City-University co-operation to the next level

A baseline study for the EuniverCities network

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EUniverCities

TABLE OF CONTENTS

Preface

The EUniverCities Urbact-network unites 10 medium-sized European cities[1] that seek to improve the university-city nexus. By applying to the URBACT programme, they want to learn from each other's experiences and practices, and move forward as successful and inclusive knowledge cities.

This baseline study lays a foundation under the activities of the network in the coming 2.5 years. It consists of three parts: a state-of-the-art report, a set of partner profiles, and a synthesis.

Part I, the "state of the art" report, puts the topic of city-university collaboration in its international context. It contains an overview of current literature and best-practices regarding city-university co-operation. It is based on a review of the academic and policy literature, and insights of the author. This part intends to create a sound conceptual basis of the exchange activities in the next 2.5 years in the EUniverCities URBACTnetwork.

Part II contains brief descriptions of the partner cities in the network. For each city, there is a mini-chapter describing the local situation, current types of co-operation, and challenges and problems regarding the university-city nexus. This part is based on interviews held in each city, with key informants from city, university and other organizations. This part makes clear that each city has particular challenges.

Part III, finally, is a synthesis. It compares the cities with each other, wraps up, and sketches common issues and challenges in the cities. It sets the focus for the activities in the partnership.

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[1] Aachen, Aveiro, Delft, Ghent, Lecce, Linköping, Lublin, Magdeburg, Tampere, Varna

Part I - University-city co-operation in European cities: practices, insights, challenges and reflections

1. Introduction

The EUniverCities Urbact-network unites 10 medium-sized European cities[2] that seek to improve the university-city nexus. By applying to the URBACT programme, they want to learn from each other's experiences and practices, and move forward as successful and inclusive knowledge cities. This "state of the art" report is part I of the baseline study. It puts the topic in its international context, and contains an overview of current literature and best-practices regarding city-university co-operation. It is based on a review of the academic and policy literature, and insights of the author. This part intends to create a sound conceptual basis of the exchange activities in the next 2.5 years in the EUniverCities URBACTnetwork[3].

The growing interest for city/university collaboration comes from both sides. Universities are increasingly competing with each other, and are becoming aware that an attractive urban environment (in the broadest sense) helps them to lure the best students and researchers; moreover, for a number of reasons detailed below, they increasingly develop relations with their environment, including actors within the city in which they are located. City governments, from their part, have come to recognize "their" universities as engines of the urban knowledge economy, in their role as sources of talent, economic development, innovations, and social and cultural dynamism (van Winden, 2010). With the massification of higher education, student numbers have grown drastically, and student populations are increasingly recognized as valuable part of the urban society. In urban planning fields and practices, students and higher education institutes (HEIs) are being recognized as key players in urban gentrification processes. The relationship between universities and cities can be characterized as one of mutual benefit, but also one of occasional conflict, negotiated tolerance, and ambivalence.

It is widely felt that the growing interconnections between HEIs, students and urban development asks for new types of policy responses. Student cities united in EUniverCities want to think thoroughly about the mutual dependencies, tensions, scopes and tools for fruitful co-operation, and develop more strategic and sustainable approaches. In this process, they want to learn from each other's experiences.

There is a growing mountain of academic and policy literature related to our central topic. The OECD conducted a series of Reviews of Higher Education in City and Regional Development, in which it explores for a number of cities how HEIs are aligned to the region, and how improvements can be made in this respect[4]. And in 2011, the EC developed a Guide "Connecting Universities to Regional Growth"[5] to help public authorities promote the active engagement of universities and other higher

[2] Aachen, Aveiro, Delft, Ghent, Lecce, Linköping, Lublin, Magdeburg, Tampere, Varna

[3] Part 2 contains brief descriptions of the partner cities in the network. For each city, there is a mini-chapter describing the local situation, current types of co-operation, and challenges and problems regarding the university-city nexus. This part is based on interviews held in each city, with key informants from city, university and other organizations. This part makes clear that each city has particular challenges. Part 3, finally, wraps up, and sketches common issues and challenges in the cities.

[4] http://www.oecd.org/dataoecd/51/27/39378517.pdf.

[5] http://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf

education institutions in regional innovation strategies for smart specialization, in cooperation with stakeholders. The guide explores how to overcome barriers, to build capacity and to implement partnerships and leadership processes to interconnect the partners in regional innovation systems. It contains a wealth of practical examples from cities and regions that managed to establish fruitful partnerships and synergies. It stresses that in order to effectively support the development and implementation of 'smart specialisation' strategies, cities and their universities together need to implement increasingly complex and transformational programmes and strategies (as opposed to more transactional and short term interventions). Nordregio (2012) commissioned a study entitled "Strategies for Interaction and the Role of Higher Education Institutions in Regional Development in the Nordic Countries". And there are even dedicated academic journals on the theme (Research policy, Journal of Technology Transfer, Technovation).

At the EU level, the topic is "hot" for some years already. In 2003, the European Commission initiated a debate about the role of universities in the "Europe of Knowledge", describing them as "an instrument of regional development and of strengthening European cohesion" (CEC, 2003, p. 21). The URBACT II Thematic Network "The Role of Universities in Urban Poles" addressed how universities engage with their local communities, with a focus on economic aspects (namely triple helix structures for supporting economic development and encouraging entrepreneurship).

Thus, there is a lot of knowledge and experience around. This "state of the art" study intends to reflect the existing body of knowledge on university-city partnership (although it cannot claim to be comprehensive, given the enormous amount of literature and the limited resources available for this state-of-the-art paper). This study intends to help the EUniverCities partners to capitalize on the large existing body of knowledge and experience; also, it identifies challenges, dilemmas and barriers that cities face in this intricate relationship, as a basis for this new partnership. Some of the issues discussed are very well documented; others remain somewhat underexplored so far, namely: issues around student life in cities, social aspects of university cities, and the integrated approaches towards managing and governing student cities.

The paper is structured around five "domains" of city-university partnership: local/regional economy (section 2), internationalization (section 3), students&city life (section 4), attractiveness&marketing (section 5), and Science&Society (section 6). In each domain, university and city may have a shared or common interest, and there is scope for active collaboration between city and university (see picture). Also, in each domain, there are particular tensions and challenges. As cross-sectional topic, in section 7 we also discuss urban governance[6], planning and management issues related to the city-university nexus. Section 8 concludes.

The parts of the flower[7] are interdependent: for example, the topic of internationalization is closely linked to attractiveness and marketing; Discussions of gentrification and elitism take place at the edge of the themes "Students and city life" and "science and society", etc. The concluding section summarizes the key challenges and dilemmas, and identifies "white spots" in the available knowledge on university-city collaboration.

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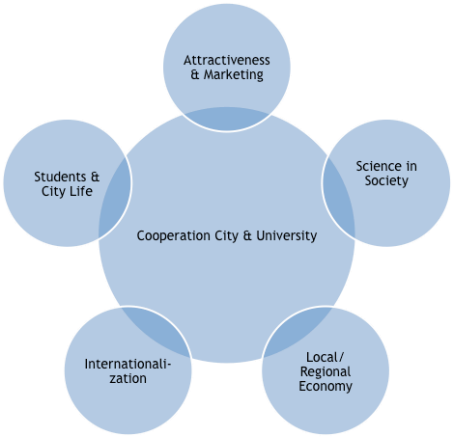
[6] Governance relates to the interrelationships between different actors and modes of governing within the city context (Antalovsky et al., 2005).

[7] The domains were chosen in close consultation with the 5 cities involved in the initial partnership.

Figure 1 areas for city-university collaboration



2. University & the urban/regional economy

Universities are deeply embedded in their urban and regional economy. They play a variety of roles in their local regional economy: as spenders (they are big institutions with sizeable budgets), big employers, real estate investors, knowledge creators, competence development centers, talent attractors, sources of new companies, innovators, drivers of economic transformation of the region, and carriers of the urban/regional image and attractiveness. Urban real estate and property markets are affected by location decisions of HEIs and preferences of students.

Urban policymakers are increasingly aware of the university's function as economic engine, and develop all sorts of policies (often together with the university) to enhance its power. From the universities' perspective, some universities actively seek a deeper and more active engagement in the local economy. The rise of the "entrepreneurial university" paradigm reinforces this tendency.

The Entrepreneurial University

Universities across the board tend to become more outward looking, and increasingly develop relations with their environment. Etzkowitz et al.(2000) refer to this dynamic as the emergence of the "entrepreneurial university", that undertakes entrepreneurial activities to improve regional or national economic performance as well as the university's financial advantage and that of its faculty. From the university perspective, the changing attitude has a number of reasons:

- Political/societal pressure: There is an increased pressure (from government and society) on universities to engage with their environment and deliver "returns" on investments in higher education & research[8].
- Funding gaps: Universities have discovered how to make money through industry contracts, other types of third-stream funding, and start-up incubation. In some cases, decreased basic (public) funding urges universities to find alternative sources
- Changing legal environments and incentives schemes that are more conducive to academic entrepreneurship.
- The discovery of the city/region as "living lab", an interesting research arena where new products can be tested and co-developed with citizens or users and other stakeholders.

The support for the "entrepreneurial university"[9] is far from universal. Philpott et al (2011) observe that within a typical general university, the supporters of the "entrepreneurial paradigm" are mainly in the disciplines of Science, Engineering and Medicine; opponents are in humanities and social sciences. The growing recognition of universities as engines for innovation has led to plentiful funding for Science/technology oriented departments, and a widening gap with humanities/social sciences. The EC recognizes this imbalance, and recommends that regions, cities and universities "adopt a broader definition of innovation to acknowledge the role that arts, humanities and social sciences can play, especially in responding to the 'Grand Challenges' and develop mechanisms that draw on the expertise and contribution from these disciplines to issues like regional

[8] In 1998 the UK government introduced wealth creation as a third mission for universities in addition to teaching and research, and backed it with £50 million a year.
[9] Delanty (2002) speaks of a "virtual university", characterized by a variety of missions and apporaches

entrepreneurship, creativity and social inclusion which form key dimensions to territorial development in the round." (EC 2011, p. 53)

Philpott et al. (2011) suggest that the entrepreneurial university ideal is better suited to specialized, technology-oriented universities than to large, comprehensive universities, given the heavy bias in policy attention and (consequently) research funding towards the science/technology sectors. This raises the issue of the role for social sciences/humanities in this respect.

The urban economic connection

What is the economic contribution of universities to the urban economy? Below, we briefly elaborate the economic interconnection. We focus on a) the role of universities as attractor/developer of human resources, b) technology transfer mechanisms, and c) academia as womb of new companies.

A. Human capital

Cities compete to attract skilled people, and universities are a key "asset" in this respect. They attract students, who (after or even during their studies) could become valuable human resources for companies in the city. Evidently, not all students enter the local labour market after graduation: many will move out and find a job somewhere else. There is evidence that smaller university cities have a harder job to retain graduates than bigger ones: there, job markets are smaller and less attractive. On average, the alumni retention rate in a region (number of local graduates who enter the local or regional labour market) is roughly 60 per cent for all graduates and 70 per cent for advanced degree holders (PhDs and Licentiates) (Nordregio, 2012, p. 9). Core regions (major urban centres) in general outperform the periphery in retaining local graduates.

The chance to retain students is higher when there is a better match between the educational offer and the needs of the urban labour market. A close dialogue between university and local industry is needed to achieve this.

> "In Karlstad University, all education and research are underpinned by a close dialogue with private companies and public organizations, e.g.through advisory boards, reference groups and steering committees" (Nordregio, p. 65)

HEIs attract "fresh" future knowledge workers, but they can also play a major role in training local workforces, helping companies to keep the skills of their workers up-to-date. This is increasingly relevant as knowledge rapidly becomes obsolete and needs updating. Universities may not be "naturally" interested in training local workers: their main focus, typically, is educating young people (prior to their labour market entry). In most cases, special purpose organizations are needed to match supply and demand.

> In Letterkenny (Ireland), the university actively helps new foreign companies in the region, by offering tailor-made training programmes for staff (in co-operation with other actors). At Letterkenny Institute of Technology, the emphasis is put on research with commercial potential and this is evidenced by the growth of CoLab and the fact that the key research streams are funded by the national development agency Enterprise Ireland (Van Winden, 2012).

B. Technology transfer

Universities are sources of new ideas, technologies, and inventions, which may be of value to the urban economy. Newly developed knowledge at universities can "flow" into the region in a variety of ways, potentially enhancing the innovative capacity and competitiveness local firms and other organizations. Universities are increasingly active in "technology transfer", driven by financial and other motives. Formal mechanisms include: sponsored research agreements with industry; inventions disclosures, patents, licenses of university intellectual property to firms. Informal mechanisms include industry hiring of students, faculty consulting, and knowledge exchange in friendship networks (Feldman and Breznitz 2009). Technology transfer can take place when university groups participate in cluster activities or organizations.

Evidently, local industries benefit most from research that is "relevant" to them. But it is not a university's priority to be relevant for the local industry. Co-ordination is needed to identify, create and exploit mutual benefits, which can take many forms. There are many examples of successful alignment and matchmaking between local industry and HEIs.

It is important to note that the scale and scope of commercial activities of most universities is limited, despite wide policy attention. Recent studies indicate that the extent of commercialization of academic research is structurally very low in Europe, and somewhat higher in the US. Licence incomes are small, overall. The average US university earns a modest $6.6m from licensing (which is 2.8 per cent of their total research budget); in the UK, it is only $365,000 (1.1 per cent) (HEBI 2004 and NSF 2006b in Huggins et al 2008).

Many universities have a technology transfer office, but the results are often somewhat disappointing. Research indicates that many TTOs do not break even. "Notably, there is vast differentiation in the ability of technology transfer offices to commercialize technology. The distribution of licensing revenues is highly skewed, with a few big commercial successes generating large returns for a small number of universities." (Breznitz&Fledman, p. 146)

Goddard et al (2012) also question the significance of university-based intermediaries (such as Technology Transfer Offices, TTO's) to support local business development. Typically, they have relatively limited resources, and are focused on spin-outs and the management and marketing of intellectual property (IP). They lack critical competences in the field of finance and deep knowledge of the market needs. Being embedded in the institutional structure of the university, they are often unable to transcend the academic culture that prevails in research universities. The authors conclude that "most universities do not have the organizational capacity and especially space to provide facilities to scale-up or make ready market technologies emerging from engineering laboratories; nor can they provide the specialist market knowledge and advice through internal technology transfer to engage with potential investors". (p. 623).

Part of the problem is a lack of incentives: "Europe is, to a large extent, hindered by a lack of incentives in terms of regulations, financial support and intermediate organisations. The situation is different in the United States, where the expansion of technology transfer has been linked to rules ensuring full ownership by the universities of research results, which puts them truly at the heart of the innovation production process and gives them a genuine incentive to optimally implement their

results (following the example of the Bayh-Dole Act, which is not the case in Europe)" (EC 2011, p. 17).

C. Entrepreneurship

Universities are incubators of entrepreneurial activity, and they increasingly undertake a variety of activities which help build an entrepreneurial culture among students and graduates, to stimulate business start up among graduates and staff. The last decades have seen a proliferation of all sorts of "business incubators", science parks and other supporting instruments aimed to help academics or students to start a business. The number of spin-off companies from universities is rather low, however. Leading US universities annually spin off 2.8 new companies per institution. Only four US universities spin off more than ten companies annually. In the UK, the average for all universities is a bleak 1.3 spin-offs per institution per year (Huggins et al., 2008).

Limitations

Universities are increasingly seen as "transformation engines" in the urban knowledge economy. And indeed, some cities have experienced a strong knowledge and science-led economic boom (i.e. Cambridge, Oxford, Leuven). However, this promise is not for every university city (Christopherson and Clark, 2010; Harrison and Leitch, 2010). In less-advantaged cities and regions (with a weak economic structure) there is typically a large gap between the needs of companies and the knowledge supply of the university. Existing industrial firms lack the capacity to assimilate and capitalize on new knowledge from research in nearby universities (Christopherson and Clark, 2010). In other words, the "absorptive capacity" for local firms is low. Oughton et al (2002) have called it the regional innovation paradox: "the apparent contradiction between the comparatively greater need to spend on innovation in lagging regions and their relatively lower capacity to absorb public funds earmarked for the promotion of innovation and to invest in innovation related activities compared to more advanced regions" (p. 97). In these regions, collaboration with more practically oriented types of HEI (like universities of applied sciences) is much more promising.

Benneworth at al. (2010) points at the risks of too high expectations. "Local authorities may have unrealistic ambitions for what universities can achieve, as regional development policies in the knowledge economy are characterized by a huge amount of me-too-ism, with local authorities seeking to promote a similar mix of biotechnology, nanotechnology and tourism with little regard for local economic needs and capacities or linkages to the science base" (p. 1617)

3. Internationalization

In many cities, internationalization is an ambition that universities and cities share. Universities increasingly want to attract foreign students, lure the best foreign researchers, and win international research projects. Improving their position on international university league tables is a boardroom priority. Many city governments, from their side, are welcoming well-educated foreigners, fitting neatly in the ambition to develop an internationally oriented urban knowledge economy. The issue is especially pressing for medium sized cities that face heavy competition from major metropolitan areas, and do not have the natural attraction towards foreign companies and knowledge workers.

Internationalization in academia

Academic research has always had an international orientation. For academics, it's part of their core business to participate in international conferences, and publish in international journals. It has become common to participate in transnational research programmes (of which the EU is a big funder), or to work abroad at another academic institution for a period of time (as guest researcher, or to work on a particular project). The international mobility of scientists has increased over the last decades. Many universities actively encourage their staff to apply for international research funds or to work abroad, and offer good facilities to host guest researchers. Competition for bright academics has grown in recent years: several developing countries (China, Singapore, Malaysia and Dubai are prime examples) have high ambitions to develop top-level universities, and seek to lure the best researchers.

Mobility is not restricted to scientists: education is internationalizing too. First, there is increased international student mobility. Students from other continents (notably Asia) have flooded the universities of the US and Europe, in search for good education. In Europe, Erasmus and other programmes (funded by different sources) enable students to study abroad for a couple of months; EU students can choose to take their Masters in another country, thanks to the harmonization of higher education in the Bologna process. Many universities are eager to attract international students (bachelor, Master and PhD), and take a variety of measures: offering courses in English, opening international offices to service foreign students, engaging in international marketing, etc. The market to attract the foreign student has become an internationally competitive market.

Some universities have adopted "internationalization at home" programmes, aiming to make their university as a whole more internationally oriented. Underlying idea is that the university should prepare students, foreigners or not, to work in an international environment. Elements of such programmes are to improve the English language proficiency of academic staff and students, and to increase the number of courses in English.

Another aspect of internationalization is when universities open branches or campuses abroad. US top universities were quick to realize the potential of their brands, and opened campuses abroad, mainly in the surging economies in Asia. This helped them capture the fast-growing market for higher education in these regions, and hand-pick the best academic talents. European universities have followed suit, albeit more reluctantly and modestly.

The city perspective

What does the internationalization of universities imply for their "host city"? In a recent report, EC (2011) is positive about the effects on the region. "A globally connected university acts as a 'window' on the region, and builds and enhances the image and reputation of the region to the wider world. This can benefit the development of the region in a number of ways; connecting people from all over the world into the region which can act as a vehicle for future cooperation; attracting researchers from around the world who will contribute to the development of new technologies which may result in new, innovative spin out firms being established; act as a lever for international investment as firms grow around areas of international specialism and expertise. The flows can work in both directions – just as universities can attract intellectual and human capital into a region, equally their scientific and technological expertise can leak out of the region to other places" (EC 2011, p. 22). More mundane, the host cities' economy can benefit from the spending of international students or academics (few if any studies have been done on the economic effects of foreign students as compared to the economic benefits of expats (foreign, mainly academic workers at companies in a not-of-origin country).

For a city, a "critical mass" of foreign knowledge workers may have a snowball effect: it creates scope for amenities such as international schools, events, or expat organizations, which in turn increases the cities' attractiveness for foreigners and international companies, etc.

In some extreme cases (Oxford, Cambridge, Boston), the top-level higher education institutes have turned their host cities into major international hubs, not only intellectually but also in economic, social and cultural terms.

Some studies point at segregation between foreign students and "national" students. Fincher and Shaw (2009) describe the unintended segregation of international students in Melbourne, Australia. As a response to rapidly growing numbers of foreign students, there was a fairly rapid construction of apartment buildings to house them. "Some of these student apartment complexes are entirely occupied by international students, raising concerns due to the reduction in levels of student interaction amongst peers living in the apartments, but also wider society (Fincher and Shaw 2009, p. 1891, cited from Kenna, 2011).

4. Students & City life

In university cities, student life is a significant and dynamic part of city life. The significance of students has grown with the "massification" of higher education: across Europe, student numbers have increased dramatically over the last decades, with transformative impacts on cities and neighbourhoods. Some studies have appeared in recent years in this domain, about the geographies of student life in cities and developments in student housing, but overall, the topic is somewhat under researched, and there is especially little research about urban management implications.

"Studentscapes"

The way students are immersed in cities varies widely. A useful typology is provided by Russo and Tatjer (2007). They see three main components of the students' daily routine: education, residence, and social life. Based on this, they discern five different "studentscape" types in cities:

- Type 1: Education, residence, and social life coincide in space. This is the 'citadel of education' model, where all functions are concentrated in one geographical area. Some examples of university cities that conserved their historical structure are Oxford, Coimbra, Heidelberg, Urbino. The concept was reproduced in several contexts. In the USA, campuses expanded into 'college towns' with all the functions. The European counterparts are the 'villes nouvelles', whole new cities focusing on science and education (examples are Louvain-la-Neuve in Belgium, Otaniemi in Finland).
- Type 2: Education and residence are co-located, social life is elsewhere. This type of studentscape could be called a 'night-time campus': students' residences are mainly in campus or in its immediate proximity; however, after-class activity of students generally takes place somewhere else, typically in the city centre. Examples include Lyon and its peripheral campuses, the Universitat Autònoma of Barcelona, and the Cité Universitaire of Lille in Villeneuve d'Ascq. "These campuses lack social spaces, or have worn them out, due, for instance, to excessive isolation from the foci of social dynamism".
- Type 3: Education and social life are co-located, residence is dispersed. In this type, university buildings are located in central historical neighbourhoods, which are also the main stages of student life and socialization. However, these areas have become too expensive for students as a residence: they have to live in more affordable (but less attractive) neighbourhoods. This happened in central London and Paris, where historical 'student-intensive' areas in the proximity of the main universities were progressively gentrified, "pushing" students to other areas "with no other attractiveness for students but cheap rents associated, in some cases, with fast underground rail access to the university".
- Type 4: Education (university buildings) is located at a suburban location; residence and social activities take place elsewhere in the city. Typically, pressed by space constraints, universities opened facilities in well-accessible suburban localities, but did not intend to create comprehensive 'communities'. Examples are Milan's Bicocca University and Rome's Tor Vergata.
- Type 5: All functions are separated and independent. This follows from the 'degeneration' of the historical university-city studentscape (type 1), implying a progressive loss of spatial coherence between different elements of the studentscape. The city develops a 'leopard

skin' pattern in student settlements, with chaotic flows of students throughout the city, day and night.

These are stylized types; in reality, mixed studentscapes can be observed. Moreover, many cities have more than one university, and each HEI produces its own ecosystem. Nevertheless, it is a helpful taxonomy to analyse patterns of student activities and flows in cities. The authors elaborate how the type 1 "citadel of education" model has degenerated into the other types, under the pressure of rapidly growing student numbers, competition for space, the regeneration of city centres across Europe, and decisions taken by university management and city halls.

Culture and amenities

Students are relatively heavy users and producers of culture. As "users", they are a significant audience for a cities' cinemas, theatre, events etc. In some student cities, cultural facilities rely heavily on their students' audience. Also, students are relatively frequent visitors of bars, nightclubs and restaurants in the cheaper segments. Students are also very important as producers of culture and events. Many universities have active student associations, some focusing on culture (i.e. student orchestras, theatre groups etc.), organizing concerts, plays etc. from which other citizens benefit as well. EC (2011) puts is as follows: "Universities can contribute to the cultural development of the area through promoting cultural activities and infrastructure, but also more generally by enhancing the amenities in the area through investment in capital development projects. Universities are often a key partner in the development of museums, galleries, theatre, art studios and galleries, and there may be strong links back to the research expertise of the university which helps promote the area as a cultural centre." (p. 31).

In the field of sports, universities typically have a variety of sports unions, and offer sports facilities for students. In some cities, students' sports activities (and facilities) are separated from those of the other citizens; in other cities, they are more mixed.

Chatterton (2010) observes the emergence of areas in the city that are almost exclusively servicing students, where "pubs, bars, nightclubs, and fast food and other retail outlets all pitch themselves at this lucrative, sizable, and dependable consumer population". More in general, he observes a commercialization of student life. In the UK, campuses are now increasingly saturated with opportunities for consumerism; Student unions created retail malls to capture student spending; Universities have opened merchandising shops to sell university-branded merchandise. Thus, "the student has come to represent a monetised and commoditized, as much as an educational persona, representing opportunities for profit for both local businesses and universities."(p. 512).

Surprisingly little is known about how different types of students use and experience the city. Students are often discussed and treated as one homogeneous group, but reality is much more colourful. In a PhD study on Amsterdam as a student city, Arbones Aran (2011) analyses the behaviour of different student groups, from a tribal marketing perspective. Different student groups are described as "urban tribes", with specific types of social behaviours and particular attributes. Each tribe has its own way of using, experiencing (and shaping) the city; its own favourite areas, rituals, and places to go (and not to go).

Student housing issues & impacts on neighbourhoods

The lifestyle of students differs from that of other citizens. The degree to which tensions arise varies with the type of "studentscapes" discussed above. In some cities, students mainly live together in dormitories or at the campus, thus avoiding tensions with "ordinary" citizens. In others, they are spread throughout the city, or concentrated in some neighbourhoods. Kenna (2011) notes that the number of student dwellings in a given neighbourhood heavily affects the broader neighbourhood attitudes and the extent to which an area becomes 'dominated' by students, or a 'student enclave' (see Allinson 2006, Hubbard 2008). Studies show that influxes of student populations have mostly negative impacts on a local neighbourhood, and reduce the value of local properties. (Kenna, 2011, p. 194).

A recent trend is the emergence of more luxury facilities. In Leeds (UK) for example, new residential student high-rise towers were built. En-suite accommodation is 118 GBP per week, with a number of luxure features: wifi, on-site DVD rentals, flatscreen TVs, and luxury furnishings and minibars in the upper floor pent- houses. According to Chatterton (2010), this underlines the upgrading and commodification of the student experience. "No longer do students choose from grotty `digs' let by slum landlords….Higher education students (at least those who can afford to) can choose from a range of high-quality vertical living accommodation in large dedicated purpose-built tower blocks. They are the newest arrivals in the unfolding story of the gentrification of central urban areas" (p. 509).

Growing student populations have a transformative impact on neighbourhoods. The term "Studentification" describes the process by which a given neighbourhood experiences an increase in the student population, to the point where the area becomes dominated by students (Smith 2009). Some see them as part of the urban renaissance, as a sub-group of gentrifiers: 'apprentice gentrifiers' (Smith and Holt 2007). In-moving students may help to revive of urban areas (deprived or not), and urban planners increasingly recognize students (and higher education institutions) as tools for urban regeneration. On the downside, a large influx of students may threaten the sustainability of neighbourhoods and social cohesion (Smith 2008).

Benneworth et al. (2010) describe the possible adverse urban effects of university relocations. Universities are important owners of buildings and properties in the city, and thanks to price increases, real estate can be an important source of financial revenues. Universities buy and sell real estate and shift activities between locations in the city, not to create a sustainable city but to optimize financial returns. In other situations, the city authorities are the landlord of the university. They may consider some buildings (especially in city centres) too valuable for educational use "and prefer relocating the university to a greenfield campus, leaving a large urban site for upmarket housing and offices, hoping to create a vibrant new urban district as well as releasing funds for investment in public services. "The potentially adverse effects of university relocation on the vibrancy of the city centre may not always be a consideration in such calculations" (p. 1616).

The case of Cambridge (MA)

In Cambridge, MA (hone of Harvard and MIT), tensions arose between city and university. Benneworth at al.(2010) describe how the university's growth undermined the cities' tax base, and how the issue was resolved. "The universities control 460 buildings and own 10% of the city's area, which means that their property development and transactions have a major impact on the city. Educational establishments, such as government and non-profit organizations, are exempt from paying real estate tax. In 1990, the local authority became particularly concerned about the universities' growing ownership and the development of Cambridge's taxable real estate. As a result of these concerns for the loss of potential tax revenues, a committee was formed in 1991 to bring together representatives from the city's neighbourhoods, city officials and the universities, resulting in what became known as the "town-gown report" (City of Cambridge, 1991). It recommended that the city and the universities work together on their future growth; the universities pay attention to the fiscal health of the city and consider their roles as economic enterprises and neighbours as well as educators. Since then, the Cambridge Planning Board has conducted an annual joint review, in which each university, on a voluntary basis, submits a town-gown report, providing information about its existing conditions and future plans (e.g. Harvard University, 2004; MIT, 2004), followed by a presentation to the Board. The City continues to pursue formal agreements with both Harvard and MIT to protect the City's future economy and to ensure no negative financial impact upon taxable commercial and residential property. In 2004, the City and MIT signed a 40-year tax agreement, making MIT now the largest taxpayer in Cambridge. Following the universities' more active role in urban governance, both the universities and city authorities are anxious to show the contribution that these very rich institutions make to the economic and social life of the city. Harvard University (2005), for example, which is the world's richest university, announced that a set of its resources, including campus arts, sports, lectures, classes and religious services, community partnerships, programmes and planning, would be placed at the service of the local community. (Benneworth et al., p. 1622-1623)

5. Attractiveness and marketing

Universities have an interest in the attractiveness of the urban area (safety, housing conditions, amenities etc.): it affects their current students and staff, and has an impact on their ability to attract the best students and researchers. In this domain, there is scope for co-operation between city and university.

Collaborating for attractiveness: Cambridge, Helsinki

In Cambridge, Massachusetts, the top university MIT (Massachusetts Institute of Technology) closely coordinate its actions with local government, and provides financial contributions in return for city services (Blumenstyk 1990a, 1990b; Breznitz 2000). "At MIT, University Park, a mixed-use real estate development, built privately on MIT-owned land, negotiated with the city to provide approximately 22% of 700 multifamily housing units as affordable and moderate rate housing. Moreover, open spaces and parks for the benefit of the general community are included in the areas of the park" (Breznitz and Feldman, 2012, p. 154).

In Helsinki, the Helsinki Education and Research Area (HERA) was et up. It is is a consortium of 15 HEIs, in the Helsinki Metropolitan Area. Their mission is to develop the Helsinki region into an attractive place to live, learn, work and do business. (Nordregio, p. 65)

Universities can contribute to place branding while also becoming involved in strategic urban projects that help repositioning the city's profile to external investors and knowledge workers. Benneworth et al., 2010 p. 1617) point at the city branding impact: "University developments may contribute to building a global urban brand, and cities may find themselves funding universities to undertake activities with relatively little direct local economic impact other than profiling the city as a centre of excellence, such as "national" research centres".

Barcelona's 22@ district or Malmo's Vastra Hammen areas are examples where the city seeks to promote the types of urban development that convey the message of "knowledge city", with universities playing an important role. In The Netherlands, the development of the campus of the Twente University (in the eastern part of the country) helped to change the perception of this region: it is still seen as a peripheral region, but one in which serious science is being done, and one that attracts knowledge-intensive and high tech business.

Student life has become part of a marketable urban lifestyle brand. In the large UK cities, the presence of a large student population is "a key marketing devise to boost its external, international, and cosmopolitan image. Visit Leeds' marketing website `Live it love it', for example, and four options are presented according which group you fit into: business, resident, student, or visitor". (Chatterton 2010, p. 512). Russo and Tatjer (2007) note how student neighborhoods can turn into lively and diverse districts, with a mix of students, artists, creative entrepreneurs, trendy bars etc. These areas eventually attract tourists that want to see the real and authentic city rather than the travel guide highlights or the shopping malls that are the same everywhere. On the longer run, a process of gentrification and commercialization may set in, with rising property prices pushing students and artists out, undermining the very identity of these areas.

6. Science & Society

Universities have long been elitist enclaves, ivory towers, providing higher education for the happy few. They did little to relate to the society at large. In recent times, this attitude has changed. For a variety of motives varying to self-interest to social responsibility, universities engage in a number of ways with society at large. Four interrelated themes can be discerned at this junction. Each theme requires different forms of university-city partnership.

1. Community development: how do universities relate/contribute to (disadvantaged) communities in their home city or region?

2. Participation and integration: what efforts and responsibilities are assumed to widen student participation in higher education among under-represented social groups?

3) Science for a larger audience: Initiatives to bring science closer to the general public, through science museums, school programs, science festivals etc.

4) The city as source of relevant research challenges: how do universities (through research or students' activities) contribute to deepening insights or solving of challenges and problems in the city?

Community development programmes

Several universities run "community development programs", to improve the local neighborhoods and region. Typically, programs are run by different community groups in cooperation with a center or faculty at the local university (Breznitz and Feldman, 2012, p. 152). Bridger and Alter (2011) distinguish between development *of* the community and development *in* the community. "Development in the community refers to instrumental activities such as job creation, business retention, and workforce training initiatives. Development of community is a broader process and occurs as local residents interact with one another on projects and issues— especially those that build linkages across groups and interest lines. In other words, development of community involves purposive efforts to strengthen the community field" (p. 170).

Engagement in Amsterdam

Amsterdam University of Applied Sciences has a long-standing commitment to the city of Amsterdam. In recent years, it has opened four small establishments in deprived neighbourhoods, where students engage with the local business and citizens, as integrated part of their studies. The projects cover a variety of study fields: Law students give advice to residents, business students help small entrepreneurs with business and marketing plans, pedagogic students organize reading sessions with schoolchildren, students in architecture work on local urban planning issues, medical students develop plans to fight obesitas, etc. Projects are designed and run in close collaboration with local stakeholders. The aim of the programme is to capitalize on the students' competences for the benefit of the neighbourhoods, and to widen the scope of student's experiences: working in the BOOT gives students an impression of what it is like to live in deprived situations. The programme is sponsored by a number of stakeholders.

Embedded Movie: Iowa state university outreach programme:

http://www.youtube.com/watch?v=Qtlm6RU_9zU

Participation & Integration

Attending higher education is no longer a privilege for the elite: Participation has grown dramatically in the last decades, and has reached levels of up to 50% in some countries. Still, some disadvantaged groups (immigrants, minorities) are underrepresented. EC (2011) connects underrepresentation with broader issues of equity and social inclusion, expecting that wider participation will help reduce inequalities: "success in this area will impact positively on social justice and economic competitiveness", and, "By taking positive action to close the gap in participation universities can help to ensure that the whole region can be part of and benefit from economic development which will ensure a more sustainable future for all".

At the same time, EC notes that universities often lack a systematic approach to growing participation, exacerbated by "financial pressures and competition, which drives them towards the most able students rather than those with greatest need." (EC 2011, p. 30)

Science for a larger audience

Cities and university across Europe take initiatives to bring science closer to the general public, through science museums, school programs, science festivals etc.

Science museums come in a variety of shapes, but they have in common that they help to bring scientific research to the general public, thereby disseminating knowledge and contributing to a better understanding of what research can do. Also, in many cases, they are focal places for workshops and children's universities and all other sorts of similar things.

Universeum, Gothenburg, Sweden (Case from EC, 2011, p. 31)

Universeum is Scandinavia's largest science centre, located in the heart of Gothenburg. Since opening in 2001, the centre, which offers unique experiences and activities such as challenging, experimental exhibitions in exciting, vibrant environments, has had over 4.5 million visitors, half of whom are children and adolescents. The Universeum was founded by Chalmers University of Technology, the Gothenburg Region Association of Local Authorities (GR), the University of Gothenburg and the Western Sweden Chamber of Commerce. Currently, the Universeum operates in the form of a limited company, owned by the Korsvägen Foundation. The members of the Foundation represent the broad national interest of the business. Universeum is an arena for meetings between schools, companies and the research community. By working together with partners, implementing school programmes, future days, special exhibitions, seminars and other activities, Universeum provides space for creativity and new initiatives and encourage the curiosity of young people and encourage the desire to learn more. http://www.universeum.se/index.php?lang=en

The city as source of research problems/challenges

Some universities have come to systematically exploit the city as real-life source of research problems and challenges of all kind. The living lab-method is a relevant method in this respect. Living

labs are platforms to engage citizens or end-users in the design of new products and services. They may be used to develop innovative public services and products. For industry, living abs can be a platform to validate new ideas in an early stage.

The living labs approach may provide more relevant education programmes, closer contact between students and the surrounding society and improved opportunity for private and public employers to recruit students after graduation.

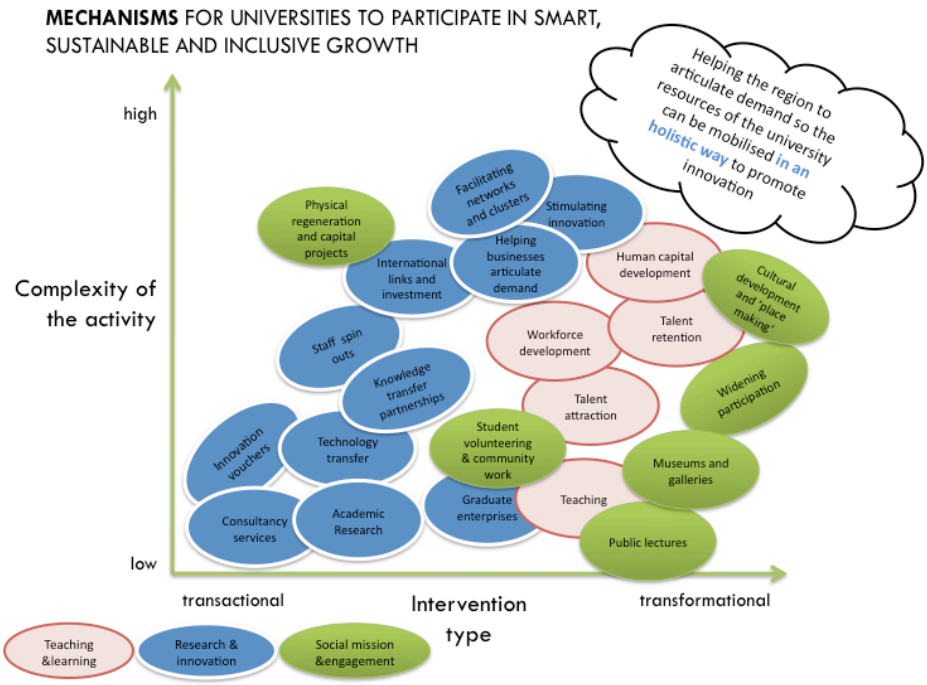
For this method to work, evidently a deep and close collaboration is needed between research/education and urban actors and decision makers.

7. Governance

How to build up successful partnerships? Which actor should be involved, and how? Which steps can be taken? The academic and policy literature contains surprisingly little studies about the governance of university-city partnership. There is a large number of case study material, and specific material on particular types of collaboration (some is reviewed in the previous sections). But there is little material on the broader picture. The most comprehensive resource in this respect is the recent EU report on university city collaboration (EU 2011).

Levels of complexity

In relation to governance, Goddard (2011)[10] makes a distinction between transactional and transformational interventions. Transactional activities are related to a single domain and can more easily be realised, in a short term period; less stakeholders are involved, and their impact is more limited. Transformational activities are broader, have a more profound impact. The authors promote an active attempt to a shift from 'transactional' to 'transformational' interventions with a greater emphasis on programmes rather than one-off discrete projects.



To realise the potential, the key regional actors should build a regional higher education system as part of an innovation ecosystem. All HEIs must be involved in this. To cite the authors: "Building links in these systems will be as important as strengthening the individual nodes like universities. At a very practical level the universities should be actively involved in shaping and managing the implementation of regional smart specialisation strategies. In order to achieve this, the following actions are recommended:

[10] from a powerpoint presentation by prof. Goddard in Brussels during Open Days 2011 in Brussels

- A partnership is established in the region to specifically address the issues of engagement between universities and regions and particular attention is given to ensuring the sustainability of partnerships in the longer term, independently of funding cycles.
- Managing Authorities should assign funds from their technical assistance budgets to support capacity building within the partnership. Universities, business communities and other public sector authorities should demonstrate their commitment to the process by investing in their own development.
- Regional Partnerships should consider participating in the OECD programme of regional reviews in order to help identify their current strengths and areas that may require capacity building and consider carefully the findings of EUIMA and other related programmes.
- Some simplification and flexibility in implementing Cohesion Policy Regulations is considered and Managing Authorities are actively encouraged to adopt a more flexible approach.
- Managing Authorities and Universities adopt a broader definition of innovation to acknowledge the role that arts, humanities and social sciences can play, especially in responding to the 'grand challenges' and develop mechanisms that draw on the expertise and contribution from the arts, creative industries etc."

(EC 2011, p. 53)

Barriers and enablers

In relation to city-university partnership, a number of barriers and enablers can be identified (EC 2011, p. 33):

• Perceived institutional purpose

• Channels of engagement

• Funding sources

• Operating principles

• Industrial composition

• Link between systems

• Collaborative capacity and skills

They are elaborated in table 8.1

Table 8.1 Barriers and enablers to university-city partnership

	Can be an internal barrier when	Can be an external barrier when
Perceived institutional purpose	Research and knowledge development activities are disconnected from regional development objectives and are driven by the pursuit of peer reviewed academic outputs	The region does not see universities as relevant or central to its regional development strategies; senior managers in the public and private sectors do not see the universities as a regional asset
Channels of engagement	Universities lack the mechanisms to effectively engage with the 'outside world' or activities are hived off into special purpose vehicles and not seen as 'core' activity	Lack of effective 'bridging' institutions between academia and the private sector to 'reach in' to the university
Funding sources	Universities focus research in areas where research grants are easier to win rather than regional priorities; structural funding programmes are seen as high risk due to regulations and intervention rates	Lack of capital for firms to invest in R&D activities; short term funding cycles limit the ability to invest in 'translational' organisations to help convert research into a foundation for industrial specialism
Operating principles	Academics see themselves as 'critical observers' rather than actors in the process of regional development; focus is on achieving peer accolades rather than solutions to 'real world' problems	Public and private sectors are alienated by academic language and work patterns; there is suspicion of the motivations of universities and whether they are 'in' the region but not 'of' the region
Industrial composition	Academic teaching and research profile of the universities in the region does not mirror the industrial ambitions of the region	The local economy is built around declining industries and populated by small companies with little sectoral critical mass
Link between systems	Universities are part of national higher education system so have little incentive or scope to respond to regional need	There is a conflict between national innovation and competiveness and territorial development policies; Lack of regional voice or autonomy in decision making; lack of regional leadership and/or consensus on the challenges
Collaborative capacity and skills	University staff have no time or encouragement to engage with regional programmes; Lack of 'boundary spanning' skills in the university; lack of leadership to drive change	There is limited absorptive capacity within local businesses; there is a lack of mechanisms to aggregate demand; Private sector senior managers don't give consideration to their role within the region; lack of boundary spanners in the public and private sectors; lack of consensus on what the issues are and how to overcome them

8. Conclusions

City and university are "co-producers" of the urban knowledge economy. The future of any university city depends to an increasing extent on the fruitful and sustainable co-operation between the two sides, in a number of fields. In this paper, we have analyzed trends, practices and opportunities for collaboration, but also sketched recurrent tensions, dilemmas and problems in the relationship. In conclusion, we identify a number of issues and dilemmas regarding the university-city connection, which may help to give direction to the focus taken in the URBACT-project:

Moving beyond the economic dimension. Over the last decades, the university-city connection was primarily framed in economic terms: spin-offs, innovation, knowledge tranfer, etc., and this aspect is still highly relevant. However, it is increasingly realized that the impact is much wider, which should be reflected in co-operation. Perry (2011) notes a "pronounced shift away from examining only the passive impacts or direct economic effects of universities towards greater emphasis on the wider roles and contributions of universities to urban development. (….). These include seeing universities as active partners in growth coalitions; the social, civic and environmental contributions of universities towards locally-set priorities; or the range of activities in research, teaching and knowledge transfer that have potential local relevance." (p. 251)

Reconciling international excellence with local relevance. Universities face the pressure to work on applicable research, and are expected to have a direct impact on their local regions (both in education and research). At the same time, they want to be international leaders and improve their position in international rankings. With increasing internationalization, universities may grow detached from their host city or region, or at least put lower priority on local and regional networking. They may come to see themselves primarily as "international players", prioritizing the international arena. This may give rise to tensions with local authorities seeking co-operation. Breznitz and Feldman (2012) ask the question whether we are expecting too much of our universities. "These new responsibilities place universities in a Catch 22: we expect universities to think outside the box, continuing their social and technological innovation, and we also expect them to make direct contributions to their local and national economies. This may be too much." (p. 155).

Rethinking incentive systems. The reward structure of universities is still based on scientific publications. Academic specialists are not particularly interested in collaborating with local actors; Research networks and consortia are national or internationally oriented. Researchers are not rewarded for entrepreneurial or collaborative activity. Also, there is a lack of criteria to assess quality in collaboration.

Aligning top-down and bottom-up. There are good reasons to argue for a "bottom-up approach", in which relevant stakeholders collaborate in a practical way, on a particular topic (in any one of the parts of the "flower"). Partnership requires trust, which is built upon previous collaboration rather than by setting up grand visions. Successful collaboration cases identified by Benneworth at al. (2010) involved "several rounds of collaboration to build understanding, with trust building up not in agreeing high-level common visions, but in addressing more quotidian yet insuperable problems". There is a risk of losing the overall picture, however. A recent EC report (2011) points at the problem of fragmentation and ad-hoc policies, and calls for a more co-ordinated and strategic approach: "there are a number of ways in which universities can contribute to the development of their regions

strategies for innovation, growth and sustainable development (….) However in order for the benefits of these mechanisms to be maximised, it is necessary for them to take place within a coordinated framework that seeks to derive greatest effect from the mobilisation of a region's universities." (p. 32); In order to effectively support the development and implementation of 'smart specialisation' strategies cities and their universities together need to implement increasingly complex and transformational programmes and strategies (as opposed to more transactional and short term interventions).

Assessing the urban effects of university (re) locations and student housing. In every city, the higher education ecosystem (or "studentscape") is shaped by decisions of universities (where to locate their premises and campuses), city planners (urban plans, transport schemes), housing corporations and private developers (where to invest in student housing), service providers, and students. Each actor has its own goals and rationales, but in many cases, there is little systematic assessment of the urban effects of these decisions. This may lead to sub-optimal outcomes. More strategic co-ordination and visioning could help to create an outcome that is more desirable and sustainable.

Governance: assessing adequate organizational frameworks/models for university-city cooperation. There is little systematic analysis on the governance of university-city partnerships. Evidently, each city and country is different in terms of history, culture and policy context, with deep implications for the way cities and university can best frame their partnership. Probably, there are no single "winning" strategies. But nevertheless, cities could learn from each other. A number of complex questions remain open:

- How and why do co-operations emerge?
- What powers, tensions and interests shape the relation?
- What barriers to co-operation exist, and how can they be overcome?
- What (formal and informal) modes for co-operation do we observe, and how adequate are they?
- Does co-operation lead to the desired outcomes, and for whom?
- How do various scales (local, regional, national, international) interact in this regard? Do we see a "happy families" of city and university, or rather shot-gun marriages?

The city as living lab: Systematically exploring the city as a source of problems/challenges for researchers and students. The city is a very rich environment, a "living lab" for students and researchers. The university can do much to help addressing urban problems and challenges of all kind; moreover; the city can benefit greatly from the energy and fresh ideas of students. Some cities have taken steps in this direction, and the field is expanding; networks are growing around the theme[11]. But more strategic frameworks would help to increase the impact.

Towards more transformative types of city-university partnerships. ..to be elaborated

[11] The European Network of Living Labs: http://enoll.org

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Part II - The state-of-the-art in the 10 members of the URBACT EUniverCities project

1. Introduction

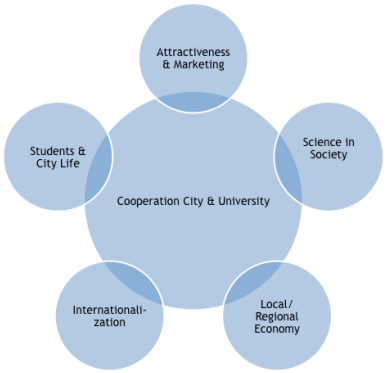
The EUniverCities Urbact-network unites 10 medium-sized European cities[12] that seek to improve the university-city nexus. By applying to the URBACT programme, they want to learn from each other's experiences and practices, and move forward as successful and inclusive knowledge cities.

This part of the baseline study contains the current state of city-university collaboration in the member cities of the network. It is based on a dozen of interviews in each city, with representatives from universities, city authorities, and other relevant stakeholders. The author visited each city, to gain first-hand information on the situation on the ground. The paper is an important basis for the exchange activities in the next 2.5 years in the EUniverCities URBACTnetwork. It is the second part of the baseline study.[13]

For each partner city in the project, this report describes the local context, current types of co-operation, and challenges and problems regarding the university-city nexus. This study is based on interviews held in each city, with key informants from city, university and other organizations. The aim of the study is to lay a sound foundation under the collaboration between the 10 partner cities in the next years: the programming of the project benefits greatly from knowing more precisely what the local issues and challenges are, where each partners stands, what it has to offer and where it needs to improve.

Each case in this report is build up in the same way, starting with a description of the context (city profile, economic situation etc) and a brief description of the higher education institutes. Second, for each case we describe how city and university have structured their collaboration, i.e. in platforms, discussion groups, dedicated organisations, etc., and provide some historical background of the collaboration. Third, each chapter contains a summary of five "domains" where city-university partnership exist (the "flower model", see figure 1). Finally, each chapter ends with the main challenges, and eventual topics where the local support group could work towards a "local action plan" in the 2.5 years duration of the project.

Figure 1 areas for city-university collaboration



[12] Aachen, Aveiro, Delft, Ghent, Lecce, Linköping, Lublin, Magdeburg, Tampere, Varna

[13] Part 1 contains an overview of the available literature and studies about city-university collaboration

2. Aachen

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Aachen, Germany. It opens with short description of the city and its university and the university of applied sciences (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model of city-university co-operation. Finally, it shortly describes the main challenges in this respect as identified during the interviews with main stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

Aachen has about 250,000 inhabitants. It is a relatively young city, and internationally oriented (thanks to its large foreign student and scientists population, and its location near the Belgian and Dutch border). For decades, textile and mining industries were the main sectors in Aachen. These sectors declined since the 1970s, leaving many people unemployed. It is estimated that between 40,000 and 50,000 jobs were lost in the restructuring process. Since, the city has been in a process of searching for a new identity and new economic engines. During the 1990s, science and higher education emerged as new anchor points. Key players in the region realised that the RWTH Aachen University and the University of Applied sciences (UAS) could become sources of economic dynamics, as an attractive partner for technology companies (with its competences, technology and knowledge), and as source for start-ups. From the 1990s on, city and local/regional stakeholders co-operate intensely to realise the potential, and developed all sorts of technology transfer centres and incubation centres to commercialize knowledge. Over the last 25 years, more than 1,400 start-ups were created from RWTH Aachen University, creating about 32,000 jobs. More than 50,000 people study or work at one of Aachen's universities/science institutes. In recent years, the city attracted some renowned private research institutions, including R&D establishments of Microsoft ad Ford.

One feature of Aachen is that the city has little –if any- large indigenous technology firms. The modest economic base cannot absorb the universities' outflow of graduates, and many students leave the city after graduation. The South of Germany (Stuttgart, Munich) is a popular destination: this is where many of Germany's high tech companies are located. Typically, they pay higher wages than the SMEs in Aachen, as well as an attractive career perspective.

3. Universities

Aachen has 4 universities: the RWTH Aachen University is by far the largest one, with 35,800 students. It is the best-known and most dominant university. The second main university is the University of Applied Sciences (UAS), with about 10,500 students. The two remaining universities are rather small. Both RWTH Aachen University and the UAS are focused on technical studies. There is a strong overrepresentation of male students: about 70%.

The *RWTH Aachen University* has about 35,800 students and 7,000 employees. It offers 118 courses of studies. It is recognized as a German and European top-university in the field of technology. In

2004, it was awarded national Excellence status[14], and in 2012 this recognition was renewed. In a recent survey, German companies choose RWTH Aachen University as best university in Germany. It is an application-oriented university, which is reflected in the amount of third-party funding (€227m, of which 30% from the industry, making it No 1 in Germany in this respect). The university has a focus on engineering, closely co-ordinated with the natural sciences and medicine. Over the years, the RWTH Aachen University has expanded its networks with university partners in Europe (among others, it is member of the Idea League, uniting the top technology universities in Europe), and increasingly also in other parts of the world. Co-operations are directed towards staff/student exchange and joint participation in research projects and programmes. The university has opened offices in New York and Beijing (and considers to open up in other places as well), among other things to recruit foreign students.

The *University of Applied Sciences* offers a variety of studies[15]: technical and engineering studies, informatics, but also architecture, business studies, and design. The focus is on technical studies. Research spearheads are energy, mobility, and life sciences, and the university has a strong and long tradition of working with the (local) industry. Compared to RWTH Aachen, it has more links with SMEs.

For both universities, the region is an important source of freshmen. 64% of the UAS students come from the state of North Rhine-Westphalia. At RWTH Aachen, an estimated 80% of the students come from an area within 80Km from the city. In the coming years, due to ageing, the pool of new students from the regions will inevitably decline. Both universities have the ambition to attract more students from other German states and abroad, and they are confident that they will manage, given their solid reputation. The HEIs in Aachen work on a more pro-active alumni policy, to keep the link between alumni and university.

Internationalization is a spearhead in both institutions. RWTH Aachen University counts about 5,000 foreign students, from 120 countries. At UAS, there are about 2,300 (20% of the total) and at both institutions, the percentage is growing. At the UAS, foreign students pay a fee of €15,000 in their first year; the fee covers also housing and transport. After the first year, education is almost free (they pay the €200 per semester, like the Germans). At RWTH Aachen University, foreign students get education for free.

In Germany, the funding of the HEIs (for education) depends on the number of enrolled students. However, universities do not get funded for shifting students who dropped out from another institution. For the UAS, this is a problem: 50 % of the RWTH Aachen university freshmen drop out in their first year, and many of them continue their education at the UAS.

Both RWTH Aachen University and the UAS are focused on technical studies. There is a strong overrepresentation of male students in the city: about 70%.

Most of the buildings of the RWTH Aachen University are located adjacent to the city centre. The campus will be enlarged in the years to come (see box). The UAS campus is located somewhat outside the city centre. Finally, there is an important research campus at Julich, outside the city.

[14] The Excellence initiative of the German federal and state governments rewards high-quality universities. RWTH Aachen obtained an impulse of € 180m in the first approval phase.
[15] 48 Bachelors and 22 Masters, as well as curricula for combined working and studying

4. City-university co-operation: an overview

In Aachen, city and universities have a long and tradition of fruitful co-operation. For long, there has been recognition of mutual dependence, and the key players share the view that an attractive city helps to lure scientists and students, and that a strong university is an economic and cultural engine for the city.

A strong wave of city-university co-operation occurred in the 1990s, when there was a common understanding that science would become a pillar under the cities' restructuring (after the heavy job losses in textile, mining and heavy industries). Jointly, a number of actions were taken to promote technology transfer from university to industry, and to boost start-ups. In 1996, city and university signed an 11 point strategic programme. Central points were collaboration in knowledge transfer and strengthening of competitiveness. The contract was renewed in 2004, and currently another review is taking place. Central elements in the agreement will be: the acquisition of new students (national and foreign); the attraction of knowledge-based companies; urban planning & mobility; the development of the new campus (more on this will follow); and science & society relations. The document will not be a formal contract or an action plan, but rather an expression of intentions.

Since 2001, the city employs a full time employee[16] for higher education affairs, functioning as central contact and co-ordination point for anything related to the HEIs. This has resulted in a number of activities and projects (some of them listed below).

At the top level, there are annual meetings between the board of the city and the boards of the two main universities in the city; here, strategic issues are discussed. Moreover, there is a plethora of co-operations on lower levels between both organisations.

New university campus

The RWTH has ambitious plans to develop a new campus for high quality research, linked to business. The new campus, campus Melaten, is being built at the western part of the city, close to the Dutch border. The campus plans are the largest campus expansion scheme in Europe, and the RWTH estimated to attract an additional 5,000 knowledge workers and scientists. A Campus GmbH was created, with 95% o f the shares in the hand of RWTH Aachen, and the other 5% owned by the city. The campus is being built around the concept of strategic university-business collaboration. It will consist of a number of clusters focussing on particular research themes or technologies. Strong research groups are asked to formulate a strategy for the R&D cluster[17], and invite relevant companies to become strategic partners. Companies can locate at the campus[18] when they sign a 10years co-operation agreement, which includes obligations in terms of research co-operation with university groups, as well as teaching. The idea is that companies will be attracted by the world-class research infrastructure, the presence of high quality researchers, and recruitment opportunities to get the best students. For each cluster, there will be a tender inviting private investors to invest in the buildings and structures. The land is owned by the BLB, the building company of the state of NorthRhine-Westphalia; the main role of the city is to build the infrastructure and urban planning.

[16] In the department of economic development/European affairs

[17] The initial 6 clusters include: bio-medical engineering, logistics, integrative production technology, photonics, heavy duty & off highway powertrain, and sustainable energy.

[18] the law had to be adapted to allow companies to locate at a university campus

For more information, see the website: http://www.rwth-aachen.de/cms/root/Wirtschaft/Campusprojekt/~elf/RWTH_Aachen_Campus/lidx/1/

This short film highlights the campus philosophy: http://www.youtube.com/watch?v=aA381P4ZqTI

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Local/regional economy

- In the 1990s, incubation and technology transfer rose on the agendas of city and universities; currently, there are 13 technology centres (some specialised in particular sectors, some with a focus on start-ups) in the region, and Aachen stands out as an early mover and best practise in this field.

StreetScooter GmbH

A group at RWTH Aachen University developed a low-cost, electrically powered vehicle, the "street scooter". A new company was created, Streetscooter GmbH, to commercialize the idea. Since, a main client was found: The German Postal Service company ordered 20,000 units.

- To make the connection between students and local/regional companies, every year, city and university organise the "night of the companies", in Aachen's technology centre. Companies present themselves to the students in an informal atmosphere; there are bus tours for in-company visits.
- University professors are connected to companies in the TETRA project (funded by Interreg). One action is the "profs on tour" initiative: professors visit SMEs, inform them about their research, and look for collaboration opportunities.

Internationalization

- The city has established a support desk for foreign employees of the HEIs
- The city marketing efforts are bilingual, directed at students, scientists and knowledge workers.
- At the central station, international visitors are welcomed in English with bilingual banners "RWTH Aachen University – Stadt der Wissenschaft" (City of Science).
- In Aachen, city and universities work closely with their counterparts in nearby Leuven (Flanders, Belgium) and Eindhoven (The Netherlands) in the ELAt Triangle (see http://www.elat.org). Jointly, they want to promote the wider region as leading European technology hub. Themes are cross-border co-operation in specific knowledge clusters, start-up promotion, and knowledge transfer. A number of projects are running under this network.

Student life

- Student housing is a big issue in the years to come: due to a shortening of pre-university education from 9 to 8 years, there will be a double wave of freshmen in the winter semester of 2012 at UAS. The RWTH Aachen expects 10,000 freshmen in 2012 (normally, the figure would be around 6,000). This wave implies that in the next 4-5 years, additional student housing is required. To address this issue, the "Extra Room" campaign (www.extraraum-aachen.de) was set up, encouraging homeowners to rent space to students. The initiative was taken by the city, in close collaboration with RWTH Aachen University, the UAS, and Studentenwerk.
- The participation of students in the power structures of city and university is limited; some students are active in the political arena of the city, but there is no special voice expressing the interests of Aachen's students. Moreover, within the university, student participation is declining; at the latest student council elections, the voter turnout was 13%.
- The Culture Department of the city is developing events that fit better with the demands of students and scientists in the city

Attractiveness/marketing

- There is joint marketing effort of city and university, inside and outside Aachen: a common presentation at events, such as expo 2000, EURegionale 2008, etc.
- In 2002, a city marketing agency AachenMarketing was established (by then 2 FTE, and a budget of 80,000). It markets Aachen as science and student city. The efforts were intensified in 2007, when RWTH Aachen University received national excellence status, and its highly ambitious plans for the new campus were revealed. Since then, science and technology are central elements in promoting the city. A survey in 2008 showed that at least the population now considers science city as most important image factor of the city. To realise the ambitions, in 2008, staff was doubled from 2 to 4.
- The Aachen-Emotion campaign (www.aachen-emotion.com) offers views on living, studying and researching in Aachen.
- The city organises a "newcomer day", welcoming employees, professors and scientists in the city.
- The Rector of RWTH Aachen University has made clear that he wants to take action to make Aachen a more attractive city for student and scientists, together with the city.

Science & society

A number of initiatives are taken in this domain:

- "Science to touch": Expositions in libraries; public lectures and debates; linking science with culture and arts, or other areas. Examples: "Uni im Rathaus" (Science in Townhall), and KulturLabor, with growing visitor numbers.
- The new "Centre Charlemagne" is intended to develop as a place to disseminate research findings, inventions and events for the HEIs.
- The university created a special unit, RWTHExtern, to link science to the local community and to open up the "black box" that the university is for many citizens. It combines science and culture by organizing public lectures on topical issues (i.e. on healthy food, nuclear energy), and Campus Tours (about 35 per annum), where interested citizens can make a guided tour

in a lab or a research group. Also, there is a programme with movies, self-critical cabaret, concerts etc. The budget of the unit is rather limited: €50,000.

- Collaborations in the region to reach different target groups.
- The UAS runs a project on electronic mobility: they are testing electric vehicles in the city.
- The UAS organises a Children's University: school children from primary schools can attend science classes. The programme is called "experimentation Helicopter", and it is very popular. For secondary school pupils, the UAS and RWTH Aachen University jointly organise extra math classes for pupils with deficits in this field.

5. Key issues and challenges

Based on the interviews conducted for this baseline study, we identify the following key issues and challenges regarding the co-operation between city and universities in Aachen:

The science base increasingly shapes Aachen's identity. This is recognized by leading actors in the city administration and the universities, as well as by the population at large. At the same time, what seems to lack is a more profound, integrated and shared longer term vision and understanding on what it means to be a science city, and what the consequences would be for a variety of policy domains (urban planning and architecture, cultural policies, sports, housing etc.), in both universities and city administration. Currently, many actions are undertaken in a number of areas (many of them listed above) and by many players, but a more coherent and shared long term vision would help to give more direction to current actions, and develop more integrated approaches. Moreover, at the moment, investments at the city-university junction are often of a rather small size, reflecting the priorities on both sides.

More focused branding of Aachen as a Science City might be needed: In the marketing and branding policy of the city, science is only one pillar: others key themes are "history", "family friendly city", or "Aachen European city". No real and clear choices are made, implying that funding is dispersed among the various priorities. More discussion about the unique selling point of Aachen as a Science City is needed. Also, if the university's ambition is to attract the best scientists, it is important to make the city attractive for their eventual partners and children as well. This demands specific actions: finding jobs for spouses, childcare, international education etc. Finally, in the branding, there could be a role for the alumni of the HEIs.

If the universities manage to reach their ambitions, the cities' student population will grow, and there will be more international students and scientists in the years to come. Several interviewees argue that Aachen needs to become more open and attractive for these target groups. A key challenge is to align the cities' cultural policy more with the needs of the students and scientific community. Several interviewees qualify the cultural offer as insufficient in this respect; there is no underground culture, no room for larger concerts. The expected growth of student numbers (and scientific workers) will increase the urgency. At the same time, a question is how to encourage students to become cultural producers and more actively engage in the city's cultural life.

Aachen and its universities are well known for the technology transfer institutions and incubators. However, the results do not always live up to the expectations. The number of jobs created still does not match the huge job losses in the traditional industries. In the current tight German labour

market, graduated engineers opt for a well-paid job in a renowned company (all too often located in the South of Germany) rather than creating their own business. Moreover, despite all the efforts, firms inside and outside the region often still do not know what technology and competences the university has, and the other way around, the university is unaware of the potential of business partners. An improved “regional knowledge management” might be needed to fill these gaps.

The local and regional engagement of RWTH Aachen is limited. It is estimated that of the 450 chairs of the university, 30-50 are active somehow in the city or region (this number is higher than 10 years ago but still considered low by some interviewees). Moreover, since the awarded Excellence status of the RWTH (in 2007, renewed in 2012), the university increasingly considers itself as a global player, and focuses on top-level international relations (rather than local ones) and attracting the best international students and scientists. Co-operation with the city is primarily instrumental to these goals.

6. Directions for the local support group and the local action plan

The local support group will consist of the key decision makers in the university and the city, representatives from scientific institutes, and students.

The local support group in Aachen considers it as a major challenge for city&university to further deepen the relation, and together address the issues listed above.

Specifically, they intend to work on the issue of attractiveness and marketing: how to attract foreign students, how to position Aachen stronger as science and knowledge city; Working towards a more integrated approach, thinking through the relation with other policy fields, i.e. cultural policies, housing, transportation etc.

Interview partners:

Elke Ariens, Municipality of Aachen, secretary of scientific and academic affairs

Thomas Hissel, Municipality of Aachen, Head of Department Science and Europe

Winnie Kranz, Municipality of Aachen, Head of Department Economy and Employment

Isabelle Pitre, Municipality of Aachen, Officer for European Affairs

Jens Lundsziens, RWTH Aachen, Department for Public Relations

Cornelia Partsch, University of Applied Sciences Aachen, personal officer of the vice-rector of teaching and study and the vice-rector of research and technology transfer

Andre …, University of Applied Sciences Aachen

Prof. Dr. Sicking, Municipality of Aachen, Deputy Mayor, responsible for the Departments Economic Development, Social Affairs and Living

Toni Wimmer, local expert, former vice dean of RWTH Aachen University

Sources:

Lisowski et al. (2011), Wissensbasierte Stadtentwicklung, 16 Beispiele aus der Praxis, chapter 1, pp. 34-39

RWTH Aachen University: profiles&perspectives, January 2012

3. Aveiro

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Aveiro, Portugal. It opens with a short description of the city and its university (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4) of city-university co-operation. Finally, it shortly describes the main challenges in this respect as identified during the interviews with key stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

Aveiro is located in the Centre Region of Portugal and has around 78,500 inhabitants. The focal point of an industrially developed region, Aveiro today is also a city of commerce and services and a growing centre of leisure and culture offering cinema, theatre, music, arts, sport and night life.

Aveiro is surrounded by salt-flats, beaches and lagoons and dominated by the Central Canal laid across town. The city is famous for its moliceiros - typical boats with gaily painted prows. Aveiro has a busy and growing port, with an important function for the regional development.

The city has specific competences in ceramics, and software development (mainly telecom-related; content production as emerging branche), with an important role for the R&D centre of the former national telecom monopolist.

Largely thanks to its university, Aveiro is known as the "City of Innovation": Not only does it offer a large variety of undergraduate and postgraduate studies, it is also a privileged partner of firms and other national and international activities.

3. University

The University of Aveiro (UA) was created in 1973. It has about 15,000 students. There are 15 Departments and 1 Autonomous Section (Health Sciences) at UA (www.ua.pt).

The educational and scientific activities of the new university were launched in 1974 with the first degree programme in Telecommunications, for 46 students. The UA focused on undergraduate degrees in innovative areas not yet explored by the traditional universities in Portugal, and in fields of relevance to the regional and national structure. UA is a member of European Consortium of Innovative Universities (ECIU).

The University of Aveiro is located in three cities in the region: Aveiro, where the main campus is situated, Águeda, and Oliveira de Azeméis.

The main Campus Santiago, overlooking the Aveiro lagoon, is renowned for its many buildings designed by famous Portuguese architects. Its buildings are purpose-built for teaching and research, administrative and technical support, and there are also student homes, libraries, a bookshop, canteens, bars and restaurants, sports facilities, laundry, post-office, stores, bank, kindergarten – all

this on one campus, surrounded by the natural beauty of the old saltpans and only a short distance from the city centre. The total campus total area is 921,500m2.

City and university are disconnected in several important respects, despite the existing history of cooperation initiatives, even if it remains the feeling of some kind of disconnection between the city and the university. Students at UA feel a strong bond with "their" university, but not necessarily to the city. The campus, despite its location close to the city centre, functions as a "city within the city": It has all the necessary facilities and amenities, and many students spend all their time there. Many students live at (or very near) the campus and "use" the city only for the nightlife; Students commuting from the region or beyond come and go everyday by car (or train) and use the city as a transit axes. Efforts are being made to overlap that gap, even if it is still a certain feeling of "city within the city.

Some interviewees describe the relation between students and citizens in Aveiro (which, some decades ago, was only a small town) as not as warm as desired; citizens tend to feel that students are a nuisance, and do not bring benefits in return. The students Academy, with the support of the University, are developing several activities to help the local community overcome the needs, such as, giving alimentary and hygiene products to local social institutions.

Some interviewees note that the city could be more active to welcome and integrate (new) students into the city. Unlike in other university cities all over Europe, there are no welcoming ceremonies or city introductions for freshmen apart from the ones organised by the university. The Students Academy organizes a festival regarding the welcoming of the freshmen and the student community is invited to participate, along with the locals.

4. City-university co-operation: an overview

City and university co-operate in several ways in Aveiro. Personal relations between the leaders are good, and there is a large variety of collaborations in a number of fields (elaborated below). However, at the city level, there is no strategic platform or framework for aligning agenda's and collaboration. Several interviewees stress that this "ad hoc" mode makes it more difficult to engage in longer-term strategic partnerships.

At the regional level, the collaboration is well established. The UA and the association of the eleven municipalities of the region (representing about 375,000 inhabitants) have set up a common regional development programme. The aim was to mobilise the diversity of disciplinary knowledge existing in the university to address the regional problems and opportunities, and to create a common view on the dynamics and challenges of the region. The city of Aveiro is one of the partners; it does not play a leading role.

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Local/regional economy

- During 2010, UA was active in 369 research and technology transfer projects, of which 32 were financed by international and European programmes, mainly FP6 and FP7. These projects were developed in different scientific areas.

- The city created a programme called "Aveiro Entrepreneurial" (http://www.aveiro-empreendedor.net) that is charged to help SMEs, to promote and incubate start-ups, to promote entrepreneurship in schools, and to foster an "entrepreneurial culture"; the university is a partner in this programme.
- The ceramics sector is a traditional strength of Aveiro, and university also has strong competence in this field (UA Centre for Research in Ceramics and Composite Materials). Actors in the "ceramics triple helix" have joined forces to promote innovation, develop training plans, and position the region as centre of expertise in this field.

Internationalization

- UNIC – The UNIC Project, under URBACT, was a network of nine European Cities that share a common industrial and cultural heritage built around a strong ceramics tradition. The University of Aveiro was a very active member of the Local Support Group through the Technology Transfer Center. In 2011 it was held an International Seminar regarding Ceramics and Glass with the support and participation of the City. In 2011 it was organized by the City the X International Biennal of Artistic Ceramics with the involvement of the University. The organization received 70 pieces from 13 countries.
- FIN-URB-Act – This project was a network of European Cities for SME's and Local Development. The themes addressed were the support systems for SME's and innovative/high-tech projects, pathways to partnerships between cities and Managing Authorities and communication on support schemes, etc. Under this project and after two years working with Local and European partners, the strategy to support and promote SME's in Aveiro led to a Local Action Plan (LAP) defined as "Aveiro Entrepreneurial". The University was from the very first minute an active partner of the Local Support Group and is one of the partners of Aveiro Entrepreneurial responsible for the Communication.
- Ecosal Atantis – Project approved under Interreg Espaço Atlântico IVB. The main objective of the ECOSAL ATLANTIS project, "Ecotourism in saltworks of the Atlantic: a strategy for integral and sustainable development" is the development of joint, integral and sustainable tourism based on the cultural and natural heritage of traditional Atlantic saltworking sites. The Municipality and University of Aveiro are in this project along with 11 partners from Portugal, Spain, France and United Kingdom. The City is responsible for the Heritage Management and the University of the Communication.
- International Seminar of Land Architecture - Organized by the University with the support of the Municipality. This event brought several international Experts to Aveiro.
- Workshop City Museums – Workshop that gathered several international experts responsible for City Museums for exchanging experiences. This workshop was organized by the Municipality and the University of Aveiro.

Student life

- As noted in section 3, city and university are disconnected in several important respects. The student union (which is independent from the university management) is taking some actions to bridge the gap with collaboration with the City. One example is the lifecycle project (promoted by the City of Aveiro), aimed to promote the use of bikes (rather than

cars) by students. One other important role of the city would be to improve bike lanes (now, they are only developed in and around the campus).

- The student union is organising voluntary work by students for the benefit of elderly people or other citizens in need.

Attractiveness/marketing

- The Science Centre is an instrument to promote Aveiro University among young people (from the region and beyond) to start their academic studies in Aveiro.
- International recognition of the University of Aveiro (350.º world level according to the of the Times Higher Education Ranking). The City and the University work in different ways to encourage graduates to remain in our town and region.

Science & society

- The Science Centre is an important institute connecting science and society. It is located in the in the vicinity of the university campus. Through exhibitions, it opens up scientific research and engineering to the general public, and it also has an important educational role (many school visits); one of the aims is to seduce young people to go for a scientific career. Unlike in many similar centres, here, the university plays an active role in the creation of the exhibitions and other contents of the centre (a number of research groups and professors love to collaborate with the Science Centre). The Centre attracts about 45,000 visitors per annum, of which 85% are school excursions. The city works closely with the Science Centre in several projects, and at times city and university develop joint projects. The city is engaging in an area of 2 km2 urban renewal project at the Science Centre's premises, and an outside "science garden" is being created as well.
- A recent plan, promoted by the student union, is to let students develop solutions for current problems & challenges of the city, during the "extra time" that is embedded in the curricula. The city should thus become some sort of living lab.

5. Key issues and challenges

Aveiro's key challenges with regard to the project EUniverCities are:

Developing a more strategic platform/framework for city-university collaboration. At current, there are many projects, but there is no strategic alignment between city & university. As a result, deeper and longer-term co-operations often do not materialise. There is a need to enhance the role of the city in sustaining and further developing the strategic partnership between the university and the region.

Working on the identity of Aveiro as city of students and knowledge, recognized and respected by citizens of Aveiro. Currently, academia and city are separate worlds, not only physically but also in many other respects. Rather than just "using" the city, ways should be found to make students really part of it, nurturing a sense of belonging not only with the university but also with the city. How to promote a better linkage between the students of the University of Aveiro and the city?

Creating conditions to improve the position of Aveiro as “City of Innovation” within a knowledge economy city concept. Part of this is ambition is branding the city centre of Aveiro as a centre for students, cultural and knowledge activities.

Many students move to another city after graduating. According to some interviewees, it is a challenge to create conditions for students to stay in Aveiro after the conclusion of their studies, by developing high-qualified jobs in the industries, or by promoting them to create their own company in Aveiro.

6. Directions for the local support group and the local action plan

The focus of the local support group has to be chosen yet, in line with one or more of the challenges formulated in section 5.

Interview partners:

Tiago Alves, representative of Student Union

Maria Manuel Baptista, University of Aveiro

André Cester Costa, City of Aveiro

Artur Rosa Pires, Pro-Rector, University of Aveiro

Pedro Pombo, Director of Science Centre, University of Aveiro

Pedro Roseiro, INOVARIA

4. Delft

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Delft, The Netherlands. It opens with a short description of the city and its universities, placed in a regional context (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4) of city-university co-operation. Finally, it shortly describes the main challenges in this respect as identified during the interviews with key stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6). This chapter is based on a number of interviews held at the City of Delft and the Delft University of Technology.

2. City

The city of Delft (http://www.delft.nl) has about 98,000 inhabitants. It is located between the cities of Rotterdam and The Hague, in the southern part of the Randstad area, a populous polycentric region in the West of the country with about 6m inhabitants. It has a well-preserved historic inner city –Delft became a important centre of trade and handcrafts in the 16th century-, and the city attracts many visitors who come to marvel at the city centre, the museums, the famous "Delfts Blue" ceramics, and other highlights. The city is also known for its connections with the Dutch royal family: the founder of the Dutch nation, William of Orange, was murdered in Delft, and until today, members of the royal family are buried in the "new church", one of Delft's main churches.

Delft has several strong assets that make it a "city of knowledge": the largest university of technology in The Netherlands (Delft University of Technology), universities of applied sciences, key knowledge institutions (including TNO, Deltares and UNESCO-IHE), and important knowledge-based companies including DSM. It hosts about one hundred young technology businesses with ambitions to grow (part of the YES!Delft incubator, elaborated later). Also, Delft has a substantial chunk of innovative design and technology firms.

Delft positions itself as a city of innovation, with its many knowledge institutes, innovative companies, and the Delft University of Technology as main flagship and talent attractor. More particularly, it defines itself as "the cradle of industrial biotechnology, the international capital of water and delta technology, a testbed for medical technology and healthcare innovation, and the breeding ground for design driven innovation". Here is a full overview of the activities and projects: http://www.delft.nl/pdf/1820_Lobbybook_EN_DEF3_lowres.pdf

At the same time and in many ways, Delft works closely together with other actors in the wider polycentric region. Very nearby, the cities of Rotterdam, Leiden and The Hague have large (research) universities with particular specialisations that are complementary to the ones of Delft. Cities and universities in the Randstad Region each have their own history, culture and profile, but they increasingly realise that effective collaboration is a precondition to remain competitive vis-à-vis other regions. New types of collaboration platforms and organisations are being developed to meet this complex governance challenge. A recent significant development is the creation of a joint unified

regional development organisation, with the participation of several triple helix partners[19]. This organisation should replace the current large number of structures that deal with economic development in the polycentric region. The new organisation will deal with innovation promotion (focusing on some key regional strengths such as cleantech, medtech and security), and have a participation fund of about €100m. The organisation should facilitate collaboration, develop a stronger lobby, and strengthen the "smart specialisation" of the province.

In the City of Delft, the reconstruction of the station area is the major urban project. The area will develop into a multimodal and multifunctional hub –a functional mix of living, working and leisure- , and the new city hall is being built there as well.

From 2011-2016, Delft and its partners together will be investing about €1b in the knowledge economy. In addition, the ambition is to have the universities, knowledge institutions and knowledge-intensive companies expand during the coming 20 years from 16,000 to 30,000 jobs.

3. Universities

Delft has one main university: Delft University of Technology, and two smaller ones.

Delft University of Technology is by far the largest and oldest. In 1842, King Willem II founded the 'Royal Academy for the education of civilian engineers, for serving both nation and industry, and of apprentices for trade'. The institution also educated civil servants for the colonies and revenue officers of the Dutch East Indies.

Currently, it has about 17,000 students, and an academic staff of more than 2,500. The university positions itself a broad technological research and education institute, with four "priority domains": Health, energy, environment and infrastructures & mobility. In its vision, TU Delft views its role in society as "supplying technological solutions that take us significantly further along the road towards sustainability and a flourishing economy"[20]. The university has 8 faculties, and a number of interdisciplinary schools, research schools and institutes. It received €377m as government funding, and earned another €143m from third parties (EU and other research funds, industry contracts etc; figures for 2011)[21].

There are two smaller universities of applied science in Delft. The first is InHolland Delft that focuses on agribusiness and retail, food sciences, the environment, animal health, shipbuilding and aeronautical engineering (the latter two are the only courses at this level in The Netherlands, as a response to the growing demand for technical professionals). The second is The Hague University of Applied Sciences, which offers higher technical vocational education in the fields of business mathematics, technical business studies, informatics, physics, mechanical engineering and electronics. Its new building (2009) reflects modern and innovative education, with a highly visible practical component and an open character[22].

[19] including the city of Rotterdam, Erasmus University Rotterdam, city of Delft, Delft University of Technology, the Province, the City of Leiden, Leiden University, and Science Port Holland; it will have a staff of about 35 FTE.
[20] http://tudelft.nl/en/about-tu-delft/strategy/vision/
[21] http://tudelft.nl/en/about-tu-delft/facts-and-figures/
[22] http://www.thehagueuniversity.com/about-us/campuses/campuses-virtual-tour-delft

There is a growing collaboration between the three research universities in the province of South Holland –the ones of Leiden, Rotterdam and Delft. In some fields, joint programmes are already offered (bio sciences, nanotechnology), and students study at two locations.

For all universities in the Netherlands, "valorisation" is a key trend and challenge, briefly defined as deriving more economic value from research activities. Valorisation takes many different forms (contract research, licensing, spin-outs, etc), some of which will be described later.

In terms of geography, almost all buildings and facilities of Delft University of Technology are located at the large university campus, located to the east of the historical city centre. This campus hosts some remarkable buildings, including the famous new library, and it is increasingly filled up with a number of other amenities and student homes. Most students live scattered over the city of Delft (with a concentration in and around the centre), with a growing share of them living on campus. There is a perceived shortage of housing for students: city and university share the ambition to increase the number of flats substantially. About 5,000 student accommodation units are planned for a 10-year period, to be built by different developers.

Delft University of Technology has a marked international profile. There are about 600 international Master students, and this number is growing. 16% of all students are from abroad (2011), and about 60% of the PhD students are from abroad. Of the latter group, 60% bring their own funding for their PhD track.

4. City-university co-operation: an overview

In Delft, there is recognition of mutual dependence of city and university. The personal relations between leaders of the city and the university are good, overall. Four times per year, there is a strategic meeting where the board of Delft University of Technology meet the political leaders of the city. Moreover, the student party STIP –with three seats in the council, and a vice mayor) ensures a continuous dialogue between city and students. There is a "student taskforce" (with housing developers, the municipality and student representatives) dealing relevant issues such as student housing. It has to ambition to realise 2,200 rooms in the next few years.

The university is a dominant player in the city of Delft, and considers itself mainly as an international, global player, with its many international research co-operations, business contacts, foreign students, PhDs and staff. In the view of the university leadership, the city of Delft main role is to enable the university to flourish, and to provide an urban environment that fits the universities' ambitions: there should be sufficient student housing, a high level of quality of life for staff and expats, a variety of cultural amenities, facilities for students, incubation facilities etc, and the city should facilitate the expansion of the campus. For the City of Delft, the university is a crucial partner to realize its "innovation city" ambitions.

One of the main arenas for collaboration is the expanding campus. The university has particular wishes and desires, but the city has to give formal permissions and may have considerations that go beyond the more narrow interests of the universities' real estate department. At times, there are differences in viewpoint, giving rise to tensions.

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Local/regional economy

There is a range of collaborations between city, university and other stakeholders. Here, we make the distiction between A) incubation, and B) participation in a number of triple helix consortia.

A) Incubation

The main incubator in the city is YES!Delft - the Young Entrepreneurs Society. It educates, coaches and supports students, professionals and researchers interested in starting a high-tech company or further developing an early stage high-tech company (www.yesdelft.com). Is is a limited company, and receives about €150k per year from the city to cover its exploitation. It has three areas of activity:

1) Inspiration: organising career events linking students to new firms, graduation projects, inspiring students and researchers to start their own businesses;

2) Education: YES!Delft -in co-operation with the Delft Centre for Entrepreneurship- provides business education at the Bachelor's and Master's levels, including minors such as the course 'Technology-based entrepreneurship' or 'Writing a Business Plan'. The courses are state-of-the-art, thanks to close partnerships with high-level academic institutions (including Delft University of Technology, MIT, Cambridge University, and Shanghai University). Many of the teachers are professionals with proven track records in the worlds of business and academia.

3) Incubation: The YES!Delft Incubation Centre offers accommodation, coaching, education, a large network and a pre-seed loan for high-tech startups. Only 'technostarters' (defined as companies on the basis of a new technological invention or a new application of existing technology) are admitted to the centre. Applicants must present a sound business plan. Accommodation is offered for 3 years maximum. YES!Delft helps to develop a companies' new product by providing equipment and facilities, (i.e. a workplace, or a wind tunnel, or other facilities), in cooperation with Delft University of Technology. Users pay reduced fees, that normally only apply to TU Delft subsidiaries.

4. Growth. The Growth Centre provides growing start-ups advice and access to knowledge and business networks.

Over its lifetime, about 100 firms have started up in YES!Delft. Some interviewees note that the incubator has significantly contributed to an entrepreneurial climate among students and in he academic community at large.

B) Participation in "triple helix" clusters and consortia

The city of Delft and the university participate in a variety of "triple helix" initatives that promote research, development and innovation in particular fields:

Medical Delta (http://www.delft.nl/delften/Business/City_of_Innovation/Medical_Delta) is a cluster of universities, medical schools business parks, incubators, companies and regional governments situated in the Province of South-Holland. It was founded in 2006 by the Delft University of

Technology, Erasmus Medical Centre (Rotterdam), Erasmus University, Leiden University and Leiden University Medical Center, and its mission is to generate breakthroughs in medical sciences and health care, to develop novel technologies and to ignite related economic opportunities.

The *Clean Tech Delta* is a group of companies, knowledge institutes and the government which stimulates and practices innovation in clean technology. “Clean Tech” are technologies that optimise the use of natural resources and minimise any adverse impact on the environment. The Clean Tech Delta initiative unities about 40 actors, and focuses on four main themes: bio-based economy, water & delta technology, accessibility & mobility, and Sustainable building & construction.

Finally, TIC Delft (Technology Innovation Campus) is worth mentioning as a project that brought many actors together. With a network of partners in the region (starting first with the Municipaly and Delft Technical University, later expanding to include other players as well), a joint agenda was formulated, with number of priority challenges and project. The process and the result mark a break with the past, when there was a lot of policy fragmentation and many ad-hoc projects.

Internationalization

The university sponsors the “international neighbour club” as part of efforts to make expats feel at home in the city. Furthermore, in 2010 the Expat Project Team was created by the city and the university in close co-operation with other international oriented knowledge institutes and companies such as UNESCO-IHE, Deltares, TNO, and IKEA.

The main goal of this initiative is to improve the facilities for international knowledge workers and students. This concerns issues such as temporary housing, health care, etc.

Student life

There is a well-developed and organised student life in Delft, with many unions and organisations, some based on areas of interest, some along study lines, others more general. Overall, there is a strong sense of the ‘Deft student identity”. At the same time, there is very little interaction between student life and the life of other citizens of Delft: there are “two separate worlds”. Students meet in their own premises, there a few café’s that they frequent, and there is a dedicated student discotheque.

Students are represented in the City Council of Delft in a rather unique way: there is a dedicated Student Party, STIP. Founded in 1993, STIP is entirely run by students, most of them studying at Delft University of Technology. At the time of writing, STIP has three seats in the city council of Delft, and one deputy mayor is from that party. Although STIP run by students, it is not a one-issue party: rather, it provides "a young view at an old city" (http://stipdelft.nl/stip-in-english/).

Science & society

The Science Centre Delft is a highly interactive centre, showing research results and capabilities of Delft University of Technology to the public ate large. It opened in its “new” form in 2010 (before that, it was a more traditional science museum). It shows a number of features, there are working spaces (also used by researchers or companies); visitors are challenged to be active in many ways.

The centre frequently organises workshops, where visitors can become researchers, supervised by university students or staff. It attracts many children and school classes (primary and secondary schools), and in this way the centre helps to promote technology studies among young people. It has a budget of €1.5m, and about 9FTE staff. About 100 students help to run the centre[23].

A recent activity in this field in Delft is the formation of "living labs", where solutions are developed with deep and direct user involvement. One example is the "network of care and technology". A number of stakeholders (including a hospital, an elderly home, an insurance company and some knowledge institutes) in Delft are developing (pilot) projects to invent and roll out new types of health care solutions. These projects bring innovations with practical value, but at the same time they show clearly –to people outside the academic and technology community- that science and technology can benefit everyone in society.

There are other "living lab" type of initiatives in the city/region, where knowledge institutes develop practical yet innovative solutions for urban problems and challenges. Worth mentioning are the regiolab, where the university conducts research to improve traffic situation (part of the Delft Infrastructures & Mobility Initiative); The Delft Geothermal Energy Project[24], to provide sustainable heating for the university campus; greenhouses in the region participate also; and the Intelligent street lighting project[25].

5. Key issues and challenges

Members of the local support group see challenges in the following field:

- Living labs. So far, several "living labs" have been developed, on a project basis. In most of them, research groups develop technological solutions for urban problems or challenges. However, there is no structural approach or strategy to use the city as a living lab, i.e. where students can do thesis work or internships on topics that are relevant for the city. Some of the interviewees see significant opportunities to develop this, and envision a deeper involvement of students with the city as a result.
- "Hospitality". For the university, a key collaboration field is to create a more attractive living environment for highly educated (foreign) knowledge working. This requires housing programmes, and an improved "hospitality" function of the city in many respects. From the universities' perspective, different target groups (foreign bachelor students, Master students, PhD students, postdocs, and professors) have different needs that should be addressed.
- Internationalisation. The city attracts an increasing number of foreign students, and educates them, but international student life is largely disconnected from that of the Dutch students. For the Dutch students, bonding and friendships mainly emerge during the first few weeks, when they enter the university as freshmen. Foreign students arrive in Delft after that phase (they typically arrive at the Master stage, or for a Erasmus exchange programme), and find it hard to mingle. Among Dutch and foreign students, there is a sentiment that this should be improved somehow.

[23] http://www.museum.tudelft.nl/over/kerncijfers/
[24] http://home.tudelft.nl/index.php?id=7522

[25] http://home.tudelft.nl/en/research/energy/energy-on-the-campus/intelligent-street-lighting/

- Joint marketing, promotion and lobbying. Actors in the 3helix could do more to promote the region, and to consistently "sell" the same story are all political levels.
- The universities in the Province of South Holland collaborate ever more intensely, and already offer study programmes at several locations. Although this may raise the quality of the educational offer, some fear that this tendency may undermine "city-centred" student life, as students in those fields may not set up root in one of the cities.

6. Directions for the local support group and the local action plan

The local support group in Delft consists of the key decision makers in the university and the city, and representative(s) from the student community. The focus of the group is not set yet, but three main options are 1) elaborating hospitality, 2) structures for living labs, and 3) designing actions to integrate foreign students more into the city and mingle with national students. Further discussions within the LSG must bring more clarification on the focus of the peer review.

Interview partners:

Mr. Patrick van Geel, EU officer, city of Delft

Mr. Pieter Guldemond, vice mayor, city of Delft

Mr. Jan Roelf Sikkens, senior projectmanager, City of Delft

Mr. Anna van der Togt, student representative, ORAS (Delft University of Technology)

Mrs. Elise Verheij, EU officer, City of Delft

Mr. Bas Verkerk, Mayor, City of Delft

Mr. Peter Wieringa, Vice-Rector, Delft University of Technology

5. GHENT

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Ghent. It starts with a short description of the city and its university (sections 2 and 3), as well as its other Higher Education Institutes (HEIs); next, it describes the main co-operations currently in place, based on the "flower" model (section 4). Finally, it shortly describes the main challenges in this respect as identified during the interviews with main stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

Archeological research has proved that there was human settlement in Ghent during prehistoric times. Only later, in the Roman period, the nucleus of a city began to grow near the confluence of the two rivers Scheldt (Schelde) and Lys (Leie) (in Celtic 'Ganda'). Ghent nowadays is a historical medieval city with about 250,000 inhabitants, and 159 different nationalities. The city is the 2nd largest city of the Flemish Region and has reputation as a city of knowledge and culture, accessible to anyone.

In 2008, the 'National Geographic Traveller Magazine' has ranked Ghent third (out of 109), in its ranking of the world's most authentic historic destinations. In 2009, the UNESCO has granted the city of Ghent the prestigious title of 'Creative city of music', as one of only 4 cities in the world and in 2010, the Lonely Planet has put Ghent in 7th place in its top 10 of 'must see destination'.

Thanks to its leading position in basic research and knowledge acquisition, Ghent is a strong economic driver for growth in Flanders.

Ghent has also a strong scientific reputation in the field of *biotechnology*, *bio-energy* and *ICT* and has become the driving force behind 'Flanders Biotech Valley'. The 'Ghent Bio-Energy Valley' in the Port of Ghent emphasises the ambition to become an internationally recognized growth centre of renewable energy and industrial bio-energy projects.

During the last century, the port was a major economic hub for Belgium and Europe; it is now poised to act as a vital link in the emerging knowledge industry. With a workforce of over 70,000 people, it handles around 48 million ton of freight annually.

In addition, Ghent has managed to strengthen its economic assets in recent decades with a very strong reputation for hospitality, open-mindedness and quality of life.

3. University

Ghent offers a unique mixture of vibrant city life and higher education. An increasing number of students choose Ghent as study destination (2011: ca. 67.000). The city hosts 1 university and 4 university colleges.

With more than 35,600 students Ghent University (UGent) is the largest HEI within the city of Ghent. Located in a historic, student-friendly city in the cultural and economic hub of Europe, Ghent

University is an active partner in a wide variety of national and international educational, scientific and industrial cooperation networks.

Ghent University's 11 faculties consist of more than 130 departments, offering high-quality, research-based courses in a wide range of academic disciplines. Faculty campuses are scattered throughout the historic centre creating unique city-university symbiosis. Yet Ghent University also expanded outside the city. Examples are the Faculty of Veterinary Science and multiple research departments located in the business parks of Ardoyen and Greenbridge (Ostend).

Ghent University is one of the most socially committed and pluralistic universities in Belgium. It encourages the students in its creative, development-oriented educational and research environment to adopt a critical attitude. This approach, combined with a strong international focus, is evident in the university's broad spectrum of high-quality research-based educational programmes. All these factors combined mean that Ghent University is the fastest-growing university in Flanders. Since 2001 the student population increased by 53%.

4. City-university co-operation: an overview

In Ghent, there is a widely shared notion that city and university are strongly and positively interrelated, and need each in a number of respects. City-university co-operation is deep and broad, and can be found at many levels. At the top level, city and university maintain excellent relationships, expressed formally and informally. Twice per year, there is an formal meeting between the mayor/aldermen and the executive board of the university, where strategic issues are discussed. Also, the mayor shows up at many university conferences or events, stressing the significance of the university-city nexus. Second, there is a plethora of co-operations in a number of specific domains (as represented in the Flower model). Finally, on the level of university research groups or individual professors, there are a number of joint projects, and initiatives. Below is a list of current collaboration structures and initiatives in the domains as identified in the flower model:

Innovation/entrepreneurship/Local economy:

- City,university and other knowledge institutions developed the Waalse Krook (a brownfield area in the city centre) as a unique mixture of scientific research, a library, an incubator, service providers, and meeting rooms.
- There are science parks and incubators, such as the Ardoyen technology science park.
- A pilot plant was created to bridge the 'upscaling gap' between academic research results and industrial use, such as Biobase Europe at Ghent Harbor.
- The "Dare to Venture' initiative of Ghent University seeks to integrate key entrepreneurial learning outcomes in the study programs of the university, supporting and coaching the students who want to create their own personal venture and facilitating students to become an entrepreneur by introducing the special student statute of 'student-entrepreneur'. The city encourages/stimulates (student) entrepreneurship and created a starters' policy (entrepreneurshipforum, the Ghent (student) entrepreneur, free start opportunities, starters' event, starters' agreement and OOG (Support Office for Entrepreneurs in Ghent).

- Collaboration of scientific research institutions and cultural centers: introducing new technologies to broad audience in cultural scenes, development of new technologies e.g. usability, market research, user adaption (example IBBT and Vooruit)
- Gent BC (Big in Creativity) is an online and real life network fostering knowledge based industry, entrepreneurship and innovation in the region of Ghent. As a "neutral" organization not owned by a particular university, it organizes all sorts of meetings where researchers (from all Ghent HEIs) and businesses meet, and may develop new co-operations and ventures. (www.gentbc.be)
- Technology Transfer at Ghent University wants to facilitate the commercial application of promising technologies developed within the Ghent University Association. Key technology transfer activities include licensing, industrial collaboration programs, and spin-off creation. For its liaison with industry, UGent uses a network of, currently 23, specialized business development centres backed by a Central Technology Transfer Office.

Internationalization

- The university of Ghent co-invested in an international primary school (together with the city and some other actors). This helps to attract and retain international researchers and knowledge workers
- The municipality makes efforts to make life easier for foreign students and expats concerning legal and bureaucratic procedures.

Student life

- There is deep and structured cooperation between city and university to facilitate the students life in the city: there is a working group student in/and Ghent, a 'Student official' (link between policy and students and between the schools of higher education and the city council, ambassador for students, ombuds function) and a 'student prevention coach' (sensibilize, students and inconveniences, preventive measures). 'StuGent' is a consultative body for students. It helps to enhance integration of students in the city.
- There is a special communication centre on student housing, kot@gent,
- House of the student (communication centre), a practical guide for international students in the city of Ghent, www.studentingent.be
- A training centre that facilitates the organization of work placements of students in the city administration
- The city commissioned a large study on the value of students for the city

Science & society

- The city let students think about urban planning. In the PORTICO project (Interreg), six interdisciplinary student teams from different universities and university colleges in the partner cities (all five Ghent schools of higher education participated) were asked to develop, in collaboration with the city councils, different business cases linked to the project investments in urban heritage presentation
- Science kits for teachers: VIB developed a toolkit for teachers as an overview of biotechnology. Toolkit can be used in class to educate students about new technology

- Ghent Living Lab. Based on the principles of open knowledge sharing and co-creation, a living lab creates a platform on which users / citizens, (digital) creative forces, experts, entrepreneurs and researchers are brought together to stimulate 'smart city innovative developments'. This way, the City of Ghent, as host organization of the Ghent Living Lab, creates an environment in which the city of tomorrow can take shape in a sustainable way. Innovations can no longer be developed only within the walls of the organization. Products and services must be tested in a realistic environment. It's even better to start from the problems and needs in the real world and to include the context and opinions of end users (citizens) in each step of the development process. A living lab offers the perfect method. By involving the end-user/citizen often and intensively and by treating him as a true co-creator, innovative products and services are being developed that actually will be used by the citizen because of the already built-in added value.
  The Ghent Living Lab is a collection of Ghent citizens, developers, researchers, experts, entrepreneurs and digital creatives who are eager to test and develop innovative ideas, using the enriching experience of working together in a cross-sectoral and multi-disciplinary environment. The Ghent Living Lab focuses on the following key areas: (1) e-inclusion; (2) e-government and e-participation; (3) digital innovation through developing future internet enabled services for smart cities; (4) green digital development including ICT enabled energy efficiency. Ghent University and the four University Colleges are a member of the Ghent Living Lab. An overview of all members can be found here: http://www.ghentlivinglab.be/partners.

5. Key issues and challenges

Based on the interviews conducted for this baseline study, we identify the following key issues and challenges regarding the co-operation between city and university in Ghent:

Housing: student numbers have grown rapidly in the last decade. There has been a large influx of students into the city centre, changing the population structure. The different lifestyles of students and families creates tensions at times, and the question is raised how to prevent the city centre from becoming an area too much dominated by students. The city government has adopted several measures to slow the trend: for example, there are now more strict rules on splitting up larger apartments. Some of the supply-limitations have been lifted, and the private sector has some more room for development. But the city government wants to prevent the private sector to offer sub-standard housing at excessive rents. Meanwhile, housing shortages remain.

Mobility. An increasing number of students do not live in the city (partly because of the housing shortage) but come by car. This causes heavy car traffic, with negative repercussions for the environment and the liveability of the city, and also creates parking problems. This is a serious issue, also because space is scarce. The city is looking for smart solutions to manage mobility (i.e. with park&ride facilities) and encourage students to use public transport. This must be done in close co-operation with surrounding municipalities (where much of the traffic comes from), but the co-operation culture in the wider region is not such that solutions are easily found. Economic profiling. Despite its strong knowledge base and emerging biotech cluster, Ghent does not have a clear profile that makes it stand out and well-known internationally in the knowledge economy. The debate is whether the university should –in alignment with the city- focus more on particular strengths, rather

than letting a thousand flowers grow. The university is decentrally organised, there are no strong top-down directives to focus on particular research strengths. Some stakeholders consider this an advantage (Arguments: you do not know beforehand which strengths will emerge in the future; when rewarding current excellence, emerging strengths may remain under the radar). On the other hand, the lack of international profile may come at a high cost in the longer run.

Ensuring systematic city-university co-operation on the sub-top level. Currently, top-level relations (between mayor/aldermen and university board) are excellent, and there is also much collaboration in specific fields and on project basis. However, some stakeholders express that a more structured type of dialogue is necessary to have a long-termer horizon rather than an ad-hoc and project based approach. This type of collaboration should take place between heads of faculties/research groups and leaders of city departments.

Changing performance indicators and incentives. The careers of research staff strongly depend on international peer-reviewed publications. Researchers have little if any direct incentive to participate in societal relevant activities with no direct relevance to their research projects, i.e. children's universities, outreach programmes, etc. Recently, "valorization" indicators are becoming stronger, under influence of changing Flemish science policy priorities. Patenting and contract research are gaining weight, implying an implicit shift in bias towards science fields in which contract research and patenting are more easily realised.

6. Directions for the local support group and the local action plan

The local support group in Ghent considers it as a major challenge for city&university to manage the growth of Ghent as city of students, research and innovation. Currently, there is a lack of space for research, for student housing, and for innovative business, and there is no reason to believe that the pressure will decrease in the (near) future. This problem cannot be solved in an integrated and sustainable way when each actor (university departments, housing corporations, city departments) try to solve their individual problems individually, or on an ad-hoc basis. It is strongly felt that a long-term shared vision is needed, taking into account the interrelationships between institutions and policy domains. Th EUniverCities project is regarded as a catalyst for this vision development.

During the EUniverCities project, the local support group –consisting of the key stakeholders- intends to elaborate a vision and a strategy how to manage growth and create space for innovation, research and education. Also, the City of Ghent is keen to host a peer review session, to generate ideas and recommendation on this issue. Also, during the project, the city hopes to get inspiration from the knowledge exchange with other cities, and use it as inputs for its own new growth strategy.

Interview partners:

Johan Bil, Technology & Business Development Manager, Technology Transfer, Ghent University

Karl-Filip Coenegrachts, Strategic Coordinator, Strategy and Coordination, City of Ghent

Gijs Coucke, International Affairs, Ghent University

Els de Keyser, Head of Strategic Funding, City of Ghent

Mieke Dejonckheere, Strategic Funding, City of Ghent

Herwig Reynaert, Professor and Dean of the Faculty of Political and Social Sciences, Ghent University

Daniel Termont, Mayor of Ghent

Jelle Verspurten, Event Manager, Gent BC

Inge Willemsen, Programme Manager International Cooperation and Positioning, City of Ghent

6. LECCE

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Lecce, Italy. It opens with a short description of the city and its university (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4) of city-university co-operation. Finally, it shortly describes the main challenges in this respect as identified during the interviews with key stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

Lecce is located in the region of Puglia (the most south-eastern region of Italy), in the province of Salento. The city has around 83,000 inhabitants. It has a large historic core, with an 2nd century amphitheatre, and many baroque-style buildings dating from the 16th century. Over the last decades, the city centre has been upgraded and renovated, largely financed by EU funds (i.e. URBAN-projects). The city is located at 11 Km from the Adriatic coast and 23 Km from the Ionic coast.

The city has a number of cultural amenities (theatres, museums, galleries) and the centre is the platform for many cultural and creative activities (art exhibitions, concerts etc). The city centre is gaining popularity as a place to live, after a long period of deterioration and decline. Through the "Lecce Citta Wireless" project, wireless Internet is available for free, in a large part of the city centre.

Lecce is the centre of a predominantly rural region. The main industry is tourism, and the number of tourists has grown substantially over the last few years. The region has very little advanced manufacturing activity, high-tech or knowledge-based services. Recently, existing larger industries (a shoe factory and a metal work) are in deep economic trouble. Unemployment rates are relatively high; youth unemployment (those aged 18-24) stands at 37% (2011)[26], and the rate is 20% for the group aged 25-24. It is very difficult for highly qualified young people to find a job. Moreover, many people with an academic degree are "underemployed", and work in jobs for which much lower qualification would be sufficient[27].

3. University

Lecce has a long history of being a city of learning, with major interruptions and upheavals, but most faculties are of a relatively recent date. In 1767, former Jesuit learning centres were transformed into state-controlled schools. In 1852, after a period of Bourbon repression, the Jesuits reclaimed the Royal Academy. During the unification of Italy, universities were suppressed. In 1869 The University of Legal Science was founded, but it terminated after only two years. It was only in 1955 that the Province of Lecce and surrounding towns created the Autonomous Magisterium Institute, and started to offer courses (official legal recognition followed only in 1959). Almost a decade later, the university was recognized as a national university (in 1967), with the institution of the Faculty of Physical, Mathematical and Natural Sciences.

[26] Source: Istat.it

[27] http://www.nytimes.com/2011/01/02/world/europe/02youth.html?pagewanted=all&_r=0

From the late 1980s on, the university expanded rapidly. In 1987 the Faculty of Economics and Financial Science was added, followed by Faculty of Engineering (1990), the Faculty of Languages (1995), the Faculty of Cultural Heritage (1997), the Law faculty and the Faculty of Educational Training (1998). In September of 2006, Lecce University of Studies was renamed the University of Salento, responding to the growth of the university in the Salentine territory with the addition of the Brindisi campus. Marked strong research points of the university are nanotechnology and archaeology.

Currently, the University of Salento (UoS) has 28,000 students, and employs 750 academic staff.[28] The number of students has grown significantly in the last decades, from 10,000 in the 1980s to the current number. Roughly 7,000 students live in the city, the others commute. Student housing is a main issue in Lecce. By now, only 300 "official" student homes are available, and many students turn to the black market. Many homeowners are ready to rent a room to a student, but don't want to pay taxes. This is a problem for many students from poor families: in order to be eligible for financial support by the region, students need to have an official renting contract.

In the Lecce area, the university has two main locations: the inner city (humanities), and the ECOTEKNE campus about 6km outside the city.; the latter comprises the Science faculties (mathematics, physics, biology) as well as Law and Economics. Next to this, there is a campus in the city of Brindisi. Here, the aerospace faculty is based, obviously linked with the Brindisi international airport.

The university is a source of new firms. The university's website contains a list of 15 spin-off companies that developed out of the university; interviewees mention a total number of about 40) companies located in the university's incubator.

Internationalisation is a priority of the university. Currently, there are about 300 Erasmus exchange students, and during summer, hundreds of foreigners come to Lecce to learn the Italian language. The university wants to attract more foreign students, and deepen its engagement in international exchanges and European research projects. Promising student markets are China, Russia and Argentina (mainly second and third generation students from Italian migrants).

In Italy, education policy is mainly a national (state) matter. Currently, reforms are underway in Italy's university policy. University funding will increasingly depend on their ability to find external funds. For universities in the South of Italy, this is a relatively heavy task, given the lack of knowledge-intensive industries in the region. One way to boost southern universities is to establish branches of the Italian National Council for Research (CNR). The research centre for nanotechnology is based on the ECOTEKNE campus.

The university of Salento has much to offer for prospective students: good education, an attractive city, relatively low costs of housing and living. However, it faces heavy competition from other universities. In this respect, the South of Italy faces a brain drain to other regions, mainly towards major cities like Milano, Torino and Rome where university education is considered to be of a higher

[28] http://www.unisalento.it/web/guest/unisalento_in_cifre

quality and better employment possibilities are offered. It is estimated that there are about 150,000 students from the Puglia region, of which about 40,000 choose to study in another Italian region[29].

4. City-university co-operation

In Lecce, there is no forum or platform to accommodate a structured dialogue between the leaders of the city and the management/leadership of the university. The mindsets and time horizons of the "two sides" seem far apart, according to some interviewees. From the city side, there is no "demand" for the universities' expertise. On an ad-hoc basis, city and university deliberate, to solve particular issues concerning transportation, urban planning etc.

Notwithstanding a lack of strategic embedding, there are some examples of collaboration.

First of all, the city made a substantial investment in public facilities for Salento University, in the city centre. Dilapidated old buildings were transformed into a modern complex. The "Officine Cantelmo" complex contains a library, meeting facilities, study rooms, a bookstore, and offices where students can get counselling regarding career opportunities. The buildings are a venue for cultural events, and concerts. The facilities are not only available for cities, but also directed at other young citizens. The complex helps to build the academic community in Lecce, but also gives the university a "face" and a strong connection to its urban context. The buildings are owned by the city but operated by the university through a students-run cooperative.

Another joint action is he opening of a multifunctional forum "Open Space Lecce Giovani" adjacent to the city hall, in the centre of the city. It is meant as a place for meetings, exhibitions and (cultural) events, with young people/students as main target groups. It offers a hall with 60 seats, but also working and exhibition spaces. The space opened in September 2012, and should contribute to the student's connection and attachment to the city, and the visibility of Lecce as "university city".

Figure 1. Open space Lecce Giovani

Concerning the *local/regional economy,* developing the labour market is a key priority in Lecce. In early 2012, the city (working together with the university) hosted the 1st European Job Day[30], with a number of activities relevant for students. A series of workshops were held, unveiling training

[29] Source: interview with the rector

[30] http://ec.europa.eu/eures/main.jsp?lang=en&catId=9773&myCatId=9773&parentId=20&acro=news&function=newsOnPortal

opportunities in Europe (at the Leonardo da Vinci programme and Erasmus placements); Would-be entrepreneurs could obtain advice on self-employment or starting up a business (including information on national and regional funds available); Innovative student projects, such as a wind-energy driven robot designed by graduates from the University of Salento showcased students' talents.

5. Key issues and challenges

Lecce's key challenges with regard to the project EUniverCities are:

Work towards a more strategic platform/framework for city-university collaboration. At current, there are some projects, but there is no strategic alignment between city & university. As a result, deeper and longer-term co-operations often do not materialize.

Find a solution to reduce/eliminate the black housing market and increase the number of official student rooms.

Many students move out after graduating. According to some interviewees, it is a challenge to create conditions for students to stay in Lecce after the conclusion of their studies, for example by developing high-qualified jobs in the industries, or by promoting them to create their own company. Enhancing the number of spin-offs could be a link to the "creative Europe" initiative.

Lecce wants to market itself as "university city". But some interviewees stress that to do this consistently and effectively, more actors than only city and university must be involved; it should be a co-production also of cultural institutions, companies, and many other stakeholders.

6. Directions for the local support group and the local action plan

The focus of the local support group –and hence the direction of the local action plan- has to be chosen yet, in line with one or more of the challenges formulated in section 5. From the cities' perspective, two themes are particularly worthwhile considering. The first is to increase spin-offs and create more business related to the university; the second is to enhance the "citizenship" of students and young people in general. For the university, the priority parts of the "flower" that could be developed in the Urbact project are marketing, attractiveness and internationalisation.

Interview partners:

Andrea Potenza, Daily Manager of the Officine Cantelmo, University of Salento

Alessandro Delli Noci , alderman for youth affairs, technological innovation and employment, City of Lecce

Gianna Delli Noci, Officer, EU affairs, City of Lecce

Antonio Grassi, Responsible for students orientation centre, University of Salento

Domenico Laforgia, Rector, University of Salento

Giuseppe Naccarelli, director of EU-affairs, City of Lecce

Raffaele … (opvolger Giuseppe Naccarelli) !

Francesco Natale, Delegate for the right to Study and for student relations, City of Lecce

Representatives of the four student unions

7. LINKÖPING

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Linköping, Sweden. It opens with a short description of the city and its university (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4) of city-university co-operation. Finally, it shortly describes the main challenges in this respect as identified during the interviews with key stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

Linköping has almost 150 000 inhabitants. It is located in the east part of Sweden, in the province of Östergötland (about 420,000 inhabitants). Since medieval times, it has been a city of learning, with important church functions. Economically, the city is said to walk on three legs: Manufacturing/engineering, high-tech, and the university. Concerning engineering, the city is known as "Sweden's aviation capital", thanks to the presence of Saab – since 1937–, which produces aircraft and engines. Saab is a dominant industrial player in the region: it employs 5,000 people in Linköping. Operations include development and production, support solutions and technical maintenance of aircraft. Besides Saab, the city has several other strong and high-tech manufacturing companies. Linköping has a strong and varied high tech base, with particular strengths in clean technology and IT.

The city offers a variety of urban amenities – including an international school – , and has nice natural surroundings. Very nearby is the "sister" city of Norrköping, with about 131,000 inhabitants. The two cities work closely together in a number of fields (to be elaborated later), and Linköping University has establishments in both cities. Linköping has an airport, with frequent connections to Copenhagen and Amsterdam, and is well connected to the Swedish rail and road network[31].

3. Universities

Linköping University (http://www.liu.se/?l=en) is important for the city; students and university employees represent 17% of the population. Linköping University was established in the city in 1975. The local industry – with Saab as prominent player – lobbied strongly to have a university, as a source of new staff and as research partner. In the late 1960s a branch of Stockholm University was started in Linköping which , later became the independent Linköping Unviersity. Currently, it has about 27,300 students (of which 19,000 in Linköping's main campus), in a variety of disciplines. It has four faculties: Arts&Sciences, Health Sciences, Educational Sciences, and the Institute of Technology.

It employs 3,900 staff, of which 1,500 teaching staff. Roughly half of the budget is spent on education, the other halve on research. Research funding comes from public sources (50%) and external ones (50%). The "needs based" roots of the universities are still present: the university is particularly strong in applied research, and has multidisciplinary groups that tackle problems and

[31] The Swedish national government recently announced to connect Linköping to Stockholm and Jonkoping by the high speed rail project the Eastern Link

challenges from several angles. Strong fields are (among others) material sciences, visualisation, and industrial ecology.

The university is relatively large in relation to its "captive" regional area: it attracts many students from other parts of Sweden. The university is particularly well known as one where teaching is of very high quality; problem-based learning is the key educational approach, and employers rank graduates very high; In Sweden, the university is known to be one where after graduation, it is easiest to find a good job.

Several interviewees noted that the university is in a transition stage; many of the professors that helped to build up the university from scratch, are now about to retire. A new generation is taking over, with different ideas and perceptions on attractiveness and adequate research and education environments. This has implications for future investments. The university's main, large campus is located about 4 Km west of the city centre. It is a typical product of the 1970s: monofunctional, and inward looking in urban planning terms. Currently, it is poorly connected to the city, but a highly ambitious new project "LinköpingsBo2016" is about to change that. Through a large investment scheme, a new urban district "Vallastaden" is to be created in the suburb of Västra Valla. It should connect the city to the university, and become an environment full of social and economic innovation, enhancing the city's attractiveness for knowledge workers.

A second location of the university can be found in and near the academic hospital (3,000 students), where the doctors and nurse teaching takes place. The university is also present in Norrköping (5,500 students). There is a large flow of students between Linköping and Norrköping; some curricula are offered at both locations. The university offers free (frequent) bus trips between the two cities.

Linköping University is welcoming international students, but numbers have decreased recently due to the Swedish law on tuition fees for non-EU-citizens. Some years back, the university had about 600 Master students from abroad. But the number of non-EU-students has dropped to 80 only. In 2011, Linköping University was No 1 in a ranking on student satisfaction of international students.

Currently, the city centre of Linköping benefits only to a limited extent of the liveliness and dynamics of its large student population. Many students live at the campus and in Ryd, a suburb at some 4 km from the city centre, and spend most of their time (and money) there. Over the years, students tend to become more critical on student housing: they don't want to live in worn-out places but increasingly prefer more luxury accommodation. In response, the city is providing more luxury housing in the city. About 50% of the student residents live in dedicated student houses; the other half rent in the private market.

4. City-university co-operation: an overview

City and university co-operate intensely and very frequently in Linköping. The relations are both formal and informal and on all levels, from the very top level to more student-related relations. The political leaders of the city and the university management meet in formal sessions twice per year. They discuss common interests, exchange relevant information, and together find clues to solve problems. Many of the key city leaders are alumni of Linköping University.

Nevertheless, the need was widely felt, from both sides, to deepen the co-operation. There is an increasing competition – for students and researchers – with other attractive university cities in Sweden, and being complacent would mean losing ground, in the view of key local stakeholders. This mindset led to the establishment of a new strategy of collaboration, and the idea to create a new innovative city district next to (and to some degree integrated with) the university.

In September 2011, Linköping Municipality adopted a "strategy for co-operation with universities", with the aim to enhance co-operation between the university and the municipal organisation (and other communities). The strategy has 5 main points. The city wants to 1) take an active role regarding student issues; 2) support R&D that is relevant for the municipality, the inhabitants, and local companies; 3) support entrepreneurship and spin-offs from the university; 4) use the academy as a source for training and development at the municipal organisation, and 5) offer the right conditions to attract students and researchers (housing, social conditions, services).

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Local/regional economy

- City, university and many other stakeholders in the wider region work together in the Growlink partnership (http://growlink.se/en/home), to develop and attract innovative business in Östergötland. The aim is to avoid fragmentation and create a coherent regional area with a good business climate, where innovative entrepreneurs of all sorts are supported. The university, as "trusted key player" co-ordinates the regional innovation agenda of the region (comprising 600,000 inhabitants and 40,000 firms).
- The university has 5 "liaison offices" in the region, where SMEs are brought into contact with university knowledge and competences. Each year, 500 companies are visited to inform the about what's going on in relevant parts of the university.
- The cities of Linköping and Norrköping are the owners of science parks: Mjärdevi Science Park (Linköping; 300 companies, 2,500 employees) and Norrköping Science Park (Norrköping; 110 firms, 800 employees) are home to successful export-oriented businesses and offer internships and work opportunities to last-year students. Links between business at the science parks and the universities are limited, however.
- New Factory (student/business case-based education and development).
- National Contact Point for the development of professional regional innovation systems (best practice) – The Innovation Office at Linköping University.
- The city sponsors chairs in some promising tech fields, including renewable energies and water supply.
- LEAD is a Business Incubator – Sweden's largest one. It helps start-ups with growth potential; they can stay for 2.5 years in the incubator.
- CRL (Concept Realisation Laboratory). The laboratory is aimed at strengthen education, and experimental research, in some technology areas, by enhancing and maintaining a capability of producing physical demonstrators, for functional verification and model validation. It is also of high value for training the skills and craft of engineering, needed as experience, to produce science in product realisation.
- Venture Arena (matching ideas and entrepreneurs).

- Tandem recruitments: Attracting excellent academics and offering opportunities for accompanying partners/families.
- Other relevant joint initiatives are the Environmental Technology Centre and the Biogas Resource Centre (strong areas where research and business collaborate).
- This link offers more information on co-operation with businesses: http://www.liu.se/om-liu/presentation-samverkan?l=en

Internationalization

- Both university and city see internationalisation as important, and both sides collaborate to their mutual benefit.

Student life

- The LinköpingsBo2016/Vallastaden initiative intends to develop student life in the new area (elaborated below).

Attractiveness/marketing

- The universities' Innovation Office plays an important role in marketing city and region as knowledge region.
- The LinköpingsBo2016/Vallastaden initiative (elaborated below) is a large common venture to improve the attractiveness of Linköping for students and researchers

Science & society

A number of initiatives are taken in this domain:

- The city is a partner in the "R&D Centre in Care and Social Work" (started in 2000). In this centre, seven municipalities and university work together to innovate and improve practices in these fields, to the benefit of inhabitants that rely on the care and social sectors. The centre develops new methods (often in close partnership of users, researchers and practitioners), and helps to develop competences and skills. It frequently engages in joint projects with national and European partners. The centre has a budget basis of SEK 3.5m (to which additional project money is added); municipalities pay a membership fee. The centre is also involved in the development of Vallastaden.
- The municipal schools & education department co-operates with the university in several ways. Science café's are held, where university researchers can meet teachers; specialist teachers at schools work with researchers in the university; teachers are incentivized to obtain a Master or a licenciate degree at Linköping University.
- There is a science centre where kids can do all sorts experiments, to enhance their curiosity and creativity.
- The University's Centre for Municipality Studies (founded in 1997) conducts research of importance for municipalities, and offers courses, development programmes and seminars on issues such as urban management, planning, and social welfare. It is financed by 14 municipalities in the region, and has a budget of SEK 10m per annum. The research projects are set up in close co-operation with the founding municipalities.

- Vallastaden (see below) will become a living lab for researchers from Linköping University.
- On many occasions, the city uses/buys university expertise by hiring staff to consult them, conduct contract research, etc. Also, on a frequent basis, the municipality takes students as interns.

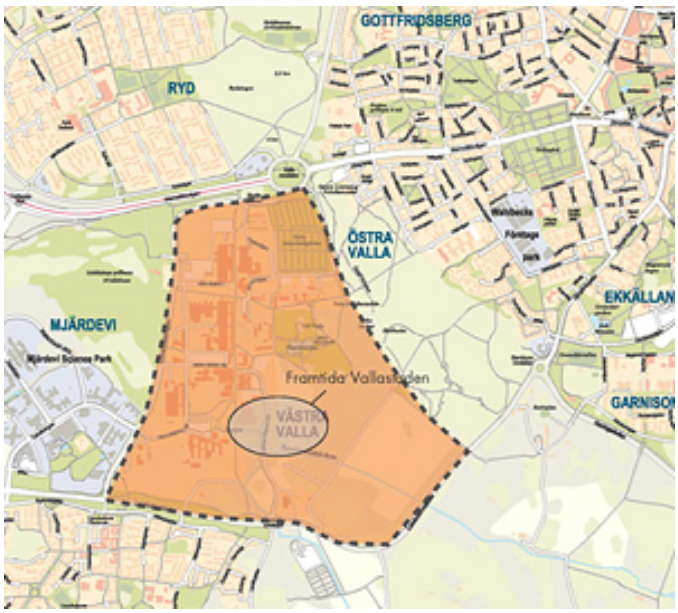
Flagship project: LinköpingsBo2016*/Vallastaden*

Project LinköpingsBo2016 is an integrated urban planning project to connect city and university, and to create an innovative environment in any respect. In the next years, the city and the university will develop an urban environment with community features, schools (including a secondary school for 600 pupils), preschools, care, retail, service, etc. inside and next to the university area. The new urban environment adds new facilities and people to the university area, which creates more buzz and liveliness at every hour of the day. The environment is built for residents (about 2,000 households) including university students, teachers, researchers and those working in the technology park and other companies and businesses in the area. In the words of the deputy mayor: “In 1975 Linköping got a university, now the university gets a city (with the name Vallastaden)”. The name was chosen after a consultation of the population.

Vallastaden will be showcased in a housing exhibition in summer 2016, where future environments for living, learning, creative communities and ecological and social sustainability will be shown. Vallastaden will be a place to see and try new solutions, an arena for the University and other stakeholders to connect research into a new urban reality.

The City of Linköping and Linköping University are the main partners in LinköpingsBo2016, but the project has a broad interaction with business, construction companies, architects and others to succeed in its high ambitions. LinköpingsBo2016 also has a mission to work with the new forms of dialogue and participation in all processes of the project. Communication with the city's residents, stakeholders is a major part of the project; there have already been several brainstorming sessions with different stakeholders.

Figure 1. Vallastaden map



LinköpingsBo2016 will be of great importance to the cooperation and exchanges between the city and the university. During the project, several common arenas and forums will be required to control, manage and execute all the activities in the project. These arenas and forums are expected to impact positively on the city-university's partnership.

To achieve the ambitions of LinköpingsBo2016, all parts of the university and the city need to actively collaborate in order to find interesting and innovative solutions for tomorrow's society. The land used to be owned by a state company (that owns the land of universities), but recently, the city bought the land. To realise the ambitions, a municipal company was created; in its board, the university has a prominent role, with two seats. The universities' Masterplan is brought in line with the plans for Vallastaden.

Vallastaden is a sizeable project: the city will invest SEK 50-100m for the infrastructure alone; total investments in the area are expected to amount to €1b.

5. Key issues and challenges

The city of Linköping has identified a number of questions, issues and challenges, and hopes to gain from participating in EUniverCities by getting inspiration and good ideas.

The following issues came to the fore during our discussions:

- Attracting and retaining students: How to make Linköping a more attractive city for students; how to retain students? (Currently, many consider the rate of students leaving after graduation too high). How to raise the exposure of local and regional companies to students of Linköping University.
- Research commercialization and entrepreneurship: Supporting students and researchers in the commercialisation of research and create businesses; Developing shared R&D facilities for university/business. Special focus is needed to promote entrepreneurship in the non-technology realms: teacher education, models for collaboration practices in other socio-cultural contexts; service, social and cultural innovations; Linking valorisation to social and demographic urban challenges like ageing.
- Placemaking, identity & marketing: Creating regional strength and profile (connected to the project LinköpingsBo2016); marketing the region together as Knowledge Region. Developing common policies and integrate different activities (student, work, leisure, dwellings) in different parts of the city and provide common grounds for it (mixed-used developments); Attracting and retaining international excellence being a medium sized city; disclosing local and regional values to different target groups (students, professionals, visitors); Involvement of different stakeholders in the development of policies; Student integration in urban living neighbourhoods; Improving the city's/university's "first impression" to students and professionals when it comes to housing, social integration, culture, leisure etc.

6. Directions for the local support group and the local action plan

The focus of the local support group has to be chosen yet.

Interview partners:

Mats Arwidson, Deputy University Director, Linköping University

Jan Axelsson, Chief Strategy Officer MSc, Ph D, Ass. Professor, Innovation Office at LiU, Linköping University

Anna Bertilsson, Director, Department of Environment and Urban Planning, City of Linköping

Hans Bjurbäck, Project Manager, East Sweden Region, Baltic Network.

Muharrem Demirok, City Commissioner, City of Linköping

Elisabeth Ekström Ulvenäs, Planning Officer, City of Linköping

Jörgen Haslum, Senior Urban Planner, City of Linköping

Lise-Lotte Järvinen, University Relations Officer, City of Linköping

Anders Petersson , Planning Officer, City of Linköping

Jenny Palm, Professor, Technology and Social Change, Dept of Thematic Studies, Linköping University

Kerstin Rejmstad, International Relations Officer, City of Linköping

Jonas Sjölin, Project Manager, Linköpings Bo2016, City of Linköping

Christer Sjölund, Acting CEO, City of Linköping,

Elisabeth Stärner, Manager for strategic development, City of Linköping

Pär Westrin, Senior Coordinator, Innovation Office at LiU, Linköping University

8. LUBLIN

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Lublin, Poland. It opens with a short description of the city and its universities (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4) of city-university co-operation. Finally, it shortly describes the main challenges in this respect as identified during the interviews with key stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

Lublin is located in the east of Poland, and has about 350,000 inhabitants. It is the main city in a large region, which is mainly agricultural.

Lublin is situated at the cultural border of the eastern and the western Christianity. The commercial routes established in the Middle Ages made the city a multicultural and multi-religious melting pot. It used to have substantial minorities (Jews, Germans, Armenians, French, Scottish, Dutch and British), with the Poles and the Jews as the two largest ones. By the 16th century, the Jewish population has become influential and wealthy. Lublin was an important centre of religious learning, with a large Talmudic academy and one of Poland's first Hebrew printing houses. After the Second World War, only a fraction of the Jewish population had survived, and many of the traces of the Jewish tradition were lost.

Currently, Lublin is an important city of learning, commerce and services, with a very large and lively student population: it has 78,000 students, roughly one in every four inhabitants is a student. The city is a centre of leisure and culture, with a large offer of cinemas, theatre, music, arts, sport and nightlife. Lublin has a well-preserved historic inner city.

European funding programmes are very important for the funding of projects in cities in Poland, not in the least place in transportation infrastructure and urban regeneration. In the last operational programme (for the region of East Poland), also much has been invested in projects related to the knowledge economy: research facilities, science parks, incubators, and other "hardware". Many universities were able to substantially upgrade their facilities.

The economy of Lublin relies on small and medium sized businesses; there are few large players. The biggest firms are mainly in the food and construction industries (see http://www.lublin.eu/Lublin_business-1-586.html for an overview of the largest firms). Moreover, the high tech and advanced services sectors are relatively small. There is a gap between the needs of the labour market and the qualifications of Lublin's university graduates. Many of them move to other cities after graduation.

New developments in Lublin are the Science and Technology Park and the Special Economic Zone Euro-Park Mielec Subzone Lublin, offering attractive tax and location conditions for companies. To investors, the city advertises its location and access as main asset. The train to Warsaw takes about than 2.5 hours (city centre to city centre), a new international Lublin Airport is under construction.

Moreover, Lublin is a young city (40% of the population is 35 years or younger). The unemployment rate is 8.3% in the city (11.6% in the region).

The city is currently finalizing its "2020 City Development Strategy". It builds on the premise that "Lublin accepts, fosters and takes advantage of cultural diversity". One of the main fields of action is the fostering of cultural openness in the city.

3. Universities

Lublin 5 main public universities, among which two "broad" universities and three specialised ones.

The university of *M. Curie-Sklodowska* (UMCS) is the largest one, with 24,823 students.

The *Catholic University of Lublin* (KUL) has 13,171 students. It is independent from the state. During communist times, it was an important centre of the opposition against the regime.

The *Lublin University of Technology* (PL) has 10,049 students, and focuses on technological studies and research.

The *University of Life Sciences* (UP), has 10,368 students and focuses on biotechnology and life sciences;

The *Medical University (UM)* has 6,037 students and specialises in teaching medical professionals including doctors, pharmacists, dentists, physiologists etc., and also conducts medical research. It is the most internationally oriented university, with about 1,000 foreign students from 55 different countries. The university has a good reputation.

Table 1. Number of students, foreign students, and % of foreign students, 2011/2012

University	Number of students	Number of foreign students	Foreign students as % of total
M. Curie-Sklodowska	24823	270	1.1%
Catholic University of Lublin (KUL)	13171	253	1.9%
Lublin University of Technology (PL)	10049	21	0.2%
University of Life Sciences (UP)	10368	17	0.2%
Medical University (UM)	6037	977	16.2%
College of Economy & Innovation	8007	31	0.4%
College of Enterprise and Administration	2075	47	2.3%
College of Social Sciences	683	0	0%
University of Social & Life Sciences	3105	97	3.1%
Total	78318	1713	2.2%

In Poland, science and university policy is mainly a matter of the national government. Local or regional governments have no say in this domain. Until recently, university funding depended mainly on student numbers. Recently, some fundamental reforms are underway: state funding will increasingly depend on the amounts of external funds that a university is able to attract, and also, quality of education will play a larger role. More emphasis on practical/problem-based education is also part of this reform.

Some interviewees note a changing attitude among students in Poland: a growing number of respective students select a university based on quality, even if that university is far away[32]. For Lublin, this implies that the regional "captive market" –the hinterland from which many of its students come- cannot be taken for granted anymore.

Next to the public universities, there are four private ones in Lublin: the College of Economy & Innovation (8,007 students), the University of Social & Life Sciences (3,105 students), the College of Social Sciences (683 students) and the College of Enterprise and Administration (2,075 students).

Table 2. Students and graduates in Lublin 2010/2011, per academic field

Academic Field	Students	% of total	Graduates	% of total
Social Sciences	8048	10%	5062	15%
Law/administration	10876	14%	6950	22%
Arts	767	1%	231	1%
Economics	8481	11%	4313	13%
Filology	5078	7%	2585	8%
Humanities	2808	4%	1190	4%
Logistics/transport	1589	2%	684	2%
Medicine	10235	13%	2714	8%
Pedagogy	5643	7%	1770	6%
Life Sciences	11964	15%	4022	13%
Technology	8327	11%	1621	5%
Mathematics/informatics	3385	4%	805	3%
Theology	759	1%	202	1%
Total	77960		32149	

Table 2 shows the numbers and % of students in each academic field, across all universities. The main fields are life sciences, medicine, law/administration, economics, social sciences, and technology.

Lublin does not have one or more main campuses: the university buildings are spread over the city, and so are student houses and facilities. As a result, students are very visible in the city, and largely contribute to the city centre's liveliness.

Many of the students come from the surrounding (agricultural) hinterland of East Poland. In the coming decade, the number of "regional" students will decline because of demographic trends, with negative percussions for the universities (from 2005 to 2011, the number of students already declined by about 7,000). Thus, universities are looking for ways to attract more students from other regions in Poland or from abroad. As table 1 shows, the number of foreign students is low. Most of them come from Ukraine and Belarus (35%), Asia (20%) and Europe. The medical university attracts a relatively high number of students from the USA.

Currently, there is a debate whether the universities should collaborate more, rather than competing with each other. By now, many academic disciplines are offered by more than one university, and

32

Note that this remark is based on anecdotic evidence provided by interviewees

competition is fierce at times. With a declining number of new students, the question of collaboration becomes more urgent.

4. City-university co-operation: an overview

City and universities co-operate in several ways in Lublin, but the complexity is substantial given the large amount of universities in the city. Personal relations between the leaders are good overall. The Mayor and Deputy Mayor both have an academic background, which facilitates the interaction.

In the Municipality, there are several bodies and people who are particularly responsible for the cooperation with universities. There is a Commissioner for cooperation with higher education institutions and Eastern Partnership (prof. Jan Pomorski); There is also a special commissioner for cooperation with East European higher education institutions (prof. Marek Opielak).

Moreover, since May 2011, there is a dedicated Unit for Cooperation with the Academic Environment at the Department of Strategy and Investor Services. It takes up the projects related to human capital creation, which is believed to be one of Lublin's main attractions for (foreign) investors.

With a view to demographic challenges in Poland (low birth rates, ageing), city and university want to prevent a further drop in the number of students and graduates in Lublin, and improve quality of education. The city would like to improve the alignment between the curricula offered and the needs and expectations of the employers.

Despite a variety of actions and interventions (elaborated below), at the city level there is no strategic platform or framework for aligning agenda's and collaboration. Several interviewees stress that this "ad hoc" mode makes it more difficult to engage in longer-term strategic partnerships.

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model.

Local/regional economy

The Cities' Unit for Cooperation with the Academic Environment runs some special projects to support integration and cooperation of local authorities, business and science in promising industries (IT, biotechnology, energy sector). It also co-ordinates an annual Mayor's Contest for the best thesis work related to the economic development of Lublin.

The city collaborates with Maria Curie Skłodowska University (the largest in town) with the aim to develop the labour market. The project's objective is to improve quality of the educational offer. So far, 16 new specializations were developed, that should better meet the needs of employers in the region. The budget of the project is about € 5m.

The SYNERGIA project, through internships, aims to improve the practical skills of economy students (again at the Maria Curie Skłodowska University), hoping to make the graduates more attractive for employers.

The Catholic University organises courses and trainings for companies and institutions, and actively promotes contacts between companies and the university. Moreover, the universities' Career Service

(established in March 2000) carries out tasks of the employment agency (job intermediation services, career counselling and personal counselling) and is listed in the National Register of Employment Agencies under no. 413. The unit cooperates with many employers from the region and Poland as a whole. Its services include selection of candidates, collecting and publishing job offers, temporary job offers (for students), internship offers and information on free trainings and other initiatives; company promotion at the university, and the organisation of 'job fairs'.

City and university consider new firm creation as a critical element of economic development and upgrading, and both sides see potential for student enterprises or spin-outs from research groups. So far, there is no central co-ordinated action in this field; rather, each university has its own "incubator" where startups are nurtured, some of them supported by European funding.

Internationalisation

The city wants to encourage young people from abroad to study in Lublin. For this purpose, a multilingual website for students was created (www.study.lublin.eu) by the Unit for Cooperation with the Academic Environment; moreover, joint city-university delegations make presentations abroad to promote studying in Lublin.

"Study in Lublin" is a common initiative to have a promotional campaign on the international level (actions: the website, promotion through social networking websites).

Student life

- Lublin has a very active student life in many respects. The city administration helps and supports when necessary (i.e. providing permissions, solving public transport problems etc.) but does not have an proactive interventionist policy in this respect. Lublin is also known for its safe city life.
- In the cultural sphere, the city administration appreciates the cultural activities of students (for example the Science Festival, as mentioned under the heading of "science & society") and supports them in various ways.
- Concerning student housing (a pressing issue in many student towns), there are no marked problems or shortages in Lublin; many inhabitants are ready to rent rooms to students and consider it as a welcome source of additional income.

Attractiveness/marketing

- City & universities are having discussions to construct a city wide broadband network, to improve the electronic infrastructure of the city.
- The "study in Lublin" initiative (mentioned above) is a joint effort to market the city as attractive study city for foreign students.

Science & society

- The Lublin Festival of Science is a co-production of all universities, several cultural institutions and the city. The target groups are at high school, junior high school students and even

primary school pupils and kindergarten children. Its main aim is to present the results of scientific research in an attractive way.

- The Catholic University organises various courses for: children from the age of 6, junior high school and high school students, and adults, as well as open lectures and occasions where scientists present their latest achievements. It promotes higher education studies at primary schools, junior high schools and high schools from the city and region. A 'package' is available for schools, including classes for all school-age groups, special events, e.g. "Days with Science", and a lab centre aiming to promote natural sciences.

- The Marie Curie University has a strong tradition of organising cultural events for students and other youth. In the Academic Cultural Centre "Chatka Żaka" many events are held: the National Folk Music Festival "Mikołajki Folkowe", Student Film Festival, Poetic Fight Club, National Student Theatre Festival "Kontestacje", the UMCS Festival of Young People, the weekly "Scene Ad Hoc" concerts, lectures, talks, exhibitions, workshops, theatrical and cabaret shows, and many activities.

- The Technical University, some research groups conduct research with direct relevance for urban actors. One example is a group that measures and analyses air quality in schools (together with students), and provides advice.

- The Medical University organizes special summer camps for students to provide local communities with medical advice. Another public event is the so called White Coat Sunday.

5. Key issues and challenges

The first Local Support Group meeting, (attended by about 30 representatives from the main universities and several city officials) unveiled a great need for cooperation and partnership of the city and universities, and to limit non-productive competition between them.

A number of shared areas of interest were identified:

Local/regional economy & labour market

- Retaining more graduates in the region, by developing the local labour market and improve the alignment between educations and need of companies.

- Cooperation with business partners: Finding effective modes, methods, models and procedures of establishing cooperation with local companies in order to provide them with qualified workforce, internship and training programmes and specialised courses tailor-made to companies

- Effectively establish linkages between business/scientific institutions and public authorities; reaching industry representatives and make them interested in scientific projects

- University and technology transfer: Learn from good practices in the transfer of technology and knowledge between universities and companies as well as between universities and public authorities

Attractiveness /marketing & internationalisation

- Improve the joint promotion of the city and universities for attracting young people and encouraging them to study in the city. Finding effective ways of attracting students from more distant regions of the country and from abroad.
- Improve the promotion of Lublin's universities in the Eastern countries (in particular from Ukraine, Belarus, Russia, as they are able to study in Polish).
- Study the impact of foreign students on the city of Lublin
- Collaboration regarding international scientific initiatives and events (financing, locating, promotion).
- Set up a joint alumni policy

Student life

- Creating facilities for the student community in public space, city transport, etc.
- Improve city infrastructure for disabled students.

Science & society

- Connect student training to urban challenges; Improve the practical skills of students by having them work on concrete projects in the city, as part of the curricula.

6. Directions for the local support group and the local action plan

The focus of the local support group has to be chosen yet, in line with one or more of the challenges formulated in section 5. However, after the visits and interviews for the baseline study, a focal challenge seems emerging, which can be summarized under the heading "making students work for the city".

The idea is to let Lublin students or researchers (from any university) gain practical experience by working on issues relevant for the city, as part of the curriculum (internships, thesis work, project work in teams), or as a way of doing voluntary work. This could benefit the urban society and the same time enhance the quality of education (teaching students more practical skills).

There is a lot of "hidden" demand for those type of student activities, and an organisation is needed to articulate the needs. The Local Support groups considers to work towards building a platform or organisation that functions as an intermediary between relevant, practical questions and challenges of actors in the Lublin society (the city administration, schools, companies, or any other organisation), and universities on the other hand.

During the interviews held for this baseline study, several stakeholders expressed strong sympathy and support for this idea. The example of Demola (a similar practice that operates in Tampere, Finland, described in this baseline study) could function as a benchmark for the work to be done in Lublin.

Developing a platform like this could be a new step in the complex collaboration process between city and its many universities.

Interview partners:

Ms. Anna Krzyżanowska-Orlik, Managing Authority, Marshal's Office of the Lubelskie Voivodship (Lubelskie Region)

Mr. Dariusz Matosiuk, Vice-Rector for Scientific Affairs, Medical University of Lublin

Ms. Hanna Trębacz, Vice-Rector for International Relations and Postgraduate Education, Medical University of Lublin

Mr. Stanisław Michałowski, Rector, University of Maria Curie - Sklodowska

Mr. Ryszard Mojak, Vice-Rector for General Affairs, University of Maria Curie - Sklodowska

Ms. Marzenna Dudzińska, Vice-Rector for Scientific Affairs, Lublin University of Technology

Ms. Katarzyna Mieczkowska-Czerniak, Deputy Mayor of Lublin

Ms. Joanna Żytkowska, Vice – director of Department of Strategy and Investor Services

Ms. Joanna Szeląg, Chancellery of the Mayor, Lublin Municipal Office

Ms. Agnieszka Małyska, Chancellery of the Mayor, Lublin Municipal Office

Ms Ewa Kipta, Planning Department, Lublin Municipal Office

Mr. Marcin Skrzypek, Culture of Space Council, co-author of the Lublin Strategy 2020

9. MAGDEBURG

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Magdeburg, Germany. It opens with short description of the city and its university and the university of applied sciences (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4). Finally, it shortly describes the main challenges in this respect as identified during the interviews with main stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6).

2. City

The City of Magdeburg has about 230,000 inhabitants. It is the capital of the State Saxony-Anhalt.

The city's historic city centre it was heavily bombed during the Second World War and not rebuilt afterwards. The population is relatively old (many of the young migrated after unification). The student population of Magdeburg plays an important role in animating the city and making it lively. And after years of population decline, in 2011 the city grew slightly in population. The city faces the big challenge of transforming its economy towards a more knowledge-based one. The main economic sectors are mechanical and plant engineering, recycling industry and environmental technologies, healthcare, medical engineering, and logistics. Growing industries are the service industry, and science related business. The local economy is dominated by brancheplants. Many companies use Magdeburg as a location for production (it is relatively cheap location in Germany), but have their R&D departments elsewhere. The city attracted a big windmill factory (3000 jobs) that was located in the northwest of Germany, but mainly came for the region's manufacturing competence and productivity. The R&D and engineering departments are still at the company's headquarters. The regional economy offers relatively few jobs for the higher educated, which makes it difficult to keep students in the region after their graduation.

Magdeburg is located centrally in Germany, near an important motorway junction. There are (high-speed) rail connections to several destinations. There are no major congestion problems: the area is relatively sparsely populated, and Magdeburg is the centre of a vast rural area. The city does not have an international airport. The nearest major airports are Berlin or Hannover (1.5 hour's drive).

3. University

The Otto-von-Guericke-Universität Magdeburg was founded in 1993 and is one of Germany's youngest. Its roots are in three institutes of higher education: the Technical University, the Pädagogische Hochschule, and the medical school. With 9 departments and around 13,500 students, the university is a key player in the city, economically and culturally. It offers 38 bachelor and 33 master's courses. The main university campus is situated close to the city centre, just south of the Science Harbor area (to be explained later). The city also has a University of Applied Sciences, established in 1991. It has 4,560 students, and has a technical orientation. Finally, there are a number of scientific institutes with links to the university: The Leibniz and Helmholtz Association, the Fraunhofer Institute, and the Max Planck Association.

At the university, research is focused on the following fields: neurosciences (in co-operation with a strong Leibniz institute), dynamic systems, and automotive. The university has a budget of about €80m from the state, and earns another 40m from other sources. Traditionally, the university mainly attracts students from the nearby region, but this is changing in the last years. In 2007, 70% of freshmen came from the state of Sachsen Anhalt, of which Magdeburg is the capital. By 2011, this percentage had dropped to less than 40%, indicating the attractiveness of the university beyond the state. Some student housing is at the campus, some outside. There are no indications of shortages, and prices are low (about €200 for a large room, a very competitive rate from the German perspective)

About 13% of the university's students are foreign. Most of them come from China, Eastern Europe and Vietnam. There is a growing number of foreign researchers, mainly in the top-level research fields. In the faculty of chemical engineering for example, over 50% of the researchers are from abroad.

In Germany, university policy is the competence of the states. Thus, the state of Saxony Anhalt is a key actor determining matters at the university of Magdeburg. Recently, the state decided to move the faculties of music and pedagogic to Halle, the other main city in the state.

The national government also plays an important role, as regulator (there is a law saying that no federal money can go to universities); also, there is the federal excellence programme, rewarding a very limited number of German universities with the "excellent" status. According to the university representatives we interviewed, the universities from the East of Germany stand no chance in this competition, given their scale and scope.

In 2008, the German government set up the programme titled "University Pact", a stimulation package to keep student numbers of the Eastern part of the country at level (this is a challenge because of demographic decline in this part of Germany). Several contests were set up, where cities/universities could compete for funding.

4. City-university co-operation: an overview

In GDR times, the link between university and the local economy was very natural: Magdeburg was a main centre for machine building (45,000 jobs in 1989), and the university educated engineers for this industry, and conducted research in this field. But after 1990, the industry collapsed (its markets in the East evaporated, and it was unable to compete in global markets). In 1995, only 3,000 jobs were left in this sector. Simultaneously, the university was urged to adapt to the West-German system, in which universities were conducting mainly theoretic and basic research rather than applied research for the industry. Since, city and university are in a reorientation process, with intensifying relations again. Over the last decade, science and higher education have gained a more prominent place on the city's agenda. Many actors increasingly realise that science and higher education are important lifelines for the urban economy and society in Magdeburg. In 2009, the Mayor established a "team Science", directly under his supervision, two officers who arrange and organise all sorts of activities, projects and meetings related to the development of Magdeburg as a science city. On the senior decision-making levels, personal relations between city and university are good: The key decision makers know each other well, and the links are easily made in a relatively small city like Magdeburg.

Moreover, a number of regular co-operation structures are in place:

- Strategy group ("Major players round"), once a year. The Mayor meets with all the institute directors, and the rectors, to discuss strategic common issues. Topics on the table are questions related to housing, construction of new facilities and buildings, economic development (incubators, innovation), and joint events such as the Long Night of Science.
- Science Work Group; Press and PR officers of all the institutes meet and exchange news and latest developments, every two-months
- Organisation group to organise the Long Night of the Sciences (meets 4 - 5 times per year)
- Monitoring Committee for the Science Harbor, a significant urban redevelopment project in which an old inland port is transformed into a "science harbor" (2 - 3 times a year)

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Innovation/entrepreneurship/Local economy:

- Incubators. There are two incubators (locations for new companies) in Magdeburg: the IGZ (a starters centre with some focus on automotive), and the Experimental Factory (ZPVP GmbH). They are co-owned by city and university, and the city hopes that they are a source for new companies. There is a professor of entrepreneurship in the university.
- Two technology transfer centres: The FEZ (Forschungs- und Entwicklungszentrum Magdeburg (FEZ)) offers an interface between SMEs and academic research. (www.fez-magdeburg.de). Another one is ZENIT (Zentrum fur Neurowissenschaftliche innovation und Technology), focused on technology transfer in neuro science. Both a co-owned by city and university.
- The Science Harbor area. Over the last decade, the city is developing the Science Harbor, an old inland port area that is being reconverted into a dynamic location for scientific institutes, but also leisure and housing functions (the area is attractively located near the river Elbe, close to the city centre, and adjacent to the university campus). Already, some major research institutes (Fraunhofer, Max Planck) have settled there. One of the silos in the areas was reconverted in to a Think Factory ("denkfabrik"). A key tenant is the IFAK institute, founded in 1991, by a professor who wanted to continue to conduct applied research (rather than turning to more basic research, as the authorities wanted). IFAK conducts pre-competitive research for industrial clients (mostly outside Magdeburg) and in all sorts of nationally and European sponsored research projects.

Internationalization

- The city has established a working group to make a strategic plan how to accommodate foreign students and knowledge workers in a better way, in many respects (isses discussed are housing, allowances, permits, procedures etc.). It is a collaboration of several city departments and the university.

- At the end of every study year, the mayor welcomes all the foreign graduates that obtained their diploma, as a sign of respect and commitment.

Student life

- Students are very important to support cultural venues and events. 50% of the city theatre's audience consist of students.

- The university has a curriculum of "cultural engineering". The students are very much engaged with the city, and organise al sorts of events and interventions in the city as part of their curriculum. A recent example is a cultural manifestation Romantik 2.0, in an old hospital building, where over 400 artists made exhibitions.

Attractiveness/marketing

- Universities and city participated in contest "experience campus and city" (Campus und Stadt erleben, 2009/2010), a contest open for the east part of Germany[33]. Magdeburg ended as one of the four winners[34]. In this programme, several activities were undertaken:

-Creation of a virtual "travel agency far east": discover studying in Magdeburg, to attract and inform (prospective) students and their friends from other regions in Germany (www.reisebuero-fernost.de). Travels could be booked to the campus days.

-Campus Days: Two days (Fridays and Saturdays) of open doors for prospective students, organised in close co-operation between university, university of applied sciences, and the city (city marketing unit, but also public transportation). Visitors can book a travel guide (a student guiding the way through city and university; accommodation). Meanwhile, the city organises amenities and facilities (concerts, cheap hotel rates, sponsoring).

- In the city marketing campaign for Magdeburg "Ottostadt", the university and the university of applied sciences were recognized by the city as key players. Representatives had a seat in the jury to select the bureau that would do the campaign.

Science & society

In this field, Magdeburg is very active. It has a remarkable science museum (built for the 1999 federal garden show), and develops all sorts of activities to link science to the wider society.

- In 2006, the city applied to the nationwide contest to become "City of Science". A steering group was made, with a number of stakeholders (city departments, university, research institutes etc.). They jointly developed the plan. Although Magdeburg did not win in the end (Bremen was the winner), participating proved to be the trigger for a sustained co-operative effort of city and the scientific stakeholders. The partners decided to carry out their plans anyway. A coordination office was created, uniting a number for partners including business associations, churches, sports clubs, and cultural institutions. Together, they developed a large number of activities (250 events in 2006) to link science to the city in a numer of respects. Some outstanding initiatives (that were repeated since):

[33] It was part of the University Pact, to promote universities in the Eastern part of Germany.
[34] The prize was €50,000

-The long night of science. Every year in spring, the scientific institutions open their doors to the general public. The 2012 edition attracted 16,000 visitors.

-RoboCup Junior competition with 148 teams from 60 towns all over Germany, and the Senior Competition with 39 research teams from 14 countries. It attracts many young and research-minded people (target group for Magdeburg).

- For 2012, the event "City of Young Researchers" is planned. It is a competition organized by the foundations of some main companies (Robert Bosch, Körber, Telekom). The aim is to improve cooperation of universities and academic institutions with schools. School students and scientists work together on a project (local competition). The project intends to expand student's perspective on training and career opportunities.
- Interactive science exposition on Market Square (city centre), with 40,000 visitors in total, and huge media attention: there were more than 1,800 reports and news items
- To reach the "difficult" group of 14-16 year olds, the city is now discovering an app where youngsters van doscover traces of science in the city.

5. Key issues and challenges

Based on the interviews conducted for this baseline study, we identify the following key issues and challenges regarding the co-operation between city and university in Magdeburg:

- How to create/attract jobs for which high qualifications are needed. Currently, the city lacks such jobs, so students move elsewhere after graduation. A key question is how university, city and other stakeholders can co-operate to address this issue.

- Bring more focus in the city's economic/scientific profile. The city wants to develop (and be known) as city of science, but further focus seems necessary. The city's new "science harbour" area does not have a clear thematic or sectoral focus, and the same is true for some of the incubators. Some interviewees worry about that. The term "science port" may be too broad to signal excellence in a particular field, while this excellence is needed to attract companies or institutes that look for very specific knowledge and competences. A key challenge is how city and university can find each other to define well-defined excellence fields, and elaborate that in all sorts of policy measures.

- Start-ups/incubation. Some interviewees express concerns about the lack of focus in some incubators (no clear sectoral profile), and the quality of some of the tenants. Moreover, conditions in the "pre-incubation" stage -the stage of idea generation, before a company is actually founded- could be improved. The students we interviewed launched the idea to create a place in or near the campus where students can experiment with technologies, or discuss new business ventures, and where help/mentors are available to answer questions or provide support. This could help students in the pre-incubation stage to develop ideas for new (technology based) businesses. The current incubators do not cater for this. There is a professor of entrepreneurship in the university, but results (in terms of numbers of new firms founded) are not impressive. More active, hand-on support seems desirable.

- Attracting students. The city has some strong selling points: good quality education, a good student/professor ratio, cheap housing and living (an average rent of €220 for a large student room), a cheap tuition fee (€60 per semester at the university). Still, the poor image of Magdeburg is a barrier. A vice rector points at the persistent negative perception of people from Western Germany (as well as much of western Europe), who typically see Magdeburg as grey city even if they never were there. This underlines the need for smart city marketing. A proven recipe is to bring young people into the city in an early stage (before they decide where to study). Student interviewees stress that marketing is best done by students sending positive signals through social media channels.

- Integration of students in city life. Student life mainly takes place in and near the campus, a designated area north of the city centre. Some interviewees expressed the worry that many students do not come outside the campus and hardly mix into the city life; they arrive sundaynight, live and study in the campus, and leave again for the weekend (the same is true for many professors). This way, they do not contribute much to the cultural and city life of Magdeburg. To change that, spreading student housing could be a solution (it was already agreed not to build more student houses at the campus); also, some interviewees suggest to encourage students more to participate in the city. The students we interviewed complain about the lack of a concentrated, dense area for student life. There is one central student square (the Hasselbachplatz) but it is small, and interesting clubs and venues are spread all over the city. Also, in their view, events have to close too early. They indicate the city is slow and reactive towards initiatives taken by students; they would like to see a more flexible local government.

- For the city, a relevant issue is how to get students make more dissertations and theses about topics relevant for he city

- Improved representation of students in city politics. Politically, the students we interviewed do not feel represented by the city council; there are few people under 30, and for students, even the politically active ones, it is not easy to win influence in the regular political parties. Moreover, students are not consistently involved in urban planning or decision-making; rather, they are consulted after the plans are ready. They would like to have their voice hear stronger, and be involved in deeper discussions in earlier stages of decision-making.

- Within the university, students express the need to have more room for student unions and organisations. There is space scarcity, and always come last when rooms are allocated. Having a single building for all unions would help students to organise themselves better, and could be a catalyst for new ideas and initiatives.

6. Directions for the local support group and the local action plan

The local support groups will consist of the key decision makers in the university and the city, representatives from scientific institutes, and students.

The local support group in Magdeburg considers it as a major challenge for city&university to further deepen the relation, and together address the issues listed above. For now, the priority theme for most LSG members is how to enhance the role of the university as engine of the local and regional economy. Currently there is a lack of jobs for which an academic degree is needed. Many students leave the city after graduation. A key challenge for Magdeburg is to make the economy more knowledge-intensive. Suggested solutions are to focus more clearly on some (academic) strengths where links with companies are promising; another is to raise entrepreneurship and the number of startups. How to do this is a complex question, and Magdeburg hopes to learn from other cities in this respect.

During the project, the city hopes to get inspiration from the knowledge exchange with other cities, and use it as inputs for its own new growth strategy.

Interview partners:

Tom Assmann, Member of the Student council

Prof. Jumar, Head of Institute for Automation and Communication (IFAK)

Dr. Koch, Vice-Mayor, Responsible for culture, education and sport

Janine Lehmann, Team Science, Responsible for cooperation city - university

Dr. Klaus Puchta, Head of Team Science, Responsible for cooperation city – university

Prof. Pollmann, Rector, Otto-von-Guericke-University Magdeburg

Carlo Reifgerste, Member of the Student council

Prof. Strackeljan, Rector (from 1 October 2012), Otto-von-Guericke-University Magdeburg

Dr. Trümper, Mayor of Magdeburg

Prof. Weiß, Vice-Rector for Planning and Finance, Responsible for marketing and student recruitment, Otto-von-Guericke-University Magdeburg

10. TAMPERE

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Tampere, Finland. It opens with a short description of the city and its universities (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4) of city-university co-operation). Finally, it shortly describes the main challenges in this respect as identified during the interviews with key stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6). This chapter is based on a number of interviews held at Tampere University of Technology and the City of Tampere.

2. City

The city of Tampere (http://www.tampere.fi/english/) has about 210,000 inhabitants (region: 350,000), and is located at about 180 km from the capital Helsinki (1.5h by train). The city has strong industrial roots: For decades, textile and engineering industries were the main economic sectors. The production of these sectors declined since the 1970s, leaving many people unemployed. Since, the city has gradually developed a new identity and new economic engines: ICT, health related technology, and creative industries. During the 1990s, the city was hit by a severe economic crisis. From that period on, science and higher education emerged as new engines for growth. Intense relations developed between (industrial) companies in he region and the universities, and (industrial) companies grew ever more R&D intensive. In the 1990s, the booming ICT sector gave the city a strong image as important ICT city. Nokia expanded its activities (strongly R&D oriented), and the same goes for many other ICT firms. City and university co-operated intensely in many ways to realise the potential. The cities' first science park was jointly developed in the late 1980s, as a home for start-up tech firms. Over the years, all sorts of technology transfer initiatives and incubation centres were set up to commercialize knowledge and promote entrepreneurship. For headquarters, Helsinki is the natural spot in Finland, but Tampere managed nevertheless to attract (partial) headquarters that fit the knowledge-intensive character of the region. Examples are UPM, a paper manufacturer, and Kesko (retail).

Many industrial buildings –former factories- in the city centre were redeveloped, and now host offices, pubs, and cultural institutions. With its vibrant city centre, its economic dynamism and its nice natural surroundings, he city has become an attractive place: for students, it is the No 1 choice in Finland, and the city tops many national attractiveness rankings. Nevertheless, the unemployment rate is still relatively high (12%, against a national average of 7%). The city has a long tradition of innovative development programmes, in which city and universities always co-operated closely. The E-Tampere programme (early 2000s) helped to boost the ICT sector and develop digital services for citizens; "Creative Tampere" aimed at developing creative industries, seeking links with industrial sectors as well; the most recent programme is "open Tampere". Rather than supporting specific clusters (like biotech and ICT), the city adopts a more horizontal approach, supporting innovative activity across the board.

The city faces some significant challenges. One worry is the recent substantial lay-offs by Nokia, one of the main employers in the city. The firm shed about 700 people in Tampere, and the cities' tax

revenues declined: Due to its precarious situation, the company did not pay taxes to the city for the last 3 years, costing the city about €15 m per annum.

Some interviewees note that Nokia's downsizing may have healthy effects: it reduces the cities' dependence on one large player; it attracts new firms that want to hire the skilled people that are now available on the labour market (Intel and Accenture are said to have moved to Tampere partly for this reason). Some Nokia engineers returned to the university to work as a researcher, and some started their own firm.

Another challenge is related to changes within the engineering industry –still one of the cities' main pillars. The services component (maintenance, ICT, design, after sales care, turn-key solutions etc.) of industrial companies is growing, and new business models are emerging[35]. This requires closer contact with clients, who are often located all over the world. To remain competitive, industrial firms, including the smaller SMEs, increasingly need physical localised presence in many countries, and need to develop a service attitude. This requires new competences, and a change in company culture.

3. Universities

Tampere has 3 HEIs: the University of Tampere, Tampere University of Technology, and Tampere University of Applied Sciences.

The University of Tampere (UTA) has about 15,000 students and 2,100 employees. It is a broad university, covering the full range of academic disciplines except the technical ones. The university is independent, much of its funding comes from national ministries and funds. Its main premises are located in the city centre; also, it has a significant medical campus (the Kauppi campus) adjacent to the academic hospital. Click here for an overview of the campuses.

Tampere University of Technology (TUT), as its name suggests, is specialised in technical studies and research. The university has about 10,000 students and 2,000 employees (80% academic staff). TUT is strongly embedded in the local economy: there are many intense relations with local knowledge based industries[36], hence its nickname as the "university of industry". The university campus is located at a 15m drive from the city centre in the southeastern suburb of Hervantaa (well accessible by road and bus; a new tramline will further improve the connection). Roughly, half of the students (about 5,000) live at the campus. The area is also home to a large number of high tech companies and knowledge institutes. TUT has a budget of €148m (2011). 53% of TUT's budget comes from (central) government sources, and another substantial part from public research funds, but also it generates much income from industry contracts: in 2011, it raised €20m (13% of the income) by its business activities. Tampere University of Technology started operating in the form of a foundation on 1 January 2010, when the new Universities Act came into force. The reform of the Universities Act introduces new forms of fundraising to Finnish universities. A fundraising campaign of the TUT Foundation, managed to raise about €39m from private financiers. The national government has

[35] Typically, the service component represents 40-50% of the turnover of industrial firms
[36] For example, there is strong co-operation with Nokia Research Centre Tampere

matched the donations on a 5:2 basis, so in total, about € 137m was raised[37]. The profits of the fund are not earmarked, but allocated on an annual basis to finance innovative projects.

The University of Applied Sciences (TAMK) is the third HEI in the city. It offers a variety of Bachelor studies. It focuses on education rather than research. It has 10,000 students in seven different fields. The university is owned by the city, and the main campus is in the city. TAMK has campuses in three other towns: Ikaalinen, Mänttä-Vilppula and Virrat.

The three universities have their own fields and are rather complementary. In the field of biotech/medical technology, there is a co-operation between UT and TUT.

In Finland, higher education is free. Students pay no tuition fee, whether they come from Finland or abroad. For Finnish students, Tampere is the favourite student city. It is estimated that about 50% of the students in Tampere originate from other regions.

There are two main locations for student housing: The city centre (that is where the vast majority lives), and the campus of TUT (about 5000 students). Student housing is provided by two dedicated providers: TOAS (a foundation, renting out about 5,000 flats) and Pirka. Many students switch from the official student housing to the private market after their first year of study. Rents are about €10 per m2. There is no marked shortage of student housing in Tampere.

4. City-university co-operation: an overview

City and universities have a long and tradition of fruitful co-operation in Tampere. There is a deep recognition of mutual dependence from both sides, which is expressed in many ways and institutions. The personal relations between leaders of the city and the university are good. Most of the interviewees characterize the relations as “informal and flexible”: they key players find each other easily, solve problems together on an ad hoc basis if necessary, but also co-operate in more strategic ways (detailed below).

There are several “platforms” in place, where the decision makers meet each other in a structured way:

- Two to three times per year, the political top people meet with the leaders of the university to discuss a variety of issues.
- City and university have several “joint companies”: Tamlink (an interface between industry and university); the science park in Hervantaa (city is minority shareholder), and Finmedi, a medical incubator. Recently, science park Hermia (www.hermia.fi) and Tamlink merged.
- The city finances special chairs at the university; it has a budget of €520k, with which it can fund 2-3 chairs. The university can do proposals for this, but there should always be a benefit for the city.
- The city owns the University of Applied Sciences, and thus have a direct say over this university

[37] Only two universities have a fund like this, the other one is Aalto University in Helsinki; its fund is €700m large.

- Unipoli is a co-operation platform of the city and all the HEIs (set up in 2007). In this platform, the presidents of all institutions meet with the city leaders, and mainly discuss issues related to marketing.
- The vice president of TUT meets leaders of the city once per month, on average; they discuss a range of issues related to the joint companies, student affairs, city planning etc..

Many relevant decisions regarding university policy are taken by the national government in Helsinki. Therefore, the city actively lobbies there, in close consultation with the universities. Recently, it managed to attract a study line in education that would move from another university.

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Local/regional economy

- Tamlink was set up as a joint company of the city (25% of the shares) and TUT. It engages in research contracts with companies, and hires university researchers on a project basis to conduct the research. For some departments at TUT, Tamlink is an important source of revenue. Tamlink is specialised in applied, commercially relevant research, and has strong competences in Intellectual Property Management and management of European projects. Recently, science park Hermia (www.hermia.fi) and Tamlink merged; At current, they jointly offer all kinds of services for tech companies and start-ups, and engage in research projects with the industry. The premises of Hermia Science Park were sold to a private developer (Technopolis) specialised in running these types of knowledge locations.
- Protomo is an initiative that helps people/firms with innovative ideas to develop a prototype and test it. Also, it helps with legal and IP issues.
- Leaders from all Tampere's universities are in the board of the "open Tampere" programme.
- The Nokia Bridge Programme helps Nokia engineers to start a new firm
- The city provided funding for a chair at TUT on industrial services, to conduct research on the "servitization" of the industry (see section 2).
- University researchers are active in local and regional cluster structures that bring together industrial firms and research institutes (example: FIMA)
- There are several incubators where start-ups are helped (Talli, a general one, and Finmedi, specialised on biotech and medical technology)

Internationalization

Both university and city see internationalisation as important, and both sides collaborate to their mutual benefit. Through the Unipoli co-operation platform, the city developed services for foreign students, in close collaboration and consultation with the HEIs.

Student life

- The participation of students in the "formal" power structures of city and university is limited, but the city takes the students vey seriously (confirmed by several of our interviewees). There are frequent meetings (about 4 per year) to discuss current issues

between the leaders of the student unions[38] (representing the students), the city's student's officer (a special civil officer for student affairs), and the vice mayor (for education). A proposal by the students to analyse the "student impact" of every major city decision was turned down however.

- The Culture Department of the city is developing events that fit better with the demands of students and scientists in the city
- The city is an important platform for many student activities (activities of student unions, festivities etc.), and the city administration is accommodating and facilitating many of these activities; students appreciate this. For example, it is a tradition that students clean up the mess after the 1 May festivities.

Attractiveness/marketing

Through Unipoli, the three universities of Tampere work together to market themselves internationally. They have a common stand at international fairs.

It is a strategic goal of the city to attract events that support the economic strengths of the city; on many occasions, it works together with the universities in this field. The Tampere Convention Bureau is an important player in this respect.

Science & society

A number of initiatives are taken in this domain:

- Demola/new factory is an internationally recognized best practice programme that links student's research work to demands/research questions from companies and public organisations. It is a co-operation of all the HEIs in Tampere and the city. Demola collects research questions, topics or requests for product development from all sorts of organisations, and assembles multidisciplinary student teams that work on those problems. Students can gain 5 ECTS by participating. Demola runs on a small budget (€300k) but it is considered very successful and dynamic.
- Co-operation with museums: frequently there are co-operations between universities and museums/cultural institutions.
- On many occasions, the city uses/buys university expertise by hiring staff to consult them, conduct contract research, etc. Also, on a frequent basis, the city takes students as interns.

5. Key issues and challenges

The interviewees all sketch a positive picture about the current level and effectiveness of university-city co-operation. City and university are aware of each other's interdependence, and act accordingly in many fields. The universities' education and research activities contribute to social and economic dynamics of the region. In Tampere, there are no large new "flagship initiatives" regarding city-university co-operation. Several interview partners aired a "business as usual" approach during our conversations. Nevertheless, based on the interviews conducted for this baseline study, we identify

[38] All students are a member of the student union by default. Each university has its own union, and each union has a range of "sub branches". Some are linked to particular type of studies ('the guilds'), others fucus on particular sports, hobbies, cultural expressions etc.

the following key discussion issues and challenges regarding the co-operation between city and universities in Tampere:

- Internationalisation. The city attracts an increasing number of foreign students, and educates them for free. But few of them remain in the city after graduation. Some interviewees plea for a rethink, putting internationalisation not as a goal in itself but as a means to achieve strategic goals for Tampere. One suggestion is to bring foreign students into contact with local firms.
- Science in society. Some argue that the visibility of (and access to) science for the man in the street can be improved. There are initiatives in place, but some interviewees feel that Tampere could improve in this field and learn from other cities.
- Marketing. There is scope for intensifying and deepening the co-operation in the field of joint marketing, especially abroad.

Finally, some city officials hope for more collaboration between Tampere's universities. The current co-operation in bio/medtech is very successful and could be exemplary for what can be achieved in other fields. More co-operation can bring critical mass and international excellence exposure.

6. Directions for the local support group and the local action plan

The local support group in Tampere will consist of the key decision makers in the university and the city. Unipoli, as an existing platform/group where high level officials from city and all universities participate, could be a good group to build upon. The focus of the group naturally (though not necessarily) lies in the field of joint marketing and communication; An alternative direction is to elaborate more on the theme of science&society. Further discussions within the LSP must bring more clarification.

Interview partners:

Ms. Katja Ayres, Head of Communications and Media Relations, Tampere University of Technology

Mr. Antti Hiekkanen, representative of Student Union, Tampere University of Technology

Mr. Kari Kankaala, Director,Economic and Urban Development, City of Tampere

Mrs. Tuija Mannila, Planning Manager, City of Tampere

Prof. Miia Martinsuo, Tampere University of Technology

Prof. Petteri Multanen, Tampere University of Technology

Mr Olli-Poika Parviainen, Vice Mayor, City of Tampere

Markus Sjölund, Assistant director, Tampere Chamber of Commerce

Sources:

Tampere Region Economic Development Agency http://www.tredea.fi/front-page/

11. VARNA

1. Introduction

This chapter describes the state-of-the-art regarding city-university collaboration in the city of Varna, Bulgaria. It starts with short description of the city and its universities (sections 2 and 3). Next, it describes the main co-operations currently in place, based on the "flower" model (section 4). Finally, it shortly describes the main challenges in this respect as identified during the interviews with some of the main stakeholders (section 5), and summarizes the intended directions for the local support group and the local action plan (section 6). The contents are based on semi-structured face-to-face interviews with a number of stakeholders in Varna, as well as additional desk research.

2. City

The City of Varna has about 335.000 inhabitants. It is located at the Black Sea coast, and it is a major tourism resort. But also, it has 35,000 students.

Varna is one of the few growing cities in Bulgaria (the country as a whole faces population losses due to out migration and ageing). It attracts young people from municipalities in the region, who come to Varna for study or work.

In communist times, the city was dominated by heavy industries of various kinds, but much of it has not survived or was downsized drastically after the democratic change. Nowadays, the city's economy is dominated by the tourism sector. The city (and its region) is a popular holiday destination, and attracts a lot of (inter)national beach tourists in the summertime. The city has a sizeable maritime industry (port related industries, shipbuilding and ship repair). The local productive economy is dominated by branche plants, the city has very few headquarters. The regional economy offers relatively few jobs for the higher educated, which makes it difficult to keep students in the region after their graduation.

The city's historic city centre is gradually being upgraded again, after it was heavily neglected during communist times. Varna has an airport, with frequent connections to Sofia, the capital, and some international destinations. Also, there are maritime connections to cities in the Black Sea.

3. Universities

The city of Varna has 5 universities: one general university, offering a variety of disciplines (the Free University), and 4 specialised universities: The Technical University, the University of Economics, the Naval Academy, and the Medical University.

The *Free University* is a private university. It has about 12,000 students, and offers 19 Bachelor programmes, 50 Master's programmes, and 19 PhD programmes, in a wide variety of fields. The attractive campus is located at some 10 Km north of Varna, close to the coast. It was founded in the premises of a former communist research centre on political science. This university boasts a quality profile: As the only one in Bulgaria, it obtained certification of the EC committee of Culture and Education, and it meets a number of other relevant national and international quality standards. More information can be found at www.vfu.bg

The *Naval Academy* is a specialised state university, and it has about 3,000 students. Its origings go back to 1904. It offers bachelor and Master programmes in navigation and engineering, as well as postgraduate and professional training. It educates for military and civilian professions, and has an academic staff of about 135. The academy has strong links with the local maritime industry (practical training places for students, thesis work in companies, firms have an active role in the design and evaluation of academic programmes, etc.).

The *Technical University* was founded in 1962. Over the years, it has grown from a small institute, training engineers to satisfy the regional needs to a large Technical University of national significance, educating students in 21 specialties. Its campus is compact, and includes dormitories (1450 beds), canteens, and a sports complex.

The *Medical University* was founded in 1960. It has about 2,200 students, among which 400 foreigners. The university has faculties of Medicine, Public Health, Dental Medicine and Pharmacy as well as a Medical College and a department of Foreign Languages, Communications and Sports. (www.mu-varna.bg)

The *University of Economics* was founded in 1920 as a school of commerce, and now offers adademic courses and research in a number of disciplines in economics and business adminustration. (www.ue-varna.bg)

In Bulgaria, university policy is a national matter. Research and education are high on the policy agenda, and the country invests substantially in it. At the same time, there is an apparent lack of employment opportunities for higher educated, and many graduates move abroad to find a job. One national priority regarding university policy is to reduce the number of universities. Currently, there are 51 universities, and this number is considered too high.

Studying in Varna is relatively popular among students from neighbouring countries, in particular from Turkey, Serbia, Greece and Macedonia. They regard the Bulgarian academies as high standard; Moreover, rental costs of student flats are affordable (there are 25,000 empty flats in Varna, putting a downward pressure on prices), and the same goes for the tuition fees[39]. In turn, many Bulgarian students go to Western Europe to study there.

The student population is spread over the city. Some live at the dormitories[40] near the premises of each university, others rent accommodation somewhere in the city.

It is important to note that the City of Varna also has four independent research institutes, where applied research is conducted.

4. City-university co-operation: an overview

In Varna, the link between city and universities is complicated, the main reason being the large number of universities. There are a number of co-operations on an ad-hoc or thematic basis (some will be mentioned below) but so far, there is no structured or strategic dialogue on the highest level between the two sides. From the city side, there is the wish to have an unified university, rather than a number of specialised ones. At the moment the universities are independent to a great extent.

[39] In the medical school, tuition fees are around €800 for EU residents, and €4,000 for non-EU residents
[40] This is a cehap option; at Naval Acedemy, students pay €30 per month

The city taps from the expertise at the university: university professors (from various disciplines) play an active role in the 19 permanent public councils that advice the municipality. In the public council on mobility, students have a seat. Also, a professor of the university of technology was heading the group that designed a new strategic spatial plan. Personal relations between the key decision makers of city and universities are good; on many official university occasions, the Mayor shows up for a speech.

The city-university nexus covers a number of fields. Below is a list of the most important current collaboration activities in the domains as identified in the flower model:

Innovation/entrepreneurship/Local economy:

- The Naval Academy has an incubator.
- The Naval Academy also runs a technology transfer centre in the port, to connect Varna's maritime companies to the expertise of the academy; every year in February, it organises a meeting for the shipping industry, where deals are made on internships for the next year.

Student life

- The city has invested substantially in sports accommodations at some of the universities' premises (i.e. technical university, naval academy). It hopes to seduce them to adopt a more active lifestyle. The population shares the sports facilities as well.
- The Naval Academy's students in uniform frequently figure at official moments in the city. Also, graduation ceremony is done in the "week of the sea" event.

Science & society

In Varna, there are several interesting examples where students and/or professors work in projects with direct relevance for city policy. Some examples may illustrate this:

- For the city, the Naval Academy carried out a project to study the drainage system. Six teams of 3 cadets were formed, each team supervised by a commander. The project was a good learning exercise, it provided useful insights for the city, and it saved the city a lot of money (alternatively, it should have hired a private company).
- The Medical University contributed to the Environmental Health Plan of the city. A partnership was set up between city, university and some NGOs to realise this; from the medical university, about 10 staff were involved.
- The University of Technology participated in a project for the application of an intelligent energy-saving light programme.
- The Free University, department of Architecture & Urban Planning, organises an annual "plein air" competition, in which student teams from various countries have to work on concrete urban design challenges facing the city of Varna. In 2011, they developed a plan for restructuring the port, and in 2012 it is scheduled to develop ideas to create an artificial island in the Black Sea. The competition offers inspiring new ideas for new directions of the city.

5. Key issues and challenges

Based on the interviews conducted for this baseline study, the following key issues and challenges regarding the co-operation between city and universities in Varna can be identified:

- How to create a platform where universities are more united, as discussion partner for the city (in the absence of a unified university for the time being). For the city, speaking to so many universities is a daunting task. On a practical level there are a lot of examples of collaboration but on the strategic level more cooperation is preferred.
- How to create/attract jobs for which high qualifications are needed. Currently, such jobs are in short supply, so students move elsewhere after graduation (50% as an estimation), or take jobs (far) below their qualification level. A key question is how university, city and other stakeholders can co-operate to address this issue.
- Promoting the Varna as a student city. Currently, it is a "hidden treasure" that Varna has so many students and academic institutions. In fact, higher education is a major industry in the city, but this is not on the radar of local policymakers and outsiders. More common effort of city and universities would be needed to strengthen this profile and image, and benefit from it.
- Students express the need to have more collaboration between the student unions/ committees of the various universities. There are contacts (for instance, sports competitions among the various schools) but improvement is possible. One suggestion was to open up a former navy base (currently only in use by the Naval Academy for training, water sports and leisure) to students from other universities as well.
- Students indicate that most students do not actively participate in organised student life: they do their studies, have their leisure, but not much more. They see it as a challenge to have a more active student participation.
- Interviewees from The Naval Academy and the Free University express the wish to be even more involved in solving problems of the city; they see opportunities for the city to make more use of their research competences and their students. It is a challenge how to find the match between the problems/needs of the city and the universities competences and curriculum rhythm
- Attracting more foreign students is the ambition of many of the universities, but now they all operate separately; here is room for improvement and more collaboration.
- Engaging in international networks is a wish of many of our interviewees. The students we interviewed want contacts with student councils abroad; universities want to participate more in exchange programmes. EUniverCities could be a good platform for establishing contacts and set up new networks.

6. Directions for the local support group and the local action plan

The local support groups will consist of the key decision makers in the university and the city, representatives from scientific institutes, and students.

The local support group may help city&universities to further deepen their relation, and together address the issues and challenges listed above. The focus has to be decided yet. One option is to

focus on the theme how students and universities can participate in projects that are relevant for the city. Varna could host a special event on this theme, and it has something to show to the visitors.

During the project, the city hopes to get inspiration from the knowledge exchange with other cities, and use it as inputs for its own strategy.

Interview partners:

Prof. Hristo Bozov, Deputy Mayor (Public Health & Social Services), Municipality of Varna

Lyudmil Ikonomov, Executive Director, Foundation Institute for Ecological Modernisation

Prof. Kalin Kalinov, Vice Rector, Naval Academy

Prof. Rositsa Nikiforova, Head of Department Architecture and Urbanism, Free University of Varna

Dr. Petar Radushev, Director, International Co-operation, programs and Projects Directorate, City of Varna

Prof. Stancho Vekov, Dept. of Architecture, Free University of Varna

Dr. Alexander D. Slaev, Manager, A/E design, GIS

Natalia Nikolova, Assoc.Profesor PhD Decision Making and Risk Analysis, Naval Academy

Students and representatives of the Students' Council of the Naval Academy

Part III - Synthesis

1. Introduction

The EUniverCities Urbact-network unites 10 medium-sized European cities[41] that seek to improve the university-city nexus. By applying to the URBACT programme, they want to learn from each other's experiences and practices, and move forward as successful and inclusive knowledge cities.

City and university are "co-producers" of the urban knowledge society. The future of any university city depends to an increasing extent on the fruitful and sustainable co-operation between the two sides, in a number of fields. The city-university nexus has many layers, and is embedded in different national contexts (setting the scene for higher education and research).

In part I of this study (the state-of-the-art paper), we analyzed trends, practices and opportunities for collaboration, but also sketched recurrent tensions, dilemmas and problems in the relationship; Part II described the situation in each of the partners.

In this chapter, we "synthesise" the findings of the individual city reports, and derive conclusions and implications for the organisation of the activities in the network.

In section 2, we compare the cities with each other, and seek some common lines but also main differences. Section 3 unveils the main focal themes to be addressed during the project, and section 4 summarizes the main challenges of the 10 cities involved.

2. Key challenges and differences

Table 1 shows some key figures of the partner cities. The % of students varies between 8% (Magdeburg) and 34% (Lecce), but most cities have a rate of around 20%. Thus, the student population is substantial.

Table 1 Key figures

	Inhabitants	Students	% students
Aachen	250000	46300	19%
Aveiro	78500	15000	19%
Delft	98000	17250 (TU)	18%
Ghent	250000	67000	27%
Lecce	83000	28000	34%
Linkoping	150000	27300	18%
Lublin	349000	78000	22%
Magdeburg	230000	18000	8%
Tampere	210000	35000	17%
Varna	335000	35000	10%

The ten cities in the EUniverCities network share some important common features. All of them are medium sized cities (seen from their national context), and the institutes of higher education (HEIs) play a very significant role in city life. All of them share the ambition to take the university-city partnership a step further.

[41] Aachen, Aveiro, Delft, Ghent, Lecce, Linköping, Lublin, Magdeburg, Tampere, Varna

All universities face the challenge to increase external funding (through contract research for the industry, and participation in national & European research programmes). “Unconditional” university funding is decreased, and funding depends less on student numbers. This puts pressure on university to develop or intensify relations with companies, and in many of the partner cities we see a growing orientation of the university towards the local economy and society. For high-ranking universities (such as Aachen or Delft) this is much less the case: their orientation is mainly (inter)national.

In many countries, national governments are rewarding “excellence”, and increasingly provide extra financial incentives for universities that stand out in research or education (the German Exzellenz Programme is a prime example).

Internationalisation is an issue in many of the partner cities. It has various dimensions, including attracting international students and staff, providing English-language courses, encouraging local students to study abroad, or engaging in all sort of international networks and partnerships. The focus is different in each partner city. Some cities face a shrinking captive regional market for students, as a result of ageing population, and seek to attract international students to fill the void (Lublin, Magdeburg, Lecce). Many cities in the partnership are looking for ways to increasing their attractiveness as student city, and see important role for city-university partnership to realise this ambition.

In the Nordic countries (and in Belgium and The Netherlands as well), international students are more than welcome too, but here we found also a critical orientation: the question is raised whether it makes (economic) sense to educate foreign students, often for free, only to see them move back home after graduation. Swedish universities recently started to charge foreign Master students (numbers dropped dramatically since, in Linkoping), and the debate is how to integrate foreign students more firmly in the region. Furthermore, in many cities, international students are not deeply integrated in local student life. There is a shared ambition to change this.

In all cities, the university is regarded as an engine of the local economy. At the same time, many interviewed actors feel that the power of the engine is not fully being exploited. Most partners have ambitions to increase technology transfer, innovation, valorization, and science-based entrepreneurship, and want to learn from each other how to do this effectively. Retaining graduates is a widely shared ambition. In most partner cities, a large chunck of students move away after graduation, and the question is raised “how to retain our graduates”. Many different actions are undertaken, with some innovative approaches reaching out to companies in the wider region (Linkoping, Aachen). More in general, realizing regional cooperation in the 3helix (with neighbouring cities or regional/provincial authorities) is a key theme.

Differences

Despite these commonalities, there are many differences between the partner cities. First of all, the cities are located in 9 different countries, each with their own specific national policy contexts (science&education policy and other relevant policies) and academic traditions. Regarding their academic profile, some partner cities offer a wide variety of disciplines, others just a limited range; some have only one university, others have two or more, and there are large differences regarding their position in university rankings. Concerning urban geography and planning, in some cities, teaching and research is mainly concentrated in university campus areas (Aveiro, Delft, Linkoping,

Magdeburg); in others, university activities are spread over the city (Ghent, Lublin); some cities have mixed models (Aachen, Lecce, Tampere, Varna). This geographical make-up has an impact on the city-university relation, as we will discuss later.

Moreover, the partner cities and their regions vary in terms of their economic structure: some of the partner cities are in wealthy regions with very advanced industries and companies, that function as natural partners of the university, and more easily absorb university graduates (Tampere, Linkoping, Ghent, Aachen, Delft); others are located in regions with few high-tech firms or advanced services, making the connection more difficult (Aveiro, Lecce, Lublin, Magdeburg, Varna, to a varying degree). In other words: the "absorptive capacity" is much higher in advanced economies.

In terms of co-operation between city and university, we also observe a large variety of traditions and approaches, and each city faces its particular challenges. To some extent, these differences stem from the different development stages and contexts in which cities are. We observe differences in "collaboration cultures" (that are often typical for the nation in which the city is located). On the one hand, there are decentralised models, where cities and universities have relatively much autonomy (in the low countries, the Nordic countries, and Germany); here we see more elaborated types of co-operation. In more centralised traditions, collaboration seems to come less naturally.

Without disregarding the uniqueness of each city, is possible to distinguish between three "broad types" of cities in the EUniverCities partnership. Tentatively we propose the following groups: 1) "Established cities of learning", 2) "Academic newcomers" and 3) "Technology Specialists". Cities within each type share some important features and challenges, as will be elaborated below.

The first group are the **established cities of learning**: Ghent and Lublin belong in this group. In these cities, universities exists for a long time, and have been a defining part of the city for a very long period, and as a results, there is a very deep embedding of the university in all the aspects of urban life. They are widely known as typical "university cities", as their identity is defined by the university presence. Often, the university covers a broad range of academic fields. Schools and university buildings are scattered all over the city centre, with some eventual extensions at more suburban locations. Students also tend live in the centre of the city, rather than in large dormitories. Cultural life in these cities heavily depends on student audiences and students are typically very active as producers of culture as well. The city is a natural platform for all sorts of academic manifestations and activities.

These cities have faced (or still face) the challenge to accommodate steeply growing numbers of students, brought by the massification of higher education. There is increasing pressure on urban space: universities need to expand their infrastructures, but it's not always easy to do it in the city centre where so many other activities compete for space; providing housing for students can also be a problem; the "studentification" of some city neighbourhoods leads to tensions with other inhabitants. Public transport & logistics solutions are needed to accommodate growing numbers of students.

The second group of cities are the **Academic Newcomers**: Aveiro, Lecce, Linkoping, Magdeburg and Tampere and Lecce (to a lesser extent) are in this group. Typically, these cities did not have a university at all until the 1960s or 1970s. New universities or faculties were set up in these cities to accommodate the growing number of students, but also with a view to strengthen the local and

regional economy by providing companies with skilled graduates and sound research partners (This happened in Linkoping, where Saab was one of the initiators; in Magdeburg, the university "produced' engineers for the machine building industry). These university cities have some typical features. One is the dominant "Campus Model": universities were built according to the suburban campus model, outside the city centre, often in a Greenfield location, and typically of a mono-functional character (i.e. only education and research buildings, no dormitories and amenities). Second, as they were set up to service the local economy, the profile of these universities is "practice oriented" (and this is often how they present themselves). They are relatively well engaged with local firms, and some have developed very practically oriented educational approaches (i.e. Problem Based Learning in Linkoping). At the same time, in social and cultural terms, in these cities, city and university are less "naturally" intertwined than the first group. A "blue collar culture" is strongly present in some cities (typically, these cities have a rich industrial past, which remains part of the their identity), and this does not always match well with academia. The physical disconnection between city and campus exacerbates the distance. Students do not dominate street life, they are much less visible, and often live at the campus or near the campus rather than in the city centre. Student life largely takes place at the campus as well, and students feel attached more to the university (and the campus) than to the city.

These cities face some common challenges. One is to address the mental and physical distance between city and university (Aveiro, Linkoping). Cities want to profit more from the liveliness that students bring. In Linkoping, stakeholders realise that the 1960s/1970s campus concept no longer meets the needs of new generations of students and researchers; in the growing competition for "brains", cities need to create inspiring environments, defined as mixed, lively, and dynamic. The Vallastaden project is an attempt to realise that.

The third group of cities in our project are the **High Tech Specialists** (Aachen and Delft). Both cities are home to a world-class technology university, with a strong international orientation; research groups have industry relations with leading companies all over the world. Their very quality makes them attract a relatively high (and increasing) share of foreign students and PhDs from all over the world. As a consequence, these universities in these cities have an international rather than regional orientation. From the university perspective, the host city is mainly relevant as a "home", temporary or permanent, for their increasingly international workforce. A key challenge is to create an attractive international environment. The relation between city and university is framed by this orientation.

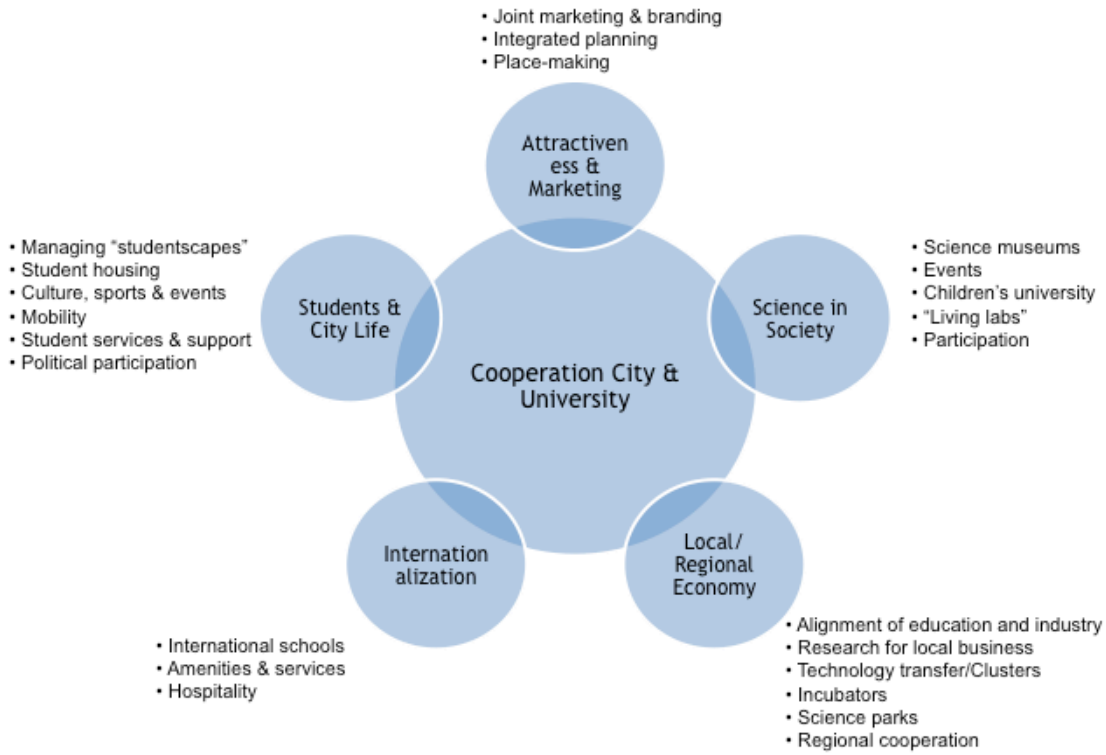
These cities face some other particular features, such as a strong overrepresentation of male students (who still dominate technical study fields), and a strong record of business start-ups (that seen to come more naturally in technical universities).

3. City-university partnership: towards a thematic Focus in the partnership

City-university collaboration can cover a lot of policy domains. In the partner profiles, we elaborated how cities and universities collaborate in practice, and where they have ambitions. We deployed the flower model as a way to distinguish between various types of co-operation.

Figure 1 gives an overview of the "domains" where co-operation currently takes place. As can be read from the partner profiles, each city has its particular strengths in parts of the "flower".

Figure 1 The flower model



In the 2.5 years period, we cannot claim to cover each and every aspect of the flower. Therefore, based on the baseline study and the challenges of the cities identified, we chose three core themes and one crosscutting theme.

1) Creating "living abs" where students/researchers help to solve real-life problems and challenges of actors in the urban society & economy. For this to materialise, organised matching structures are needed. Some cities in the partnership have ample experience in this field. In terms of the "flower model", this theme takes together elements of "science in society" and "students & City life".

2) Enhancing urban attractiveness for (international) students and knowledge workers. This theme includes collaboration between city and university with respect to internationalisation, place making, improving "urban hospitality" for students and knowledge workers, but also joint marketing. Thus, it takes together the topics of "internationalisation" and "attractiveness". But it may also include aspects of "students & city life", mainly with regard to the integration of foreign students.

3) Promoting urban economic development in a regional context. This includes the promotion of science-based entrepreneurship, technology transfer, and valorisation, not only in technical studies. The regional dimension (collaboration in the region with surrounding cities, villages and regional governments) is a key element in this theme.

4) Crosscutting theme of Governance: how to develop an effective partnership? How to get a partnership started, find a common agenda and make it work? How to align different interests and agenda's, how to deal with tensions and conflicts? This crosscutting topic is relevant for all cities, but particularly pressing for cities without a tradition of strategic city-university partnership.

4. Main focus and challenges in each city

In this section, we summarize the main focus and challenges for the years to come, as mentioned during the baseline visits made to each city. In each partner city, city and university will elaborate a focused local action plan as co-production of different urban stakeholders united in the local support group.

Aachen: The local support group in Aachen will consist of the key decision makers in the university and the city, representatives from scientific institutes, and students. The main challenge for city&university is to further deepen the relation in general, and specifically work on the issue of attractiveness and marketing: how to attract foreign students, how to position Aachen stronger as science and knowledge city; Moreover, it wants to adopt a more integrated approach, thinking through the relation with other policy fields, i.e. cultural policies, housing, transportation etc.

Aveiro: key challenges are: 1) Developing a more strategic platform/framework for city-university collaboration, 2) Working on the identity of Aveiro as city of students and knowledge, recognized and respected by citizens of Aveiro. Currently, academia and city are separate worlds, not only physically but also in many other respects; 3) Creating conditions to improve the position of Aveiro as "City of Innovation" within a knowledge economy city concept; 4) Enhancing the role of the city in sustaining and further developing the strategic partnership between the university and the region; 5) creating conditions for students to stay in Aveiro after the conclusion of their studies.

Delft: The local support group in Delft consists of the key decision makers in the university and the city, and representative(s) from the student community. The focus of the group covers 1) elaborating "hospitality", 2) structures for living labs, and 3) designing actions to integrate foreign students more into the city and mingle with national students. Further discussions within the LSG must bring more clarification on the focus of the peer review.

Ghent: The local support group in Ghent considers it as a major challenge for city&university to manage the growth of Ghent as city of students, research and innovation. Currently, there is a lack of space for research, for student housing, and for innovative business, and there is no reason to believe that the pressure will decrease in the (near) future. This problem cannot be solved in an integrated and sustainable way when each actor (university departments, housing corporations, city departments) try to solve their individual problems individually, or on an ad-hoc basis. It is strongly felt that a long-term shared vision is needed, taking into account the interrelationships between institutions and policy domains. During the EUniverCities project, the local support group –consisting of the key stakeholders- intends to elaborate a vision and a strategy how to manage growth and create space for innovation, research and education.

Lecce: From the cities' perspective, two themes are particularly important. The first is to increase spin-offs and create more business related to the university; the second is to enhance the "citizenship" of students and young people in general. For the university, the priority parts of the "flower" that could be developed in the Urbact project are marketing, attractiveness and internationalisation.

Linköping: The LSG has identified the following key challenges: 1) Attracting and retaining students: How to make Linköping a more attractive city for students; how to retain students?; 2) Research

commercialization and entrepreneurship, in particular in non-technology realms; 3) Placemaking, identity & marketing: Creating regional strength and profile (connected to the project LinköpingsBo2016); marketing the region together as Knowledge Region.

Lublin: A focal challenge is emerging, which can be summarized under the heading “making students work for the city”. The idea is to let Lublin students or researchers (from any university) gain practical experience by working on issues relevant for the city, as part of the curriculum (internships, thesis work, project work in teams), or as a way of doing voluntary work. This could benefit the urban society and enhance the quality of education (teaching students more practical skills). The Local Support groups considers to work towards building a platform or organisation that functions as an intermediary between relevant, practical questions and challenges of actors in the Lublin society (the city administration, schools, companies, or any other organisation), and universities on the other hand. Developing a platform like this could be a new step in the complex collaboration process between city and its many universities.

Magdeburg: The local support group in Magdeburg considers it as a major challenge to enhance the role of the university as engine of the local and regional economy. Currently there is a lack of jobs for which an academic degree is needed. Many students leave the city after graduation. A key challenge for Magdeburg is to make the economy more knowledge-intensive. Suggested solutions are to focus more clearly on some (academic) strengths where links with companies are promising; another is to raise entrepreneurship and the number of start-ups. How to do this is a complex question, and Magdeburg hopes to learn from other cities in this respect.

Tampere: The local support group in Tampere will consist of the key decision makers in the university and the city. Unipoli, as an existing platform/group where high level officials from city and all universities participate, could be a good group to build upon. The focus of the group naturally (though not necessarily) lies in the field of joint marketing and communication; An alternative direction is to elaborate more on the theme of science&society. Further discussions within the LSP must bring more clarification.

Varna: The local support group will consist of the key decision makers in the university and the city, representatives from scientific institutes, and students. The local support group may help city&universities to further deepen their relation, and together address the issues and challenges listed above. One option is to focus on the theme how students and universities can participate in projects that are relevant for the city. Varna could host a special event on this theme, and it has something to show to the visitors. During the project, the city hopes to get inspiration from the knowledge exchange with other cities, and use it as inputs for its own strategy.