“High technology fantasies in the Delta? Constructing a national strategic science site in the Dutch post-industrial periphery”

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1. Introduction

There is increasing interest in the way that international knowledge migrants begin to identify with place-specific characteristics of particular regions, and how these global citizens acquire particular connections and entanglements in particular regional localities, creating spill-over effects that drive innovation-based regional economic development. Part of the debate has been tied up with Richard Florida’s (2002) idea of creative classes, with an implicit understanding that these workers have a predominant cosmopolitan identity that is attached to particular lifestyles and professional interests that are best exercised in sub-regional locations rather than necessarily being tied to particular places. When considering how major science, technology and business spaces, also known as global science spaces (GSSs), can offer assets and facilities to attract knowledge migrants, there is a tendency to think of this in purely economic terms (e.g. career development and job opportunities). However, this makes it hard to understand the popularity of the rise of the GSSs if all these spaces offer is a kind of specialised sub-regional estate (Forsyth & Crewe, 2010) for existing high-technology opportunities. If knowledge migrants are attracted to the particular atmosphere and cosmopolitanism of space, how can GSSs attract knowledge migrants beyond the employment and career opportunities they offer? Additionally, if knowledge migrants are attracted to a simple atmosphere of particular spaces, how can people deliberatively create physical spaces that attract and retain these knowledge migrants?

Using a series of qualitative interview data, a single case study of the Dutch Kennispark (Knowledge Park) is presented in this paper, thereby addressing two overarching research questions:
• How do those people creating science parks aim to establish local environments that attract international knowledge migrants?
• How are these efforts and outcomes perceived by international knowledge migrants?

2. The multidimensional role of Global Science Spaces

The starting point of this research is to argue that insufficient attention has been paid to the multidimensional role of GSSs in regional science literature. As argued by Phan, Siegel and Wright (2005), thinking in purely economic-functional terms the original mission of GSSs is business acceleration and the production of applied research of excellent quality (Lazzaretti & Tavoletti, 2007) through knowledge agglomeration and resource sharing. Furthermore, by introducing the concept of functional urban areas (FUAs), the OECD Committee for Territorial Development Policy stresses the importance of GSS projects, as generators of wealth, employment and productivity, which not only became key players of transnational flows, but also act as essential spatial nodes in the regional, national and global economy (OECD, 2014, p.46).

According to Phan, et al. (2005), GSSs can also aim to foster regional development and growth, thereby exerting a regional upgrading effect. Due to the changing role of universities in recent society (Van den Kroonenberg, 1996), which increasingly become under pressure to open themselves up to the outside world and to function as corporate bodies, an increasing amount of universities got involved in the establishment of GSSs through the creation of start-up firms based on university-owned technology (Phan, et al., 2005, p. 13). Korotka (2005) argues that these university-industry linkages would support regional growth, since it enhances regional innovation through the promotion of enterprises, business development and growth through the accumulation and transfer of knowledge to the industry (p.415). Furthermore, it is argued by Van den Kroonenberg (1996) that universities involved in GSSs would have next to their social function, the production and teaching of applied research of excellent quality, a regional function, which implies that they are expected to have a positive external spillover effect on the regional development that is recognized by national policy makers and businesses (p.16).
Next to their purely economic role, GSSs can also function as social spaces, where particular imagined communities act and interact to achieve desirable goals (Anderson, 1991). Consequently, GSS creators and managers can also aim to attract and retain knowledge migrants purely on their personal affection towards a specific space that is characterised, for example, by its identikit, tasteful, landscaped campus[...] (Gallent et al., 2006, p.40). These identikit places, simultaneously providing an infrastructure for living, learning and recovering, can also be seen as ‘non-place’ located in specialized sub-regional states that ‘cannot be defined as relational, or historical or concerned with identity’ (Augé, 2008, p.78).

Based on the discussion above, I based my analytic framework on a model developed by Arbo and Benneworth (2007) (see Fig. 1). It summarises the multidimensional role of a GSS and its external engagement with its regional, national, and global environment. It highlights four dimensions of operational effects: [1] functional effect (effort of regional and national actors to create a nice and attractive place) [2] regional upgrading effect (acquired outcomes leading to a new culture and skills aiming to enhance regional innovation), [3] external recognition (effort and outcomes recognized by global knowledge migrants and inward investors), and [4] personal attraction (external “driving force” that attracts knowledge migrants).

**Figure 1.** Multidimensional role of GSSs.
Source: Based on OECD, 2007, p. 58.
3. Background of the Kennispark case study and method

Kennispark is a 180-hectare site located in the Dutch Twente region, close to the German border (see Figure 2). It was established around 2000 starting from the basis of the regional located University of Twente (UT) and the Business and Science Park (BSP) existing since the 1980s. Originally established in 1961, the UT\(^1\) was an attempt of policy makers to revive the region economically, since the region heavily suffered from the demise of the textile industry during the 1960s. Subsequently, among its profile as an “Entrepreneurial University”, the UT established, supported and funded public-private partnerships that where characterized by tight cooperation between business communities and leading knowledge institutes in the Twente region (Mora, et al., 2010). During the 1970s, the UT’s active engagement with the regional industry, regional policy makers, municipalities, and regional and national actors finally led to the creation of the Kennispark, merging companies located in the earlier established BSP with the university campus (see Figure 3) (Benneworth & Ratinho, 2011). Nowadays, around 8000 people are working in the Kennispark\(^2\) and more than 700 spin-off firms are rooted in the UT, which therefore belongs to one of the most entrepreneurial universities in the Netherlands and Europe (Karnebeek, 2001; Mora, Detmer & Vieira, 2010). A study of Karnebeek (2001) showed that spin-offs play an important role not only for the Kennispark, but also for the Twente region. Whereas 23% of all knowledge-intensive companies fostered by the UT have offices in the Kennispark (either on the UT campus or

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\(^{1}\) The university was found in 1961 as the “Technische Hogeschool Twente”. In 1986, it changed its name to Universiteit Twente (University of Twente).

\(^{2}\) Around 5500 employees are recently working in 330 companies located in the BSP of the Kennispark. In addition, 2500 employees are working at the UT (Karnebeek, 2001, p. 5).
at the BSP), 78% of the spin-off companies are based in the Twente region, thereby fostering regional development and growth (Karnebeek, 2001, p. 5).

To investigate how GSSs can attract knowledge migrants beyond a purely economic dimension, this exploratory case study reports field research on two things: first, on how people of the Kennispark (creators) deliberatively can create a physical local place-environment that attracts and retains knowledge migrants, and second, on knowledge migrants’ perception towards these efforts and outcomes. The aim of this study is to identify key themes for a future quantitative research which will be undertaken in 2016 and in the course of 2017. By looking at the stories of the creators of the Kennispark as well as the knowledge migrants, a narrative analysis technique was used to derive the elements of the underlying symbolic attraction of the science space. In the analysis, it is focused on ways in which creators and knowledge migrants made and used stories to interpret the world around them, thereby transmitting a set of facts about the society, history and culture prevailing in a specific space. The fieldwork element involves series of semi-structured face-to-face interviews, first focusing on how and why national and regional decision makers, academics, architects, and business partners tried to create a local environment that attracts knowledge migrants, and second, exploring how these efforts and outcomes of these creators were perceived by the knowledge migrants. Initial

Figure 3. The Kennispark Twente.
Source: Retrieved from maps.utwente.nl

wrote extensionally about this topic. Further interviewees were approached using a snowball technique. Since a narrative analysis technique was used that focuses mainly on “story telling”, each questionnaire was tailored to the questioned interviewee. Each questionnaire consisted of five items, including an invitation message introducing the
study and fourteen questions in total. Overall, fifteen interviews were conducted, nine with creators and six with knowledge migrants.

4. Creators efforts vs. knowledge migrant’s perceptions

In the following section, I provide empirical evidence concerning the question how the Kennispark thought its form and function operates as a local place to attract knowledge migrants. Following my conceptual framework in Figure 1, I focus on two things: first, on the creators’ efforts to establish a local environment that is globally attractive and enhances regional development, and second, the knowledge migrants’ personal perceptions towards these efforts and outcomes.

4.1 Efforts and outcomes of the creators

In order to investigate how creators of sciences parks aim to establish local environments that attract international knowledge migrants, empirical evidence is provided in the following section on the creator’s efforts to establish the Kennispark, thereby focusing on four questions: (1) how did creators of the Kennispark established a globally attractive local place environment (functional effect), (2) how did they created a new cultural profile that enhances regional innovation (regional upgrading effect), (3) which efforts were taken to capture external, national, as well as global recognition (external recognition effect), and (4) which efforts were taken to bound knowledge migrants to the Kennispark (personal attraction effect)? Firstly, there was the creation of the campus environment: in 1961, the Dutch national government decided to build the UT on former country estate “Drienerlo” located between the two cities of Hengelo and Enschede. The university chose two young architects (Van Tijen & Van Embden) who decided to build self-contained campus environment on the footprint of the former country estate comprising of meadows, woodland, water and old farms from the 19th century (interview, September 3, 2015). Van Tijen and Van Embden chose to divide the campus space into three functional areas: (1) an academic area comprising lecture halls and offices, (2) a retail and leisure area, located in the core of the campus, where teachers and students could interact with each other by doing sports and rehabilitate together, and (3) a residential area providing housing for teachers and students (see Fig. 3). The initial campus architecture (until the early 2000s) provided a mixture of teaching, studying, residential and recreational
facilities, combined with open spaces embellished with public art, intended to radiate a sense of warmth to residents and visitors (interview, September 3, 2015).

Secondly, from the early 2000s, following the need to rebuild the campus, the university decided to develop the Kennispark to integrate the structure, a process master-planned and overseen to this day by Hoogstad Architects (interview, September 23, 2015). This was done in two ways: first, by establishing a visible university-industry linkage, in which existing purely academic facilities (e.g. former laboratories) located at the campus were reconstructed to shared academic and corporate facilities. The purpose of Gallery’s project, for instance, was to create a facility where students from different faculties could work together with Kennispark related businesses, which used the UT’s applied research for their business acceleration, to develop new ground-breaking products and applications to societal wicked problems (interview, September 23, 2015). Second, to encourage interpersonal interaction and knowledge exchange between both sides of the Kennispark, architects tried to provide the Kennispark with a virtual space-architecture thereby integrating business facilities in the old campus environment to bind people to specific places and lead them around the Kennispark unselfconsciously (see Fig. 4) (interview, September 23, 2015).
Thirdly, since 1987, UT directors aimed to create a unique profile known as “the entrepreneurial University” encouraging an entrepreneurial culture among its students (interview, October 29, 2015). Whereas in the early years, the entrepreneurial UT mainly operated in isolation and aimed primarily to transform knowledge into new activities, the original profile became increasingly innovative driven since the establishment of the Kennispark. This innovative entrepreneurial profile combined academic excellence with an enterprising spirit that supports innovative start-ups and existing businesses with knowledge generated at the UT. This university profile generated not only revenue from intellectual properties and investments, but also led to the creation of more than 700 spin-offs (Van den Kroonenberg, 1996). This innovative entrepreneurship profile is also the bases of the newly launched 2020 strategy aiming to transform the campus into a “living smart campus” which serves as a driver of new innovative and society oriented developments that are created, tested, and practiced on the campus site (“News,” 2016)
Fourthly, the new profile caused also changed in the internal structure of the UT. Creators’ aim to strive towards more internationalisation not only led to the standardisation of the old system into a bachelor/master system according to the rules of Bologna, but also to the future objective to offer English-speaking bachelor and master programmes only (interview, October 29, 2015). In addition, through the invitation of a number of well-known Dutch personalities (e.g. king Willem-Alexander, Prime Minister Mark Rutte, and the Dutch European Commissioner for Digital Agenda Neelie Kroes) the UT aimed to gain greater national recognition (interview, February 3, 2016). To establish a globally recognized name that attracts more global talents and research FDI, creators increasingly strive to make new international contacts and partnerships (interview, November 3, 2015).

4.2 Reaction of knowledge migrants to these efforts and outcomes

In order to investigate how Kennispark creators’ efforts and outcomes are perceived by international knowledge migrants who work and/or live at the Kennispark, next, empirical evidence is provided on four questions: (1) how is the local place environment perceived by knowledge migrants (perceived functional effect), (2) how do they experience the Kennispark profile (perceived regional upgrading effect), (3) how is the Kennispark come to their attention (perceived external recognition effect), and (4) do they feel personally bound to the Kennispark and its local place environment (perceived personal attraction effect)?

Firstly, the campus architecture with its different buildings, green areas and artefacts is appreciated by most of the knowledge migrants as a unique, beautiful oasis that provides a pleasant and recovering working and studying environment (interview, October 6, 2015; interview, September 26, 2015; interview, October 14, 2015). Its functional disposition into three studying, living and recovering areas providing a mental internal closeness, attracted most knowledge migrants when they saw the campus for the first time (interview, October 2, 2015; interview, October 5, 2015; interview, October 6, 2015). However, it was highlighted by some knowledge migrants that with time the campus would lack a metropolitan and multicultural buzz due to this oasis effect (interview, September 26, 2015). Many knowledge migrants also stated that they would perceive the campus as a small village showing a picture of individual internationalism that “lacks a multicultural international dimension” (interview, September 26, 2015, p. 2).

Secondly, a majority of all questioned knowledge migrants did not recognize an integrated Kennispark architecture. Although the UT with its virtual space-architecture and specialized research institutes is perceived by knowledge migrants as a unique place providing the opportunity to gather experiences in applied science, the business related facilities are not noticed by knowledge migrants or mainly misunderstood (interview, October 6, 2015). In addition, the name of the Kennispark, especially the existence of a BSP stays rather unrecognised by knowledge migrants working at the UT, because of the absence of a clear linkage between the university campus and the companies located in the former BSP (interview, September 26, 2015; interview, October 2, 2015). One reason
mentioned for this physical disconnection is the presence of a boulevard/street line between the two parts of the Kennispark (interview, October 6, 2015).

Thirdly, as being a small, rather unknown local place, knowledge migrants perceive the Kennispark, or more specific the UT with its unique innovative entrepreneurial profile, as a space that encourages young entrepreneurship and applied science (interview, October 5, 2015). In addition, several funding opportunities\textsuperscript{5} make the Kennispark as a place also more attractive to knowledge migrants. Whereas some knowledge migrants got attracted by the UT offering many unique opportunities (e.g. Nanolab, a not-restricted psychology study) (interview, October 5, 2015; interview September 26, 2015), others reported that they ended up in the Twente region rather coincidently (interview, October 2, 2015).

Fourthly, most of the UT knowledge migrants stated that they have not recognized the Kennispark before they came to the UT. Whereas some knowledge migrants perceive the Kennispark as a “provincial place” in the periphery of two small rural towns (interview, September 26, 2015, p. 2), others perceive the Kennispark as a place that unfolds its local attraction through its actual experience (e.g. campus live) (interview, October 14, 2015; interview, October 2, 2015; interview, October 26, 2015). The UT creators’ internationalisation efforts are recognized by many experts, since a majority had chosen the UT among other international universities because of its English-speaking bachelor and master programmes (interview, October 2, 2015; interview, October 14, 2015; interview, October, 2015).

\section{Kennispark’s operational role in attracting knowledge migrants}

UT creators partly succeeded in their efforts to create a unique and attractive campus environment that encourages interaction and knowledge exchange, since knowledge migrants value the beautiful and functional infrastructure of the campus. However, due to its missing metropolitan and multicultural buzz, creators were not able to create a globally attractive campus environment that provides an international and multicultural atmosphere. UT creators’ effort to build a complex social system with shared symbols, integrated in a self-leading virtual campus infrastructure, unfolds for some knowledge

\textsuperscript{5} TOP scheme: UT funding programme for start-ups
migrants a place related attraction; a sense of belonging to a place related identity. This identikit place is supported by the strong innovative entrepreneurial profile established by UT creators. Although creators aimed to create proximity through an integrated Kennispark architecture, no knowledge-transfer through established personal relationships and community ties between both sides of the Kennispark are perceived by knowledge migrants. Moreover, the presence of a physical disconnection between both sides of the Kennispark seems to hamper creators’ efforts to establish a kind of innovative milieu, where actors are able to cooperate and exchange information easily due to proximity and face-to-face contact.

As shown in Table 1, creators’ efforts to establish a strong unique symbolic profile as well as several funding opportunities were most positively perceived by knowledge migrants. Creators’ efforts to create a unique campus environment and gain external recognition partially failed because of the place-related provincial atmosphere which lacks an international dimension. Finally, creators’ efforts to establish an integrated Kennispark infrastructure were not perceived by the interviewed knowledge migrants.
Using a single-case study of the Kennispark, I investigated the multidimensional role of GSSs in attracting knowledge migrants. My findings show that the establishment of a strong distinctive symbolic profile and a unique space environment can help to awake knowledge migrants’ affection. This supports Gallent’s et al. (2006) idea of “identikit places”, which implies that creators of GSSs can attract knowledge migrants through active local place-making beyond a purely economic dimension, since they can awake a personal affection towards a specific place that is characterised, for example, by an identikit, tasteful, and landscaped campus (p.40). In addition, the deliberatively construction of a multifunctional infrastructure can also unfold a local attraction through knowledge migrants’ actual experience of the space. Also, the creation of a highly international space atmosphere, encouraging a metropolitan and multicultural buzz, was found to be an influential factor in attracting knowledge migrants to specific places.

The contribution of this case study to the regional science literature is twofold: firstly, my preliminary results show that more attention needs to be paid to the multidimensional role of GSSs in regional science literature, since places seem to attract people not purely...
based on an economical dimension but also based on their placed related unique identikit. Secondly, if it is a particular atmosphere and cosmopolitanism of a specific place that attracts knowledge migrants, researchers and policy-maker should think more carefully about other ways, such as social dimensions (including psychological behavioural effects) that explain how people get tied to specific places. Finally, since only a small number of knowledge migrants working and studying at the UT was interviewed for this study, more evidence needs to be collected focusing on knowledge migrants also working in companies located in the BSP. Furthermore, the influence of quantitative measurable factors (e.g. FDI, amount of international research activities/relationships) should also be taken into account to evaluate the attraction effect of Kennispark.

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8. References


