toward people coming from outside, Copenhagen and Helsinki are mainly magnets for native talents rather than international talents, and according to the interviews also have a less open social climate.

Residential preferences of knowledge workers

When asking the local experts about why people choose their respective city as a place to live, the first thing that was mentioned was always related to the economic profile of the region, particularly employment opportunities and career perspectives. Regarding the presumed important role of cultural amenities, most of the local experts considered this as a secondary condition that is necessary but not sufficient to attract knowledge workers. These amenities are considered important for marketing the region, and could be decisive in case two regions offer a similar job. But work always outweighs soft conditions. Only in Amsterdam, the local experts appeared to attach more value to soft conditions than in the other three cities, but also here, the diverse economy was always mentioned first.
The concentration patterns of knowledge workers that were signaled by the local experts seem to confirm with some of the literature. In general, they found that workers in cultural industries express a strong preference for inner-city living. They are generally found in diverse neighbourhoods with 'raw edges' surrounding the historic core, and certainly in Eindhoven are also found in transformed industrial heritage sites. These workers prefer to live and work highly clustered, because they are more dependent on interactions in the urban 'buzz' for getting new ideas and projects. Highly-educated people in general, however, do not show clear concentrations in certain districts. Rather their residential patterns are reflected in the dispersion of higher and lower income groups, depending on the group they belong to. It was mentioned that workers in 'analytic knowledge bases', because of the nature of their work, do not need to mingle with colleagues in their spare time and are more able to separate their working and private lives and live in the suburbs.
Despite assumptions by some policy makers that international knowledge workers have different residential preferences than native workers, this seems not to be the case according to the local experts that were interviewed. Also for this group, age and the stage in the family life cycle are the main determinants of location choice. This group faces a particular problem, however, and that concerns their access to the regional housing market. Since Amsterdam, Eindhoven, Copenhagen and Helsinki all have large social rented sectors (or, in Copenhagen, co-ops) and a shortage of rental dwellings in the middle price segment, a considerable part of the housing market is not accessible for expats. This, rather than stated preferences, explains why in some cities expats are overrepresented in districts where specific agencies (or employers) own housing for short-

stays. In Copenhagen, Ørestad is an example of such a concentration area of internationals. Also, specific groups of expats (especially Asian workers) prefer to live in a community with many other fellow countrymen. This explains for example the popularity of Amstelveen, south of Amsterdam, as a place of residence for Japanese workers.

7.3 Overall conclusions and policy recommendations

Wrapping up the main findings from the literature review and the qualitative study, a number of overall conclusions stand out. First, *the* knowledge worker does not exist. While urban policies are often targeting the presumed homogenous 'creative class', this group can be subdivided into several subgroups that differ largely in terms of both income and housing preferences. Whereas creative workers generally express the housing preferences that were presented by Florida (2002), namely highly urban and diverse districts, highly-educated professional workers in business services or technical sectors have housing preferences that do not differ much from the general population and also tend to live in suburban areas. Highly-educated workers' residential patterns to some degree overlap with those of higher income groups and furthermore depend on family situation and lifestyle. An exception is the subgroup of cultural workers, who in all four cities are concentrated in central neighbourhoods, waterfront developments and transformed industrial heritage sites. The concentration of this group in vibrant inner city neighbourhoods is mainly explained by the fact that creative need to be located in the 'buzz' also in their spare time in order to get new ideas and projects. Technical workers, on the contrary, work in their lab and do not need to mingle with colleagues outside office hours.

A second overall conclusion is that work and career opportunities are dominant factors determining the attractiveness of a region for knowledge workers. People move to a region because they can find jobs there. Contradicting Florida's hypothesis, talent does not attract companies but companies attract talent. Soft conditions such as amenities play at most a secondary role for making location choices. They are not the primary attractors, but become important once a job has been found, as people expect a pleasant living environment. In case two regions have a similar job offer, a rich amenity structure and, especially, an attractive housing stock might make one region more attractive than the other.

Third, while employment is the main attractor at the regional level, the choice for a certain location *within* this region is steered mainly by demographic aspects and lifestyle. In general young workers and people with a 'bohemian' lifestyle prefer to live in highly urban districts, whereas older and settled workers with families more often prefer suburban or even rural residential locations.

The high value attached to work opportunities, relative to soft conditions, for relocation choices making it tempting to advice urban policy-makers to invest in attracting sufficient employment, rather than putting too much emphasis on creating attractive urban milieus and cultural policies. However, labour market regulation is organised at the national level in most countries. Rather, the most successful outcomes can be expected from cross-sectoral policies, at the regional level, which integrate work, housing and amenities. Although hard factors and networks outweigh soft conditions, this does not mean that soft conditions are by no means important. Rather, according to many of the interviewees, these aspects play a secondary role: if the economic conditions are equal in two regions, people are likely to choose the region with the best set of living conditions. Of these soft conditions, housing is most important. Soft conditions are necessary, but not sufficient to attract and retain knowledge workers.

As some of the interviewees mentioned, housing is the most important factor on the soft side that determines where people decide to settle. In this sense, a paradox in urban policies is that many cities are restructuring inner city neighbourhoods, including the construction of owner occupied dwellings in the more expensive segment and the cleaning-up of public space. As a result, parts of the inner city become more attractive to people with higher incomes. Having many high income groups is beneficial from the city's viewpoint, since it brings in higher tax revenues. However, from the viewpoints of younger and creative knowledge workers, the housing market in the parts of the city most attractive to them becomes more difficult to access. Unlike what is often presumed by policy-makers, not all knowledge workers have a high income. Rather, younger workers, especially those working at educational institutes, such as PhD-students, and people working in cultural industries such as arts, have a lower or middle income. Still, these groups express the highest preference for living in highly urban districts, according to a significant strand of literature. More housing in middle price segments is highly needed in order to ensure the access of all knowledge workers to the city.

A second recommendation that is related to the housing market concerns housing for short-stay workers. The local experts stated that internationals and expats do not have significantly different preferences than native workers, but rather have different access to the housing market. Especially in cities with a large stock of social housing (e.g., Amsterdam and Copenhagen), they are restricted to the more expensive districts where there is more choice –if their income allows them- or to areas where short-stay agencies possess housing. Besides the realisation of sufficient short-stay dwellings, also this group is likely to benefit from a larger supply in the middle-priced segment. After all, they need immediate access to dwellings and due to their short-term contract, buying a house is not a viable option.

In addition, urban restructuring policies have led to previously diverse neighbourhoods becoming more homogeneous and the loss of raw edges makes these neighbourhoods even less attractive to people in creative industries. In the same sense, for attracting and retaining workers in cultural industries, it seems to be important not to have too strict regulations regarding the catering sector and, especially, bottom-up initiatives. In Amsterdam, the 'dulling' of the inner city has harmed Amsterdam's reputation as 'the city where everything is possible', and has even led to the departure of a cultural event to The Hague. On the positive side, Helsinki has recently adopted a more laissez-faire approach, which has led to popular bottom-up initiatives such as Restaurant Day and Cleaning Day. Especially considering the strong international competition from cities such as Berlin, cities should be careful with too strict regulations if they want to retain and attract cultural workers.

A fourth and final implication is related to international knowledge workers, and concerns the national, rather than the regional, policy level. Considering the relatively limited scale of the four city-regions and the countries in which they are situated, an international focus seems to be inevitable in order to be able to fulfill the high economic ambitions. This concerns both the attraction of foreign direct investments, including international companies, and the welcoming of international knowledge workers, which can be influenced through government policies, including tax regulations and service delivery to expats. In the Netherlands, this is currently the case. Denmark, however, faces problems in this respect because of the strict immigration policies, which form a barrier to the in-migration of knowledge migrants. Also, the increasing popularity of populist anti-immigration parties in The Netherlands and Finland are concerning for the international competitiveness of the other three case study regions.

Summary in Dutch

Inzichten uit de literatuur

Het eerste deel van het eerste deelproject bestond uit een literatuurstudie naar kennissteden en de woonvoorkeuren van kenniswerkers, waarbij de nadruk lag op Europees onderzoek. Sinds de jaren 2000 wordt de locatietheorie gedomineerd door een zogenaamd 'mensgericht perspectief' , hetgeen impliceert dat 'zachte' omstandigheden, zoals diversiteit, tolerantie en voorzieningen een beslissende rol spelen voor de locatiekeuzen van kennisintensieve bedrijven en hun werknemers. Deze literatuur is sterk bekritiseerd vanwege enerzijds het overschatten van de rol van zachte locatiefactoren, en anderzijds de onderschatting van de rol van die 'klassieke' voorwaarden, zoals werkgelegenheid, en persoonlijke netwerken en levenstrajecten spelen voor het maken van locatiekeuzen. Bovendien suggereren deze studies het bestaan van één 'creatieve klasse', met uniforme voorkeuren ten aanzien van woonlocaties en voorzieningen. In ander onderzoek wordt juist bewijs gevonden dat verschillende groepen binnen deze creatieve klasse ook verschillende woonvoorkeuren en leefpatronen hebben. Daarnaast zijn deze studies te veel gericht op de context van de Verenigde Staten en zijn hun beleidsimplicaties amper toepasbaar in de Europese context, waarin mensen doorgaans meer geografisch gebonden zijn, vooral door institutionele en culturele barrières.

Empirisch onderzoek uit West- en Noord-Europa, maar ook studies uit Israël en Australië, hebben aangetoond dat de woonvoorkeuren van kenniswerkers inderdaad zeer divers zijn. Het belang dat aan zachte locatiefactoren wordt toegekend is niet zo zeer verschillend tussen kenniswerkers en de bevolking in het algemeen, maar verschilt meer tussen en zelfs binnen verschillende groepen kenniswerkers, welke onderscheiden kunnen worden op basis van demografische aspecten als de aard van hun werkactiviteiten. De locatievoorkeuren zoals geschetst door Florida (2002) lijken vooral de voorkeuren van één bepaalde beroepsgroep binnen de creatieve klasse te weerspiegelen, namelijk die van werknemers in de culturele sector. Deze werknemers hebben een sterkere voorkeur voor centraal-stedelijke woonmilieus die rijk zijn aan voorzieningen, volop ontmoetingsmogelijkheden bieden en een hoge kwaliteit te beiden hebben op het gebied van de woningvoorraad en de openbare ruimte. Aan de andere kant verschillen de voorkeuren van werknemers in de ICT of andere technische beroepen niet veel van de algemene bevolking. Zowel stedelijke als suburbane locaties zijn populair onder deze groep.

Verder wijst een groot aantal studies op de aanhoudende dominantie van harde factoren en het belang van persoonlijke trajecten en sociaal kapitaal voor het maken van locatiekeuzes. Mensen verhuizen in de eerste plaats vanwege de kansen op werk en carrièreperspectieven, of omwille van persoonlijke motieven en relaties. Hoewel voorzieningen, volgens sommige studies, inderdaad een rol spelen voor de woonvoorkeuren van kenniswerkers, zijn deze niet de voornaamste reden om voor een locatie te kiezen. Ook zijn deze aspecten niet per definitie belangrijk voor hooggeschoolde dan voor laaggeschoolde werknemers. Sterker nog, verschillen in de waardering van werkmogelijkheden blijken groter te zijn tussen hoog- en laag opgeleiden dan verschillen in de

waardering van zachte locatieaspecten. Kortom, zachte omstandigheden spelen hooguit een secundaire rol bij het maken van locatiekeuzen, en moeten daarom worden beschouwd als noodzakelijk, maar niet voldoende, om kenniswerkers te trekken.
Een andere interessante bevinding is dat het belang dat aan zachte voorwaarden wordt gehecht vaak gerelateerd is aan demografische aspecten en de leefstijl van individuen. Leeftijd en de levensfase waarin men zich bevindt zijn de belangrijkste aspecten die de keuze voor een bepaalde woonlocatie bepalen. Aan de ene kant hebben jonge huishoudens, vooral alleenstaanden en gezinnen zonder kinderen, en personen met een alternatievere (‘bohemian’) leefstijl vaker een voorkeur voor een centraal stedelijk woonmilieu. Aan de andere kant vestigen vooral gezinnen met kinderen en carrièremakers zich vaker in grotere woningen in een rustige omgeving.
De kritiek dat 'de creatieve klasse' moet worden onderverdeeld in verschillende beroepsgroepen op basis van hun woonvoorkeuren lijkt dan ook gerechtvaardigd. Het empirische deel van het HELP- project zal daarom onderscheid maken tussen culturele werkers enerzijds, en werknemers in meer technische sectoren anderzijds, en daarnaast ook onderscheid maken op basis van demografische kenmerken.

Inzichten uit de interviews met experts

Het tweede deel van het eerste deelproject bestond uit een kwalitatief empirische onderzoek naar de sterkten en zwakten van vier Europese kennisregio’s, waarbij lokale experts uit vier stadsregio’s zijn geïnterviewd: Amsterdam, Eindhoven, Kopenhagen en Helsinki. Deze steden zijn geselecteerd, omdat in alle vier de steden *human capital* een belangrijke motor van de lokale economie is en klimaat geen belangrijke rol speelt. Alle vier de steden hebben in de jaren 1990 en vroege jaren 2000 een groeiperiode doorgemaakt waarbij de kennisintensieve economie een belangrijke rol speelde. Eindhoven verschilt van de andere drie steden in een aantal opzichten. Waar de andere drie steden hebben een vergelijkbare omvang hebben (ongeveer 600.000 tot 700.000 inwoners) en de grootste steden in hun land zijn, is Eindhoven is veel kleiner met slechts 220.000 inwoners en slechts de vijfde stad van Nederland. Ook Eindhoven de enige van de vier steden die geen hoofdstad is, en speelt ook de aanwezigheid van water geen prominente rol. Echter, de belangrijke positie van Eindhoven binnen Nederland op het gebied van economische productie, zeker op het vlak van de kenniseconomie, rechtvaardigt de opname ervan in dit onderzoek.

De sterke en zwakke punten van de vier Europese kennisregio's : harde factoren

Alle vier de steden hebben een hoog opgeleide beroepsbevolking en een instellingen voor hoger onderwijs van hoge kwaliteit. Qua arbeidsmarkt heeft Amsterdam een zeer divers profiel, variërend van financiële en zakelijke dienstverlening tot ICT en een breed scala aan creatieve industrieën. Deze diversiteit maakt de stadsregio aantrekkelijk voor een diverse groep werknemers en minder kwetsbaar in tijden van economische crisis. Eindhoven en Helsinki hebben een sterk gespecialiseerd economisch profiel, respectievelijk high-tech en ICT, maar behoren in hun respectievelijke segment ook tot de topregio's. Ondanks de economische crisis heeft de Eindhovense economie groei doorgemaakt. Kopenhagen is qua economisch profiel niet zo homogeen als Helsinki en Eindhoven, maar ook niet zo divers als Amsterdam. De regio blinkt uit in de medische technologie en life tech. Waar Amsterdam haar diversiteit benadrukt in beleid, zetten Eindhoven, Kopenhagen en Helsinki juist in op een sterk clusterbeleid. Alle vier de steden hebben de afgelopen jaren een groei doorgemaakt in de creatieve sectoren. Voor internationale kenniswerkers verdient de positie van de echtgenoot/echtgenote specifieke aandacht, daar expats eerder geneigd zijn te vertrekken wanneer deze niet gelukkig is of geen werk kan vinden. Vooral Eindhoven lijkt zich hiervan bewust te zijn en heeft een actief partner programma opgenomen in de beleidsagenda,

uitgevoerd via het Expatcenter.
In termen van infrastructuur is de belangrijkste kracht van Amsterdam de aanwezigheid van Schiphol als de op drie na grootste luchthaven van Europa. Ook Kopenhagen en Helsinki hebben een relatief grote luchthaven en staan daarnaast bekend om hun uitstekende openbaar vervoersnetwerk en het lage congestieniveau. Kopenhagen, en ook wel Amsterdam, staan daarnaast ook bekend om hun goede fietsinfrastructuur. Hoewel Eindhoven heeft een perifere ligging heeft vanuit Nederlands oogpunt, ligt het niet al te ver van de grotere Europese steden. Ook wordt de relatieve nabijheid van Amsterdam benadrukt door de lokale experts, zeker bezien vanuit internationaal perspectief. Als de vijfde stad van Nederland is de luchthaven van Eindhoven een stuk kleiner dan die van de andere drie case studies.
In de literatuur werd een sterke publiek-private samenwerking genoemd als een belangrijk aspect van kennisregio's. Vooral Eindhoven profileert zich zeer sterk in dit opzicht, met een efficiënt functionerende Triple Helix, gecoördineerd door Brainport Development.
Aan de harde kant worden ook alle vier de steden geconfronteerd met een aantal problemen. Hoewel de Amsterdamse gevarieerde economie is in het algemeen gunstig is voor de regionale economie, werd ook vermeld dat Amsterdam niet echt uitblinkt in een sector, wat het moeilijk maakt om het ‘merk’ van de regio internationaal te verkopen en specifieke groepen werknemers aan te trekken. Amsterdam heeft ook problemen met ruimtegebrek in de algemene zin, alsmede een hoge mate van congestie. Eindhoven heeft een aantal problemen die verband houden met haar beperkte omvang. De stad en haar universiteit zijn te klein om voldoende kritische massa te garanderen, en, belangrijker, er is een tekort aan geschoolde arbeidskrachten om aan de vraag naar arbeid door het regionale bedrijfsleven te kunnen blijven voldoen. Hoewel dit probleem wordt aangepakt op nationaal niveaumiddels een Techniekpact dat beta-studies moet stimuleren, is Eindhoven zeker op de korte termijn sterk afhankelijk van internationale werknemers. Kopenhagen fungeert als een magneet voor Deens talent, maar heeft moeite met het aantrekken van voldoende internationale werknemers. Het restrictieve immigratiebeleid op nationaal niveau is in strijd met de behoeften van het regionale bedrijfsleven, dat juist internationaal talent nodig heeft om aan de arbeidsvraag te kunnen voldoen. Helsinki’s economie wordt al geruime tijd gedomineerd door de ICT-sector, en mobiele telecommunicatie (Nokia) in het bijzonder (het ‘Finse wonder’). Dit heeft de economie van Helsinki 's kwetsbaar gemaakt en gedurende de afgelopen jaren heeft banenverlies bij Nokia geleid tot een toename van de werkloosheid. Echter wordt door de experts Nokia's ondergang niet alleen als een probleem gezien, aangezien er hierdoor ruimte is ontstaan voor nieuwe sectoren om op te bloeien. De opkomst van de gaming industrie en de ondersteuning voor startende bedrijven met hoge potentie hebben het gat dat Nokia achterliet gedeeltelijk ingevuld.
Zowel Kopenhagen en Helsinki hebben daarnaast problemen met betrekking tot regionaal bestuur. Hoewel op economisch gebied in toenemende mate wordt samengewerkt, is er sprake van sterke onderlinge concurrentie om het aantrekken van belastingbetalers met midden en hoge inkomens. In het geval van de grensoverschrijdende regio Kopenhagen (Øresund regio) bestaat er ook nog sterke concurrentie op economisch valk en tussen de universiteiten aan beide kanten van de grens.

De sterke en zwakke punten van de vier Europese kennisregio's: zachte voorwaarden
Qua woningmarkt vertonen Amsterdam, Kopenhagen en Helsinki een aantal gelijkenissen. Alle drie de steden worden gekenmerkt door een hoge bevolkingsdichtheid en een woningvoorraad die vooral uit kleinere huurwoningen bestaat, waaronder veel appartementen. Alle steden hebben een grote, maar afnemende sociale huursector, en een dure particuliere huur-en koopsector. Amster-

dam en Kopenhagen hebben een aantal wijken in en rond de binnenstad waar de woningen van hoge kwaliteit zijn en er sprake is van een bruisend stedelijk klimaat, welke aantrekkelijk worden gevonden door kenniswerkers. Eindhoven is de minst verstedelijkte van de vier onderzochte stedelijke regio's, maar hier liggen ook haar belangrijkste kwaliteiten als woonomgeving: een groot aanbod van eengezinswoningen in een groene omgeving. Echter, de stad heeft een gebrek aan het soort woningen dat in het algemeen wordt gezocht door jongere kenniswerkers (appartementen). Ook ontbreekt het Eindhoven aan een levendige binnenstad, hoewel op dit vlak verbeteringen hebben plaatsgevonden als gevolg van grote investeringen in de binnenstad en de bouw van nieuwe appartemententorens in en rond het centrum.
In de twee Noord-Europese steden werden ook lage misdaadcijfers en de ‘gemakkelijke’ manier van leven ('alles werkt ') genoemd als sterkten.
Met betrekking tot culturele voorzieningen hebben Amsterdam , Kopenhagen en Helsinki een sterk profiel vanwege hun status als hoofdstad. Eindhoven is, in vergelijking met de andere drie regio's, minder goed bedeeld qua culturele voorzieningen, hoewel het aanbod voor een stad van 200.000 inwoners bovengemiddeld is, vooral op het gebied van evenementen. Nog belangrijker dan het hebben van een divers cultureel aanbod is de toegankelijkheid van dit culturele aanbod, zowel qua reistijd er naar toe als de directe beschikbaarheid ervan.
Aangaande historische voorzieningen en authenticiteit staat Amsterdam op de kaart door haar historische binnenstad met unieke morfologie, waaronder de beroemde grachtengordel. De binnenstad van Kopenhagen is niet ouder dan de 18e eeuw als gevolg van een aantal stadsbranden, maar veel gebouwen zijn herbouwd en het stratenpatroon met vele smalle straatjes is bewaard gebleven, evenals de hieraan gekoppelde sfeer. Eindhoven en Helsinki lijken meer problemen met hun imago hebben. Eindhoven heeft geen historische binnenstad en staat meer bekend als een 'groot dorp' dan als een bruisende stad. Investeringen in een grootstedelijk woonklimaat staat dan ook hoog op de beleidsagenda in Eindhoven. Hoewel Helsinki een aantal historische gebouwen in de binnenstad heeft, mist de stad het imago van een bruisende metropool. Door de respondenten in beide steden werd dit echter niet als een onoverkomelijk probleem gezien.
In termen van imago en sociaal klimaat vormen Amsterdam en Eindhoven een contrast met Kopenhagen en Helsinki. Waar beide Nederlandse steden een grote internationale bevolking en ook een tolerant imago hebben, vormen Kopenhagen en Helsinki voornamelijk magneten voor binnenlandse talent, en minder voor internationaal talent, en op basis van de interviews heerst er ook een minder open sociaal klimaat.

Woonvoorkeuren van kenniswerkers

Wanneer de lokale experts werd gevraagd waarom mensen kiezen voor hun stad als plek om te wonen, was het eerste dat werd genoemd vrijwel altijd gerelateerd aan het economisch profiel van de regio: werkgelegenheid en loopbaanperspectieven. De meeste van de lokale deskundigen beschouwden culturele voorzieningen als een secundaire voorwaarde, die noodzakelijk maar niet voldoende is om kenniswerkers aan te trekken. Deze voorzieningen worden belangrijk geacht voor de marketing van de regio, en kunnen beslissend zijn in het geval twee regio's een vergelijkbaar economisch profiel hebben. Maar werk weegt altijd zwaarder dan de zachte voorwaarden. In Amsterdam leken de lokale experts meer waarde te hechten aan zachte voorwaarden dan in de andere drie steden, maar ook hier werd de gevarieerde economie altijd eerst genoemd.
De concentratiepatronen van kenniswerkers die werden gesignaleerd door de lokale experts lijken de internationale literatuur te bevestigen. Over het algemeen lijken werknemers in de culturele sector een sterke voorkeur te hebben voor binnenstedelijke woonmilieus. Zij zijn meestal te vinden in de diverse buurten met 'rauwe randjes' rondom de binnenstad, en zeker in Eindhoven zijn

zij ook sterk overgerepresenteerd in gebieden met getransformeerd industrieel erfgoed. De concentratie van deze groep in de bruisende binnenstad wijken is vooral te verklaren door het feit dat creatieven vanwege de aard van hun werk gevestigd moeten zijn in de 'buzz'. Voor technische beroepsgroepen geldt deze behoefte aan en noodzaak van netwerken een stuk minder, daar hun werk zich vooral op kantoor of in een lab afspeelt. Veel geïnterviewden benadrukten dan ook dat 'de' kenniswerker geen afwijkende woonvoorkeuren heeft, en vooral leeftijd en gezinssituatie bepalen waar hij of zij settelt.

Ondanks aannames door sommige beleidsmakers dat internationale kenniswerkers andere woonvoorkeuren hebben dan autochtone werknemers, lijkt dit op basis van de interviews niet het geval te zijn. Ook voor deze groep vormen de leeftijd en de levensfase de belangrijkste determinanten van locatiekeuzen. Deze groep wordt echter geconfronteerd met een specifiek probleem, namelijk hun toegang tot de regionale woningmarkt. Amsterdam, Eindhoven , Kopenhagen en Helsinki hebben allen een grote sociale huursector (of , in Kopenhagen , co-ops) en een tekort aan huurwoningen in het midden-prijssegment. Een aanzienlijk deel van de woningmarkt is derhalve niet toegankelijk voor expats. Meer dan hun werkelijke woonvoorkeuren verklaart deze toegankelijkheid waarom in sommige steden expats oververtegenwoordigd zijn in de wijken waar specifieke agentschappen (of werkgevers) vastgoed bezitten voor 'short-stays'. In Kopenhagen is Ørestad een voorbeeld van een concentratiegebied van internationals. Verder geven specifieke groepen expats (vooral Aziatische werknemers) er de voorkeur aan om te wonen in een gemeenschap met andere landgenoten. Dit verklaart bijvoorbeeld de populariteit van Amstelveen als woonplaats voor Japanse werknemers.

Algemene conclusies en beleidsaanbevelingen

Uit het onderzoek zijn een aantal algemene conclusies te trekken. Ten eerste bestaat *de* kenniswerker niet. Terwijl stedelijk beleid vaak is gericht op een verondersteld homogene 'creatieve klasse', kan deze groep worden onderverdeeld in verschillende subgroepen die sterk verschillen, zowel in termen van inkomen als woonvoorkeuren. Creatieve werknemers hebben over het algemeen de voorkeur voor zeer stedelijke en gevarieerde wijken met een rijk aanbod aan ontmoetingsplaatsen en (culturele) voorzieningen, en voldoen daarmee aan het beeld dat werd geschetst door Florida (2002) en Clark et al. (2002). Daarentegen wijken de woonvoorkeuren van hoogopgeleide werknemers in meer analytische of technische sectoren doorgaans niet veel af van de algemene bevolking. Zij kiezen net zo vaak voor suburbane gebieden.

Een tweede conclusie is dat werk en carrièremogelijkheden de belangrijkste factoren zijn die de aantrekkelijkheid van een regio voor kenniswerkers bepalen. Mensen verhuizen naar een streek omdat ze daar een baan kunnen vinden. Zachte locatiefactoren als voorzieningen en, vooral, het huizenaanbod, zijn van secundair belang en kunnen een rol spelen wanneer het banenaanbod in twee regio's identiek is. Deze aspecten zijn, kortom, noodzakelijk maar niet voldoende om kenniswerkers aan te trekken.

Een derde algemene conclusie is dat terwijl de werkgelegenheid de belangrijkste aantrekkingsfactor is op regionaal niveau, de keuze voor een bepaalde locatie *binnen* dit gebied vooral gestuurd door demografische aspecten en leefstijl. In het algemeen geven jonge werknemers en 'bohemians' de voorkeur aan wonen in sterk stedelijke buurten, terwijl ouderen en gesettelde werknemers met gezinnen vaker een voorkeur hebben voor suburbane of zelfs landelijke woonlocaties. Een uitzondering vormt de subgroep van de creatieve werkers, die in alle vier de steden zijn geconcentreerd in centrale buurten, rond waterfront-ontwikkelingen en in en rond industrieel erfgoed.

Vier beleidsaanbevelingen verdienen aandacht. Ten eerste kunnen gezien het belang dat wordt toegekend aan werk (als noodzaak), en het secundaire belang van zachte locatieaspecten als secundaire arbeidsvoorwaarden, de meest succesvolle resultaten te kunnen worden verwacht van cross-sectoraal beleid, op regionaal niveau, waarbinnen werk, huisvesting en voorzieningen geïntegreerd zijn.
Ten tweede werd huisvesting in meerdere interviews beschouwd als de belangrijkste zachte factor, en dit aspect is problematisch in alle vier de steden. Waar de woningmarkt in Amsterdam , Kopenhagen en Helsinki vooral erg duur is, heeft Eindhoven vooral een gebrek aan een bepaald type woningen, betaalbare appartementen, waar veel vraag naar is onder de vaak jonge (internationale) kenniswerkers die de stad rijk is. Het is derhalve noodzakelijk om een voldoende aanbod van betaalbare woningen te creëren, aangezien een deel van de kenniswerkers, in tegenstelling tot wat vaak wordt verondersteld, geen hoog inkomen heeft, maar wel graag centraal stedelijk wil wonen, daar waar de huren en huizenprijzen vaak hoger liggen door een overspannen woningmarkt. Specifiek verdient in dit opzicht de situatie van internationale kenniswerkers met een lager inkomen, waarvoor geen huisvesting wordt geregeld door de werkgever, aandacht.
Ten derde dienen beleidsmakers te waken voor te strikte regelgeving op het gebied van ondernemerschap, evenementen en horeca, om culturele werkers te behouden en aan te trekken. Amsterdam lijkt in dit opzicht achterop te raken bij steden als Berlijn als creatieve hotspot.
Een vierde en laatste aanbeveling heeft betrekking op internationale kenniswerkers en betreft het nationale beleidsniveau. Gezien de relatief beperkte omvang van de vier steden en de landen waarin deze gevestigd zijn, lijkt een internationale focus van groot belang om de torenhoge ambities op economisch vlak te kunnen blijven verwezenlijken. Dit betreft zowel het aantrekken van internationale bedrijven als het verwelkomen van internationale kenniswerkers, waarop overheidsbeleid een sterke invloed kan hebben. Denemarken heeft in dit opzicht een probleem door de strenge immigratieregels, en de opkomst van populistische anti-immigratiepartijen in Nederland en Finland zijn dan ook zorgelijk voor de internationale concurrentiepositie van de andere drie cases.

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List of interview respondents

Amsterdam:
Urban Planner at DRO, Municipality of Amsterdam (Koos van Zanen)
Team leader Metropoolregio at DRO, Municipality of Amsterdam (Eric van der Kooij)
Cluster managers creative industry and ICT at Amsterdam Economic Board (Eva Olde Monnikhof and Willem Koeman)
Director Expatcenter (David van Traa)

Eindhoven:
Director Expatcenter (Kris De Prins)
Brainport Development (Linco Nieuwenhuyzen & Yvonne van Hest)
Sector Strategy (Robert Elbrink & Valerie Van Nielen)
Sector Area Development (Menno Moen & (Anneke Coolen)
Sector Economic Affairs and Culture (Erik Lubbers & Fancy van der Vorst)
Sector Public Space (Ronald Rijnen)
Samenwerkingsverband Regio Eindhoven (Simon Wessels & Kristy Gilsing)

Copenhagen:
Scholars, Technical University of Denmark (DTU) (dr. Thomas Sick Nielsen; dr. Ismir Mulalic)
Scholar, University of Copenhagen (dr. Lars Winther)
Scholar, Copenhagen Business School (dr. Mark Lorenzen)
Policy advisor labour market, Oresund Committee (J. Tiedemann)
Housing economist, Realdania (C. Liligreen)

Helsinki:
Scholar, University of Helsinki (Prof. dr. Mari Vaatovaaraa)
Urban Facts (Heidi Taskinen, Timo Cantell)
Uusimaa Regional Council (Juha Eskelinen & Christine Chang)
City of Helsinki, Economic Department (Marja-Leena Rinkineva)
City of Espoo, Economic Department (Tuula Antola)
Enterprise Helsinki (Timo Onnela)

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Meer informatie

urd.verdus.nl

Programmasecretaris: naam
e-mailadres@nwo.nl
telefoonnummer

Senior management assistent: naam
e-mailadres@nwo.nl
telefoonnummer

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