Spatial interventions as planning tools for knowledge-based development in the Netherlands

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1. Introduction

Regional economics have traditionally emphasised the importance of clusters of (high-tech) industries and research institutions, whose proximity would generate (technological) innovation, the most important element for economic growth and competition. Science parks and high-tech spaces have been among the most popular tools to promote the formation of these clusters, followed by business incubators, innovation centres, academic transfer centres, supportive networks, and many other schemes to promote local entrepreneurship and to attract global firms to their localities.

But moving from mass-production into tailor made production – from an industrial into a knowledge urban economy – has increased the significance of symbolic values. Cities and regions are now trying to transform their production structures towards knowledge-intensive and creative design industries. Consequently, innovation and creativity have become important activities of, not only high-technology sectors, but of a broad range of industries. As such, they have become crucial resources for local urban development. These changes have produced an important shift in the field of regional economics, in which a ‘cultural-economic’ paradigm (Amin and Thrift, 2007) has become popular.

This cultural turn has led to a renewed attention to places. According to its assumptions, the quality of a place – which includes amenities like urban atmosphere, culture and leisure venues, and ‘third places’– has become an important economic asset in its role to attract talented people to cities (Florida, 2002). Many cities worldwide have developed policies to nurture local creativity and to attract creative workers. In the Netherlands, many cities have embraced the cultural economic paradigm in their search for local creativity and innovation. But empirical studies show that despite their discourse on creativity, most local policies still tend to engage in a business-oriented perspective, which is easier to implement in practice (Kooijman and Romein, 2007).

How are spatial planners translating the strategic requirements of the knowledge-based economy into spatial interventions? Which specific spatial planning tools are they implementing to deal with the new conditions? The present study presents how two important knowledge cities of the Netherlands – Eindhoven and Delft, seat of the two technical universities of the country – are dealing with the new conditions and requirements of the knowledge economy. Strijp-S, in Eindhoven, and TIC (Technological Innovation Campus) Delft share the ambition to improve the international position of these cities in the knowledge-based economy, but are being implemented with very different approaches, priorities and goals. The analysis of these two cases will be useful to discuss important
questions of this track, related to the role of spatial planning, urban design and urban amenities in the knowledge-based economy.

The paper is organised in five sections. After the introduction, it will discuss the main approaches to knowledge-based development. The third section presents the issues related to the creative city and its resulting policies in the Netherlands. The fourth and fifth are dedicated to present the spatial interventions in Eindhoven and Delft, respectively. The last section discusses the findings and advances some conclusions.

2. Approaches to knowledge-based development

Although Jane Jacobs (1961) gave an impulse into cultural considerations in economic thought – when she advocated diversity as a driven force for urban prosperity in “Death and Life of Great American Cities” – cultural considerations were generally neglected in urban economics until relatively recently (Kunzmann, 2004). But regional economics have undergone a significant ontological shift since the rise of notions linked to the new ‘cultural economic’ paradigm, whose main concepts are human capital (Glaeser and Saiz, 2003) and creativity (Florida, 2002). This paradigm shift was most visible after Florida’s (2002) book on the creative class became an international best seller and received many prizes from newspapers and magazines. For the first time, a professor in regional economics became a celebrity (Peck, 2005). Since then, great academic attention is being paid to creativity and cultural issues and their impact on the growth of cities and regions.

In academic circles, however, Florida’s arguments have been object of great controversy. Several authors have heavily questioned the validity of the data Florida presents to support his thesis; criticized the lack of detail of his explanations; and pointed out the problems of direction of causality of his approach and anecdotal methodology (Long, 2008). Despite the profound academic criticism, Florida’s thesis was rapidly appropriated by urban practitioners and city officials in the US and Europe. “In the beginning of the twenty-first century, culture and creativity have become key concepts on the agenda of city managers, development agents and planners, who are desperately searching for new foundations in city development with dwindling city budgets.” (Kunzmann, 2004, 384). A 2008 survey conducted by Eurocities showed that 80 per cent of the 30 large European cities surveyed had local and regionally funded programmes for enhancing cultural and creative industries (Romein and Trip, 2011).

Florida’s thesis is that the main drivers of economic growth are the original ideas of the creative class. Such workers have different spatial demands and consumption patterns than manual workers. Their life is not any more determined by the location of their work, but by their preferred place to live. What cities should do then is to attract and retain creative individuals by nurturing creativity, culture, and a distinctive history. ‘Third places’ (neither home nor office) to meet, such as cafés, pubs, terraces, cultural events, etc., and other similar spaces acquire a new dimension in the knowledge economy. A city’s success is then linked to the cross-fertilization of ideas and tacit knowledge arising from the effects of face-to-face contacts between creative workers (Storper and Venables, 2004). An emphasis on ‘quality of place’ and high-quality amenities becomes necessary for urban competitiveness (Glaeser et al., 2001).

Florida’s assumptions are radical, in the sense that they change the traditional logic of urban competitiveness: instead of attracting firms, cities should attract creative and talented people. This implies that in the new economic context jobs follow people: creative individuals increasingly choose
their place of residence first and then they look for work or start a business of their own (Florida, 2002).

But the initial contradictions between ‘hard’ and ‘soft’ networks, business and peoples climate, economic and social issues have become milder. Storper (2010) states that the New Economic Geography considers the causes of urban growth to be “fully simultaneously two-directional.” (2010: 2032). This means that jobs follow people, who in turn search for the benefits of large urban (home) markets. At the same time, people follow jobs because firms concentrate at these large urban markets, which allows them to produce more efficiently with economies of scale.

In the new economic context the future of cities and regions depends on both knowledge-intensive and creative economic activities. Striving for urban competitiveness should include concepts promoting knowledge-intensive specialisation – as high-technology, agglomerations, clusters, entrepreneurship – and promoting human capital – such as amenities, high education, etc. – in an environment characterized by organizational capacity (Malecki, 2002). These three factors, specialisation, human capital and institutions are increasingly acknowledged as main factors for city growth in the knowledge economy (Storper, 2010). For example, in their study about European cities in the knowledge economy, Van Winden et al. (2007) consider that the progress toward a knowledge-based city is based on the development of human capital and knowledge-based industries, which should be supported by local organising capacities (see Figure 1). They have advanced seven criteria, considered the foundations of the urban region (left of the scheme) to get the two first factors. These criteria are also promoted by a good level of organisation at local level.

![Diagram](image)

Figure 1. Cities in the knowledge economy: a framework of analysis (Source: Van Winden, 2007)

With a similar attention toward the organisational qualities of a city-region, Fernández-Maldonado and Romein (2010) state that economic, social and organizational qualities should be considered as main criteria to evaluate cities’ efforts for sustainable knowledge-based development (see Figure 2). In the terminology of Florida (2002) a city should promote both its business climate and its people climate, by means of a high organisational capacity. Acquiring a good level of quality in each criterion should lead to a city-region producing prosperity and implementing projects for all people. Putting such comprehensive frameworks into policy and practice is not such an easy endeavour, however. An important question is how have these new notions been translated into policies? The next section describes some aspects of the situation in the Netherlands and Europe.
Figure 2. A conceptual framework for sustainable development for cities in the knowledge economy (Source: Fernández-Maldonado and Romein, 2010).

3. From theory to policy and practice in the Netherlands and Europe

In the Netherlands, the message of Florida was particularly well received at local level, especially after the Dutch tour he made in 2002. But many of the elements that the advocates of creativity and culture state as necessary for success, remain imprecise and as such difficult to apply in practice. Florida’s formula for success of cities links the three Ts of Talent, Technology and Tolerance. Technological capacity, embodied in universities, laboratories, firms and ultimately people, is a first prerequisite; Talented people are essential as carriers of creative ideas; and Tolerance is a crucial magnet to attract the creative class. Glaeser et al. (2003) assigns importance to symbolic values and amenities, such as culture, liveliness, affordable housing, environmental beauty, and historic architecture. How to plan the ‘intangibles’ associated to creative milieus such as tolerance, identity, authenticity, image, atmosphere, etc.? The main advocates of the creative city notion have not given a special emphasis on how to put their ideas in practice (Kooijman and Romein, 2007). Landry (2000) is perhaps the most engaged with the issues of the practice, but Florida tends to repeat the advices given in 1961 by Jane Jacobs, and he does not specifically address how his ideas actually work in practice (Trip, 2007).

Trip and Romein (2010) have noticed and described the gap that exists between the academic literature on the development of the creative city, and the resulting policy approaches in actual cities. ‘On the one hand, many cities indeed base their creative city policies explicitly on a limited number of sources that make more or less empirically based academic insights accessible to a broader audience. These include, notably, the abovementioned works of Landry and Florida. On the other hand, cities are apt to imitate – with questionable chances for success – well-known creative city success stories such as Barcelona or Lille (cf. Brenner, 2003; Harris, 2006), or to pay lip service to the creative city concept as a label to ‘renew’ and popularise existing policies (Chatterton, 2000:392).’ (Trip and Romein, 2010: 1-2).

Indeed, many former industrial centres have embraced Knowledge City or Creative City slogans and implemented related initiatives to deal with their problems of economic reconversion. ‘By pursuing distinction and urban quality in order to attract private investment, cities develop all sorts of eye-
catching landmarks and international events, which in the public discourse are often negotiated as magnets of the “creative class” and are supposed to enhance the social and economic integration of disadvantaged sectors within the community’ (Russo and van der Borg, 2010: 669).

Examining the main perspectives, two main ways to approach the ‘creative city’ ideal can be distinguished: promoting innovation through creative industries or the nurturing of the creative class in general. These perspectives are complementary and at the same time not mutually exclusive: people working in creative industries constitute the ‘creative core’ of the creative class according to Florida (2002). But the policies implemented to promote one or the other have evidently a different character, the former being basically a business-oriented policy and the latter a people-oriented one, or in words of Romein and Trip (2011), policies promoting a production milieu or a consumption milieu, respectively. In practice, however, creative city policies in the Netherlands tend to combine both approaches (Kooijman and Romein, 2007).

An empirical study which explored the effect of creative industries (arts, media and publishing and creative business services) on innovation and employment growth in cities in the Netherlands concluded that ‘with the exception of the metropolitan city of Amsterdam, we find no measurable spill-over effect from creative industries. The presence of the creative class (in all kinds of industries other than creative ones) appears to be a much stronger driver of employment.’ (Stam et al., 2008: 19). These results suggest the importance of those criteria advanced by academics who support the people orientation in the Dutch context.

To test the power of tolerance, aesthetics, amenities and jobs in attracting the creative class in the Netherlands, Marlet and van Woerkens (2005) used statistics at municipal level. Their results showed that it is not tolerance but amenities which are most likely to attract creative class individuals to the Dutch cities. More recent empirical research about the attractiveness of cities in the Netherlands has shown that those with a rich history and a broad cultural offer are considered the most attractive ones (Marlet, 2009).

But even if cities may elaborate a comprehensive and balanced approach, combining business and people interventions, the implementation of this kind of strategies is most of the times based on business-oriented interventions. After examining the implementation of the creative city concept in local urban policy, Kooijman and Romein (2007) concluded that despite the growing awareness of the importance of cultural and creative aspects among city officials, “the implementation of Florida’s ideas has remained limited in the urban policy of the four largest Dutch cities. ... Instead, the policy core lays most emphasis on giving explicit, direct support to businesses and creating a ‘business climate’, as opposed to a ‘people-climate’.” (2007: 32-33).

The bias in urban policy toward improving the economic qualities of the city can be explained by the different nature of the tools to implement business and peoples climates. The establishment of the ‘hard’ infrastructure (airports, digital infrastructure, high-tech spaces) is a straightforward investment that can be located almost anywhere. On the other hand, the establishment of the ‘soft’ infrastructure – an environment conducive to creativity – is a lengthy, ambiguous and slow process without guarantee of success (Baum, et al., 2008).

Russo and van der Borg (2010) have developed a framework with four stages of urban economic development within the culture-economic paradigm, which pays attention at the role of policy in each stage, and as such becomes useful to identify and describe the most significant policy approaches (see Figure 3). These stages are: exploration, enhancement, diffusion and stabilisation.
They state that some European cities – such as Manchester, Barcelona, Berlin, Vienna and Turin – have successfully completed the four stages, but most cities are still in phase one or two.

Figure 3. Phases of urban economic development with corresponding policies. (Source: Russo and van der Borg, 2010)

In the exploration phase, urban policy has the goal to establish a knowledge-intensive and creative cluster, for which it generally focuses on a potential specialisation for cluster development. In the next phase, the enhancement, cities want to attract the creative class, for which they use urban regeneration policies as well as city marketing in order to improve the quality of place of their localities. The main goal of the diffusion phase is to transfer economic innovation and creative content to other local economic sectors, for which campus facilities, science parks, incubators, networking and transfer policies are implemented. To keep the creative potential and preserve the quality of place, a stabilisation phase is needed, for which inclusive and participatory planning policies are needed to extend the cultural benefits to vulnerable groups (Russo and van der Borg, 2010).

Based on European experiences, researchers of the Creative City Challenge (www.creative-city-challenge.org), drew the conclusion that ‘Surely effective creative city policy is no easy policy... Thus, creative city development requires an integral approach of both the production and consumption milieu, that surpasses the boundaries between various policy fields and departments of local government’ (Trip and Romein, 2010: 14). They add that cooperation of the main stakeholders (government, research and private sector) is a necessary condition for the success of such policies.

The next sections show the cases of Eindhoven and Delft, two Dutch cities which are developing remarkable spatial strategies addressed improve their chances in the knowledge economy.

4. Transforming Eindhoven into an attractive city

Eindhoven is the fifth largest city in the Netherlands (209,000 residents in 2009) and the main urban centre of the country’s second largest urban network, Brabantstad. By Dutch standards, it is a relatively young city. Eindhoven’s industrial development at the beginning of the 20th century was driven by a local firm: Philips Electronics, which settled there in 1891. Philips’ economic success
made the city expand rapidly. After the war, Eindhoven developed into the most important industrial centre of the Netherlands.

Confronted with the challenges that cities have in the knowledge economy, Eindhoven’s urban development exhibits two features. On the one hand, it has great assets, due to the high quality of its industrial, economic, and knowledge base. It has the highest innovation index among the Dutch provinces. Its city-region is where most of the private R&D expenditures of the Netherlands is located (45 per cent of the national R&D expenditures). Further, the level of synergy between high-level education and high-tech local firms is remarkable. On the other hand, Eindhoven has evident problems related to its modest urban scale, its location outside of the Randstad and its provincial image. It is appreciated for its natural surroundings but it lacks an ‘urban atmosphere’ (Russo and van der Borg, 2010). Due to its industrial origins, it misses the historic architectural heritage that characterizes most Dutch cities, which constitutes a constraint to attract creative workers. According to the framework of figure 3, Eindhoven would be struggling to become more attractive and cosmopolitan to attract the creative and high-educated workers that it needs in its existing high-tech and design clusters.

The vision for the future of Eindhoven has four spearheads: (a) to become an innovative knowledge centre, (b) to improve the city’s quality of place, (c) to promote cohesion between individuals and groups, and (d) to be a good administrative centre. These embody the main criteria for a sustainable knowledge-based development of figure 2: economic quality, social quality and organisational quality. The second spearhead, aiming to attract mobile investment capital and skilled knowledge workers, and to retain young people after graduation, is formulated in the ‘Eindhoven as a city with an attractive heart’ policy (Gemeente Eindhoven, 2004b). Eindhoven is investing heavily to improve its cultural and leisure climate and its residential environment (Russo and van der Borg, 2010). It may not have a rich medieval past, but it has a rich industrial past, which in the current economic context is also regarded as a valuable asset for quality of place. Therefore, the urban regeneration strategy has a clear culture-oriented character, reusing Philips’ obsolete factory buildings for residential and cultural purposes. The new living spaces will bring to Eindhoven the ‘urban atmosphere’ that it needs.

The transformation of Eindhoven has been developed in three phases. The first one was the redevelopment of the Stadhuis (Municipality) and its surroundings, to improve their urban quality. In the second phase – which consisted on the renovation of the White Lady (Witte Dame), a large (white) building in the centre of Eindhoven (see Figure 4) – the influence of the cultural economic paradigm can be clearly perceived. The White Lady, built in the 1920s, used to accommodate Philips’ factory of incandescent lamps, the initial business of Philips. It is an emblematic building for the city and its residents, due to its former use – the origins of the city development – and because its tower dominates Eindhoven’s urban landscape.
As a result of the de-industrialization process, the building became empty in the 1980s. It was saved from demolition by artists and designers who made a redevelopment plan which stated that the main functions should be related to design, ICT or culture. After the regeneration process, important cultural icons were accommodated in the White Lady: the Design Academy, the design department of Philips, the city library, architectural firms, a dance company and a gallery. ‘The Witte Dame has become an incubator of related activities and a cornerstone of the emerging postindustrial economy of Eindhoven, demonstrating how area renewal, the refurbishment of industrial heritage, and the fostering of local creative industries may be successfully combined.’ (Russo and van der Borg, 2010: 683)

The third phase, currently developing, is the most spectacular. It concerns the reuse of Strijp-S, an industrial area of 27 hectares close to the city centre, which began in 2004 (see Figure 5). The entire area used to be part of the Philips industrial complex, a forbidden area for those who did not work there. The regeneration of Strijp-S began with an agreement between Philips and the municipality in 2002. A Master Plan was formulated and a developer was selected, Volkers Wessels construction firm, to work in a PPP arrangement with the municipality. For the construction works, an organisation was established, Park Strijp Beheer, with the goal to safeguard the investments and interests of the municipality in the project (Rekenkamercommissie Eindhoven, 2011). The definitive design was ready in 2004 (see Figure 8).
This process is turning the area into a mixed-use complex of residential (2500-3000 dwellings), 90,000 m² of office space, and 30,000 m² of commercial, cultural and leisure facilities. 25 per cent of the area will be for residential uses and 25 per cent for work and leisure. The Clock Building (Klokgebouw), is another emblematic building of Eindhoven, which was assigned to the function of ‘culture factory’ due to its large-scale halls that provide great spatial possibilities. It has been the first phase of the transformation of Strijp-S and it currently accommodates more than a hundred creative businesses. Woonbedrijf, a local housing corporation, is now offering 198 dwellings – most of them for rent – in the E area along the Kastanjelaan. The building activities began in June 2010. Furthermore, TRUDO housing corporation is offering ‘industrial lofts’ in the former SAN and SBP buildings of Philips.

Another historic building of Strijp-S that will be renovated is the old Philips’ NatLab (Natuurkunde Laboratorium/Physics laboratory), opened in 1922, and where Albert Einstein worked as guest. In this building, the Queen Wilhelmina gave her first radio speech in 1927 (Van Geel, 2009).

Strijp-S has several ambitious initiatives (see figure 6). One of the most interesting is Light-S linked to Eindhoven’s City of Light motto. Strijp-S aspires to become a unique environment to show the role of public lighting and the latest innovations in the field to the visitors and residents. The new lighting solutions will create experiences that are related to the individual characteristics of the area. Light-S is a collaboration of Park Management Strijp, NRE Network and the City of Eindhoven, in which Philips Design designs the lighting. (Strijp-S, 2010).
Furthermore, Strijp-S has become an important place for events, concerts and festivals. It is an important place for the Dutch Design week, but also for Flux/S, an annual international art festival, and STRP, an annual festival linking art and technology.

Besides these three important steps towards the improvement of the quality of place of Eindhoven, the municipal department of Art and Culture has developed the concept ‘Eindhoven laboratory city’. Among the different initiatives, it includes efforts to acquire empty buildings and to make these available for starting businesses in the creative and cultural sector (Gemeente Eindhoven, 2004a).

But private initiatives are also providing accommodation and work space for artists and students. In December 2008, the HCZ building, another former Philips building which was vacant, was occupied by a group of young artists with the idea was to use the building not only for residential purposes but to convert it into a huge cultural stronghold. The organizers then followed a strict selection procedure to avoid persons that might use the building for other uses that would not combine with the cultural purposes. There are now 120 users of the 360 rooms (11,000 m²). The users – students of the Design academy, of the Technical University, artists of different disciplines and some families – are well organized and pay a low monthly fee for maintenance (de Graaf, 2009).

These different initiatives show that the aim of turning Eindhoven into a city that properly receives and attracts the creative sector is shared by all stakeholders and sectors of society. Consensus about the future vision, collaboration among stakeholders and a culture of projects are precisely some of the features of Eindhoven that make many of its initiatives successful, and have been the key to transform the city from an industrial town in decline to a powerful technology and design region (Fernández-Maldonado and Romein, 2009).

5. Transforming Delft into an attractive knowledge-intensive hub

Delft is a small city (97,000 residents in January 2010) in the South Wing of the Randstad – the largest urban network of the Netherlands – at close distance to the much larger cities Rotterdam and The Hague. In 1990, Richard Knight examined the economic potential of Delft and raised awareness of its great assets in the knowledge-based economy. Delft’s knowledge advantage is related to its large share of research institutions. It is the seat of two research institutions (Delft University of Technology and TNO, the Organization for Applied Scientific Research) which have an international and national scope, respectively. Both institutions are located at the south part of the city, in what is known as the TU (Technical University) district.

Delft University of Technology (TU Delft) is the largest, most international and most prestigious of the three technical universities in the Netherlands, and as such it attracts many foreign students and researchers (Fernández-Maldonado and Romein, 2008). 51 per cent of Delft’s working population has a high level of education and 28 per cent belongs to the creative class, which is the seventh largest proportion in the Netherlands (Marlet and van Woerkens, 2011). The city has also a good proportion of people working in the creative industries: art, media and publishing, knowledge services (consulting firms), but in particular architectural, urban and technical design.

Following Knight’s advices to promote knowledge-intensive firms, the Stichting Delft Kennisstad (Foundation Delft City of Knowledge) – established in 1992 by ten public and private stakeholders – encouraged contacts, synergy and collaboration among companies, the university, knowledge institutes, town officials and politicians. The Municipal Council launched the Delft Kennisstad
Strategy to promote synergy and collaboration among different stakeholders. Since 1994, the Delft Kennisstad policy focused on the formation of knowledge-intensive firms in five technical sectors. Many initiatives were launched – including a techno-starters program – but the efforts were hardly effective in promoting local entrepreneurship (Fernández-Maldonado and Romein, 2008). Further, Delft Knowledge City policies did not specifically focused on quality of place factors as a strategy for businesses or skilled workers location decisions.

Without changing the motto, a new economic policy, ‘Delft Kennisstad: City of Technology’, was launched in 2008 (Gemeente Delft, 2008). The new policy had an evident turn, promoting increased inter-university and regional cooperation, and aiming to strengthen the position of Delft’s students, researchers and knowledge sector in European networks. It focuses on the intensification of the city’s technology-base, but unlike the previous business-oriented policies, it also aims at merging its cultural heritage with its technology-base and its creative industry, in order to generate innovative design, production and marketing activities at local level (Gemeente Delft, 2008).

Delft has a relatively high spatial quality, embodied in its well-preserved medieval centre. It has museums, a historic architecture and monuments, cafés, art galleries, the Vermeer Centre and several seasonal events and festivals, which attract both Dutch and foreign tourists. On the other hand, it has problems to attract and retain graduates, creative people and knowledge workers because its low levels of housing availability and cultural amenities. Delft’s proximity to The Hague and Rotterdam, makes that most part of Delft’s knowledge workers become commuters living in these two cities or other surrounding areas. Likewise, Delft residents travel to these cities to get the urban services they cannot find in Delft (Fernández-Maldonado and Romein, 2008). In fact, Delft ‘borrows size’: its inhabitants have relatively easy access to Rotterdam and The Hague’s amenities, while their more relaxed housing market mitigates the shortage of housing for knowledge-workers in Delft itself (Trip and Romein, 2010).

One of the main weaknesses of Delft was pointed out by Knight (1995): the limited synergy within the knowledge sector and between this sector and the local community, which produced social, economic and spatial divides between the local population and the knowledge workers. The university campus, gradually withdrawn from the city centre, reflected the attitude of the university as ‘a separate entity isolated physically, socially and culturally’ (Knight, 1995, p. 244). In his 1990 report, Knight recommended the promotion of networks among the different urban actors investing in ‘knowledge’ projects, but also in urban amenities. These remarks were hardly taken into account in the previous economic policies, in which the city was mostly focused on improving the number of local jobs. After their in-depth study of the creative potential of Delft, Trip and Romein (2010) insisted in the need to strengthen the relation between the city and the university.

Delft lacks a solid motor of local economic development (like Philips in Eindhoven), and has faced difficulties to organize stakeholders’ collaboration (Fernández-Maldonado and Romein, 2008). It also lacks the ‘project-oriented’ culture that prevails in Eindhoven. During the last years, however, there has been an improved collaboration among stakeholders and especially of the TU Delft, and local stakeholders are beginning to understand the importance of merging business- and people-related perspectives issues.

To attract global firms and improve Delft’s international profile, the Delft Kennisstad policy and its corresponding strategy have been adapted to transform the university district into a knowledge-
intensive hub: the Technological Innovative Campus Delft (TIC Delft) (Gemeente Delft, 2010a, b). TIC Delft is also one of the pillars of the Regional Development Plan of the Haaglanden Region, to which The Hague and Delft belong, formulated in 2008. This is a very ambitious initiative that strives to become the largest knowledge cluster of the Netherlands, and as such it has a regional scope for the whole South Wing of the Randstad. TIC Delft is the core of a larger networked knowledge cluster, Science Port Holland. It is precisely located at the centre of a ‘knowledge corridor’ that runs from Dordrecht in the South up to Noordwijk in the North (see Figure 6).

![Figure 6. TIC Delft at the centre of the South Wing Knowledge Corridor (Source: Gemeente Delft, 2010b)](image)

TIC Delft aims to become a cluster of great economic significance and international allure, containing knowledge institutions and knowledge-intensive firms of different sizes, from multinationals to start ups, working around Delft University, and also linked to DSM Gist services (the section of a multinational working in food and medicine research and production) and the Reiner de Graaf hospital. In such way, it aspires to become the engine of the knowledge economy of the Randstad (Gemeente Delft, 2010). TIC Delft has great accessibility, since it is located along the highway that links Rotterdam and Amsterdam. It also has good accessibility by train and in the future, by a tram that will link it to the centre of The Hague. This good level of accessibility favours the cooperation among the different partners and specialised sectors of the knowledge-intensive economy in the South Wing of the Randstad. Figure 7 shows the main links of the regional spearhead sectors, as well as the main locations. TIC Delft (number 6 in the figure) has a privileged location at the centre of gravity of the whole area and having links to almost all networks.
Figure 7. Regional links of main sectors of the knowledge economy in the South Wing of the Randstad. (Source: Gemeente Delft, 2010a)

The redevelopment of this 300 hectares district includes the areas of the university campus, TNO and Delftech Park, Technopolis Science Park and the Schieovers, new creative clusters along the riverbanks of the Schie [(1) in Figure 8]. The terrains of DSM (2), the hospital (3) and the UNESCO-IHE (Institute for water education) (4) have been also included in TIC Delft, although they are not spatially connected with its main area around the TU Delft.

TIC Delft also aims to become a city district with mixed functions for work, home and leisure. Consequently, it will include residential environments for students and faculty staff; 15,000 jobs for knowledge-intensive firms and institutes; and 25,000 students, teachers and researchers. It will also contain a complete education chain: vocational, university and international post-graduate; a complete research chain: fundamental, innovative, applied and product development; and a complete entrepreneurial chain: from starters up to multinational companies (Gemeente Delft, 2010b).

Figure 8. The main locations of TIC Delft (Source: Gemeente Delft, 2010b).
The spatial strategy for the development of TIC Delft is to combine three different environments: the Creative City, the University Campus and the Science Park. Figure 9 shows the location and size of these three zones in the map of Delft. The Creative City will reuse monumental and industrial buildings in a green setting of pocket parks; it will make a strong link with the city centre with walking and cycling accessibility, and there will be an emphasis on small, creative, and knowledge intensive businesses. The University Campus will be a lively campus, accessible through cycling and public transport, clustered around the spine of the campus, and with knowledge institutes, student housing and other facilities. The Science Park will have large-scale knowledge-intensive business firms, accessible by car and public transportation. It will have a green landscape and a strong relationship with the TU Delft (Gemeente Delft, 2010a).

![Figure 9. The strategy for urban development of TIC Delft in the first Master Plan (Source: Gemeente Delft, 2010a).](image)

There are already several projects going on to improve the area, such as the prolongation of the tram 19, a new bridge over the river Schie, the upgrading of the bridge from the campus to the city centre, new student residences in the north side of the TU campus, and creative initiatives in the Schie bank area. In the meantime, a new Master Plan is expected to be ready at the end of 2011, for which different consultations with stakeholders and interested citizens are being held in difference instances.

### 6. Conclusions

Sections 4 and 5 have illustrated the two spatial strategies being implemented in Eindhoven and Delft, respectively, as a way to improve their own position in the knowledge economy. These strategies evidently depart from two very different positions. Eindhoven has very good organisational capabilities and has already achieved a good level of economic quality: it is considered as a ‘star niche player’ within the European urban context (van Winden et al., 2007). However, it has problems regarding its quality of place. The case of Delft is very different: it has less economic qualities but better quality of place than Eindhoven. Nevertheless, both cities have problems to attract and retain knowledge workers and creative individuals.
These differences explain the kind of approaches taken by these two cities. While Eindhoven’s strategy is a typical urban regeneration policy very much embedded within the cultural economy paradigm, Delft strategy is much more a traditional, but very ambitious cluster policy with emphasis in networking and incubating new firms around the TU Delft. It is important to stress that both spatial interventions are part of a regional strategy, for the Eindhoven region and the South Wing of the Randstad, respectively. The Eindhoven region needs an attractive city to be able to succeed in the knowledge economy. The South Wing of the Randstad lags behind economic priorities from the North Wing, and as such it needs to improve its knowledge intensive character.

The knowledge economy is basically a networking economy and so regional collaboration becomes then essential for economic success. But Delft does not have the experience nor the commitment of regional stakeholders as it happens in Eindhoven. This can be explained by several factors. Firstly, the Delft university has traditionally have little interest in local or regional issues, considering itself more an international player. Only recently it has begun to interact with the regional stakeholders.

Delft has not felt the feeling of urgency that Eindhoven had during the late 1980s and early 1990s as a consequence of de-industrialisation processes. This feeling is what compelled Eindhoven region to work together to face the industrial downturn. A unique regional approach was established, in which the city of Eindhoven worked together with 34 neighbouring municipalities in the region to match European subsidies for job creation. After this programme finished, the main regional stakeholders – in government, industry, and research and education – decided to cooperate closely with the objective to continue with the process of transition of Eindhoven’s traditional industries toward into a knowledge-based and high-tech centre. This sense of urgency did not been develop in the South Wing.

Furthermore, the regional location and position of Eindhoven and Delft is different: the former is the clear centre of a homogeneous region, while Delft lies between two large cities and other smaller ones that have (had) very different ambitions and interest. Their regional position has constituted an advantage for Eindhoven and a liability for Delft.

Despite these problems in terms of regional collaboration, it seems that times are changing. A product of the new regional élan is precisely TIC Delft. However, since the needs of the South Wing have a different character from the ones of Eindhoven, the regional approach is focused on four priorities with real opportunities to strengthen regional innovation-oriented cooperation between educational institutions, governments and businesses. These priorities are based on knowledge and innovation clusters, clean tech and medical care, talent development, and campus area development (Gemeente Rotterdam, 2010). Only the last one recognises the need of quality of place for a competitive knowledge economy. But the examination of the spatial approach of TIC Delft has shown that it is until now very much biased towards improving the business climate. Quality of place issues have not been thoroughly taken into account in the local strategy, although the plans are still in the making, so the situation may change.

These two spatial interventions show how spatial planners are translating the requirements of the knowledge-based economy into specific projects. They also show that there are no blueprints for thriving in the knowledge economy, but that the plans and projects have to be city-specific, taking into consideration existing potentials and assets, but also the local constraints, weaknesses, and policy conventions. Successful interventions require the commitment and collective action of government, entrepreneurs and knowledge institutions.
References


Gemeente Delft (2010b) TIC DELFT, Economische motor van de Randstad, Gemeente Delft.


