



# Creating liveliness and diversity in science locations? Trends and examples

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## Abstract

Knowledge has become the prime source of wealth in advanced economies. Increasingly, urban regions have become recognized as important active ‘engines’ and promoters of the knowledge economy. Europe’s cities are the main centers of knowledge creation, commercialization and innovation, and their policies and attitudes can make an important difference. The REDIS project<sup>1</sup> focuses on one particular and highly significant aspect of urban policy for the knowledge economy: how to create or promote special locations, zones, quarters or parks, where knowledge based companies and institutes are co-located. These can be new locations (greenfield initiatives) or redevelopment projects that aim to transform existing urban districts. This paper addresses one particular aspect: the growing importance of liveliness and diversity for science locations. We discuss the new demands on working locations, and the consequences for science parks and other ‘knowledge areas’. Next, we discuss how liveliness and diversity can add to the success of a knowledge location, and illustrate this by a number of examples from European cities.

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<sup>1</sup> Cities in the REDIS project are: Aarhus, Biawystok, Halle, Magdeburg (Lead Partner), Manresa, Newcastle, Piraeus, and Vienna. REDIS is a project co-funded by URBACT. URBACT is a European Programme, funded by the European Regional Development Fund (ERDF), which aims to foster the exchange of experience among European cities and the capitalisation-dissemination of knowledge on all issues related to sustainable urban development.

## **1. Introduction**

In the 1970s and 1980s, many European cities developed science parks and ‘technology parks’ outside the city, at suburban locations. Typically, these parks were built for university departments and high-tech companies. But in recent years, we see a ‘re-urbanisation’ of knowledge-based development. The idea has gained ground that creativity and innovation are spurred when people from different trades and firms meet each other and interact. This interaction, so it is believed, is facilitated by particular ‘urban milieus’, which are open, diverse, mixed, and offer natural opportunities for planned and unplanned encounters. The idea that diversity and interaction create innovation is far from new: it was put forward convincingly by Jane Jacobs in her book on New York, back in the 1960s (Jacobs, 1969). Recently, the emerging ‘networked’ knowledge economy has made this logic compelling again, as innovation has increasingly become an open process in which many companies work together in innovative networks.

Many believe that ‘high-touch’ urban environments are excellent locales for innovation. European cities are deploying a variety of policy efforts to deliberately create such environments, aiming to promote innovation and creativity in those areas and/or to increase the value of the real estate. One trend is the creation of ‘knowledge quarters’ where functions of working, living and leisure are combined with public spaces that invite to interaction. But also, cities try to make their ‘old style’ mono functional science parks more lively and diverse.

In this paper, we will elaborate on this theme. We first address the new demands on working locations, and the consequences for science parks and other ‘knowledge areas’. Next, in section 3, we discuss how liveliness and diversity can add to the success of a knowledge location, and illustrate this by a number of examples from European cities.

This paper is based on research in a number of cities, among which eight cities that participate in the REDIS project. It is part of a series of papers on the development of knowledge locations.

## **2. New demands on the working environment**

In the last decade, new insights have emerged on the conditions in which innovation and creativity can flourish (Van Winden et al., 2004, 2007). This has a deep impact on the way we think about the set-up of science parks and other knowledge locations.

First, there have been fundamental changes in the process of knowledge creation and diffusion. The image of the isolated scientist who works in his ivory tower is increasingly becoming a myth. Rather, innovation, knowledge creation and learning occur in interactive processes, in which actors combine different types of complementary knowledge and competences. Technological development has become very fast, and progress can only be realized when researchers work together in teams. This way of working is not restricted to the academic world: Also, in commercial companies, the innovation process has become much more interactive. To speed up their innovation process, many firms set up multi-disciplinary teams of engineers, designers and marketers that work together from the early development stage of a new product. To ensure that research efforts will ultimately lead to a ‘marketable’ product that will yield profits for the company. There is a trend towards ‘open innovation’, in which companies work together and combine their unique competences to create new products or services. More recently, some companies realize that the success of their innovation is higher when the end users (citizens/consumers) are involved in the innovation process as well: after all, they are the ones to buy and use the products. Progressive companies create all kinds of interactions with end-users.

The shift from the ‘ivory tower’ to an interactive and iterative process of knowledge creation has implications for the planning and organization of science parks or other knowledge locations. Offices and lab space is not enough: knowledge locations have to cater for networking and

interaction, through meeting venues, restaurants, leisure facilities, network events and a wide array of other means.

Second, scientists (and knowledge workers in general) put different demands on their working environments. They increasingly prefer to work in a nice and lively working environment that offers amenities and facilities beyond just office and lab space. There is pressure on firms and research institutes to meet these demands: high quality knowledge workers have become a scarce commodity, and there is severe competition to lure them. One of the ways to do it is to offer a very attractive working environment that includes facilities for leisure and shopping. The director of Philips Research confirmed this point. He said: ‘after Philips opened its new high-tech campus, engineers were more eager to work for the company, and it was easier for Philips to recruit the best talents’.

A related point is the shifting of work-life balance. Especially for younger people, work and life have increasingly become mingled, and social interaction with colleagues is important. This lifestyle is facilitated well in a lively environment that offers adequate amenities and facilities.

Third, the knowledge economy has become an international network economy. Research and development takes place in project teams of people from different nationalities. This networked way of working asks for an environment that facilitates meetings and interaction, not only during office hours but also after. One feature of this project-oriented knowledge economy is the increasing number of temporary ‘expat’ professionals who work on a project for a couple of months, at a certain location. During that time, they prefer to stay in a more lively and diverse environment rather than on a dull campus without life after 5 ‘o clock.

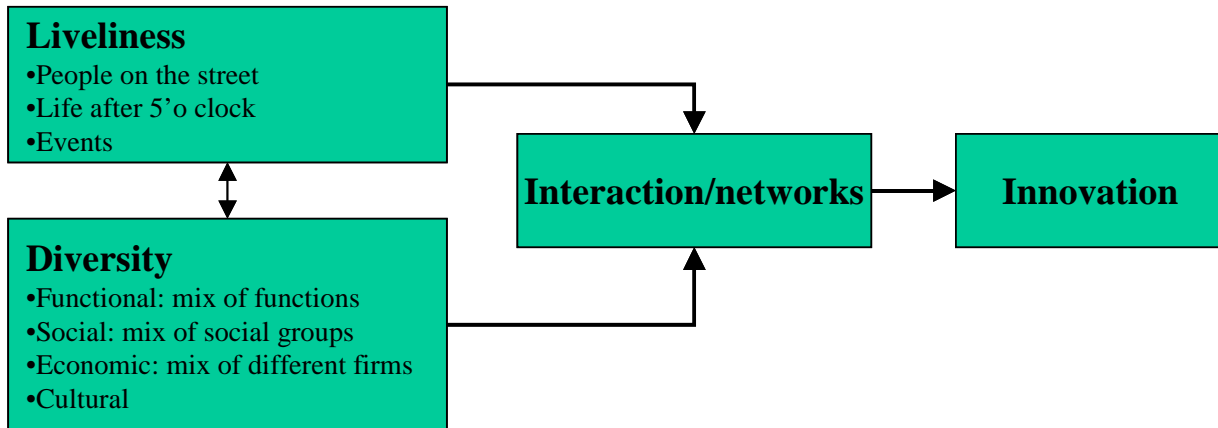
### **3. Creating liveliness and diversity at knowledge locations: instruments and tools**

It is increasingly understood that a certain level of liveliness and diversity has a positive influence on the ‘success’ of science parks or any other type of knowledge location. Jane Jacobs has made a famous contribution on the importance of urban diversity as driver for innovation. Jacobs argues that especially densely built diverse urban environments (such as New York) are seedbeds of innovation and renewal. Some decades later, Richard Florida (2002) draws a similar conclusion. He argues that diversity and cultural ‘openness’ attracts talented people, who are the prime generators of urban economic wealth. Gladwell (2000) stresses the importance of casual encounters: ‘the best ideas in an environment for working originate from casual encounters between different groups within the same company’.

Figure one suggests schematically the relations between liveliness, diversity, and innovation: the link runs via networks. The assumption is that networks are the basis for innovation, and they will function better in a lively and diverse context.

If this is all true, the hot question is now: to what extent can liveliness and diversity be ‘created’, and if so, how? Across Europe, stakeholders of knowledge locations (urban policymakers, real estate developers, knowledge institutes or firms), are concerned with the question how this type of environment can be created, either from scratch (in a greenfield situation) or, alternatively, how current mono-functional areas can be transformed into more mixed and lively places that invite to interaction. In this section, we discuss a number of measures that can be taken to enhance liveliness and diversity.

Figure 1 from *liveliness and diversity to innovation*



### 3.1 Adding functions

One way to increase diversity is by adding residential functions to an existing science location. Indirectly, this can increase the liveliness of a knowledge location as well. Residents generate traffic and activity after office hours; they constitute a market for other facilities (shops, bars, restaurants) in the area, from which tenants in the area can benefit and which may attract people from outside. A certain critical mass is needed to make this happen. Housing projects may target at specific groups (dormitories for students, expats, or other types of temporary knowledge workers), or, alternatively, at any type of tenants/buyers. At newly planned knowledge sites, residential functions can easily be added at knowledge locations: unlike heavy industries, science and innovation activities are not polluting or dangerous to the population (although there are exceptions).

*The city of Dortmund may serve as an example. Back in the 1980s and 1990s, the city developed a mono functional technology park, physically remote from the city. Currently, the city is developing a second, ‘new generation’ knowledge hotspot on the Phoenix site, a former industrial site near the city centre. In contrast to the first technology park, this one is being redeveloped as a mixed-use area, including residential functions, leisure, and all sorts of amenities. Moreover, to give it identity, the development is explicitly linked to the industrial past of the area. Parts of the industrial heritage is preserved and reconverted. This attempt to preserve or create ‘identity’ is typical for post-modern knowledge locations.*

The situation is different at ‘legacy’ monofunctional campuses or science parks. To add residential functions there, high investments are needed (parks, basic amenities and services), and companies in the area maybe worried about security, especially if the area used to be close at night times.

#### *Adding other functions*

Depending on the situation, other functions could be added to a knowledge location as well. Obvious candidates are leisure, tourism, and sports facilities. These functions are adequate ‘network facilitators’ and could enhance planned or spontaneous interaction. Moreover, they could be used by people outside the area as well. Again, adding functions is easier at a new site than at an existing legacy site. In the city of Magdeburg, tourism is considered a catalyst to enhance the liveliness of the science area. The cities’ ‘Science Harbor’ is located at an attractive location along the Elbe River, that is suitable for activities like boating, or cycling.

### 3.2 Organising events and networking activities

Through events, knowledge locations can temporarily be turned into very lively and vibrant places. Each year, the city of Magdeburg organizes a ‘long night of science’ in its Science Harbor area. For

one night, the research institutes open their doors to the general public, and organize all kinds of activities. This type of events has several positive effects: it may encourage young people to study science; it raises awareness of the local population, and it puts the area on the mental map as a place where interesting things happen. Events can help to change the identity of an area. In the city of Eindhoven, a new 'art & design' district is being developed, at old factory premises of Philips (Strijp S). To make the area more known as a hip knowledge location, events are organized on-site that relate to the theme of the new quarter.

### 3.3 Urban design and planning tools

Overall, 'networking' and 'interaction' have become key words in the process of knowledge creation. Through urban planning and landscaping, interaction can be promoted at a knowledge location. A good example is the Eindhoven High Tech Campus, that was deliberately designed to promote interaction between people and firms. Car traffic is not allowed at the site (workers and visitors have to park their cars in landscaped parkings), so walking is the dominant mode. This increases inter-personal contact. Moreover, companies at the site are not allowed to have their own restaurant and meeting rooms (except very small ones). These types of facilities are concentrated in one zone of the campus, called 'The Strip'. This area contains shops, restaurants, meeting venues, a gym, and some other sports facilities. It thus becomes the meeting place for tenants at the campus.

### 3.4 Creating science quarters in the urban fabric

The most radical way of having diversity and liveliness at a knowledge location is to create such a location in the middle of a dense, lively and mixed city district. All the amenities are in place, and residents are already there. The knowledge and research activities have to be 'added' instead of the other way around. Below, we show three examples.

*The city of Newcastle, UK is a fine example. Over the last years, the city has already successfully transformed its industrial image, through heavy investments in culture and flagship architecture. The cities' next ambition is to become a significant 'city of knowledge' in the UK. Among other things, the city is developing a large 'science quarter' at a former brewery site, in the city centre. To realise this ambition, the City Council works together with the University of Newcastle and ONE Northeast, the regional development company for the Northeast of England. The partners have the intention to transform the brewery site into a new mixed-used city centre quarter, focused on attracting and developing world-class knowledge and business in science and technology.*

*Another example is the development of the Digital Hub in Dublin. The Digital Hub is to become a leading cluster of digital media firms. It is located in a deprived neighborhood, next to Dublin's city center, and the ambition is to regenerate the area by developing knowledge-based activities there.*

*Zaragoza, an industrial city in North-central Spain, has created its Milla Digital (Digital Mile) initiative, a big urban project that transforms more than 100 ha. of former railway facilities in the center of Zaragoza into a space for innovation and creativity. The ambition is to create a City of Innovation and Knowledge, with a mix of residential and business premises as well as research facilities. The area is to be equipped with the most advanced ICT infrastructures.*

## 4. Some concluding remarks

There is a policy trend to make science locations more lively and diverse, in order to promote innovation and increase the spin-offs of such locations. This paper presented some policy interventions:

- ❖ Create functional diversity by adding functions (tourism, leisure, housing)
- ❖ Use planning concepts to optimize interaction opportunity

- ❖ Use events to create liveliness and/or change the image of a location
- ❖ Design public space in innovative ways
- ❖ Develop knowledge quarters as integrated part of the urban fabric

Some additional critical notes should be made, however, because creating areas for interaction is a nice ambition but difficult to realize in practice. First, there is often a gap between vision and market reality. Typically, planners dream up a nice area based concept aimed to attract a specific types of firms (creative industries or high tech firms), but drop the ‘admission criteria’ when the market response is somewhat disappointing. Having areas or buildings stand idle is simply too costly. Second, the interaction between firms and people in fabricated ‘urban knowledge milieus’ often fall short of expectations, even if the concept works out the way it was planned. Knowledge will only spill over when there is complementarity between actors in terms of their knowledge base, and when there is a sufficient level of ‘absorptive capacity’; in other words, some degree of cognitive proximity is required (Nooteboom, 2000). Moreover, after all, innovation networks are not that local (Gertler and Levitte, 2005). The main relevant innovation networks of entrepreneurs are often very personal, and the increased mobility of people extends their geography. Face-to-face contacts can be maintained very well with people in a very large region. Furthermore, ‘communities of practice’ are increasingly recognized as an important arena for knowledge exchange, but these networks operate on national or international scales rather than locally. They are maintained through regular conferences, virtual forums etc. In sum, the territoriality of knowledge networks should not be overstated when designing urban innovative milieus.

A key success factor in the design of knowledge location is the involvement of the end user (the tenants of the complex; Cabe 2006). What are their interests? From the perspective of the end user, the environment for working can be seen as a balance between efficiency, effectiveness and expression. Efficiency refers to the optimal economic use of corporate real estate and a minimization of operational costs (making the most of space). Effectiveness refers to the intelligent use of space in order to support the way people work and enhancing output and quality (making the most out of people). And expression being the spread of messages to positively influence people in the way they think about the organisation (making the most of the brand). Again, physical planning alone cannot guarantee a better performance. A series of intermediate conditions (social/managerial) are necessary to raise the chances of success.

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