LESSONS LEARNED FROM THE LÜNEBURG INNOVATION INCUBATOR

Prepared by: The Organisation for Economic Co-operation and Development (OECD)

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CASE STUDY REPORT

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This report is published under the responsibility of Stefan Kapferer, Deputy Secretary General of the OECD and Acting Director, Centre for Entrepreneurship, SMEs and Local Development.

UNIVERSITIES AS ENGINES OF INNOVATION-LED REGIONAL DEVELOPMENT

The Lüneburg Innovation Incubator set out to trigger transformational economic change in its region by providing a platform to attract and develop innovative people, firms, research projects, social capital, and infrastructures. And this is what the Lüneburg Innovation Incubator – and all the different actors involved in it – have achieved. A substantial group of regionally-engaged scientists, start-up companies and research-intensive inward investors have been attracted and embedded into a globally-connected and open research and learning environment.

Leuphana University, the Incubator's central player, is a mid-sized university. It has become known in Germany and beyond for its all-around innovative approach to higher education, which gives students and scientists a very high degree of autonomy and responsibility. In defining a strategic roadmap for the Incubator, Leuphana looked to its own strengths, notably in the area of sustainability studies, and responded to the region's aims to grow its digital and creative industries, to provide cleaner and more sustainable energy, and to meet the demands of an ageing population. The approach of building new niches instead of dwelling upon extant assets was a brave move which set the regional economy on a path of creation rather than one of dependency.

The Lüneburg Innovation Incubator is an excellent example of how public intervention to boost regional innovation through investment in university research, knowledge bridges and the absorptive capacity of firms is capable of stimulating economic growth and diversification given a sufficient scale and flexibility of support. It is an inspiring case study for national and local policy-makers and university leaders who seek to enhance the role of higher education institutions in innovation-led development.

It has been in this regard that Leuphana and the Organisation for Economic Co-operation and Development have had a shared interest in assessing the achievements of the Incubator to date and in drawing lessons of wide relevance. These lessons are presented in this report, which I hope you will enjoy.

Stefan Kapferer

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Acting Director of the Centre for Entrepreneurship, SMEs and Local Development

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This case study report was prepared by the Organisation for Economic Co-operation and Development. The authors are Louise Kempton, Senior Research Associate in the Centre for Urban and Regional Development Studies (CURDS) at the University of Newcastle upon Tyne, and Dr Andrea-Rosalinde Hofer, Economist in the Local Economic and Employment Programme (LEED) of the OECD. The work was supervised by Dr Jonathan Potter, Senior Economist in the OECD Centre for Entrepreneurship, SMEs and Local Development.

The OECD has undertaken a number of case studies of initiatives by higher education institutions and their government partners to strengthen the role of universities in local economic development in order to share information on what works and what needs to be improved. As part of this effort, the OECD, together with the European Commission, recently developed HEInnovate, a free online learning platform (www.heinnovate.eu) that helps universities to identify key opportunities and challenges in how they manage resources, interact with local partners, and nurture synergies between teaching, research and societal engagement. The HEInnovate guiding framework for the entrepreneurial and innovative university has formed the conceptual background for this case study. It also provides a method to further disseminate the case study results.

The authors would like to thank Leuphana University for the support in organising a study visit to Lüneburg from 11-14 May 2015 with almost 100 interviews. Special thanks are given to all those who were interviewed for their inputs and the excellent conversations that took place. Thanks are also given to the organisers of the study visit – that is, the Incubator Executive Management Team, including Holm Keller, Tim Kawalun, Thorsten Kurtz and Martina Bechter – as well as to the Regional Networking Team, with Peer Priewich and Antonieta Alcorta de Bronstein, and all others involved.

Jeffrey Briefel language edited this report, and Joseph Tixier designed the cover page. Both work at the OECD LEED Centre for Local Development in Trento, Italy.

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In light of growing numbers of students and graduates, higher education institutions – more than ever in their history – are being judged by their responses to the social and economic needs of society, or, in other words, by how they facilitate social mobility and wider access to higher education for disadvantaged groups, by their actions to enhance graduate employability and by their short- and long-term contributions to national economic growth and local development. Successful and sustainable responses require new ways of managing resources and more synergies between teaching, research, and 'third mission' activities. This is what entrepreneurial and innovative higher education institutions seek to achieve (HEInnovate, 2014).

An inspiring example is Leuphana University of Lüneburg. Over the last decade it has successfully embarked upon a profound process of change. Leuphana University is located in an economically-lagging region whose gross domestic product was in 2006 below the 75% -level of the European Union (Ministry of Economy, Labour and Transport, 2007).[1] Covering an area of 15 507 square kilometres and located between three large northern German agglomeration economies – Hamburg, Bremen and Hannover – the Lüneburg region is characterised by a high share of commuters and features of significant demographic change with areas of population increase (Harburg and Lüneburg) and decrease (Elb-Weser triangle, Uelzen and Lüchow-Dannenberg). The regional labour market suffers from a lower degree of high-skilled workers, productivity increase is approximately two-thirds lower, and unemployment rates are slightly higher than in the rest of Western Germany.

The reform process at Leuphana started in 2005 with the merger between the University of Lüneburg and the University of Applied Sciences of North-East Lower Saxony. Joining two different organisations – one with a focus on education science and teacher training and the other one outward-looking and interacting with the local economy – into a common institutional umbrella required strong leadership with dynamic capabilities that have permitted the new organisation to modify its ordinary capabilities to adapt to changes and to innovate itself.

The organisational challenge was accelerated by the above-mentioned external pressures and the very small cohort of 18-25 year-olds in the Lüneburg region. All this confronted Leuphana with a situation in which it had to design sustainable responses to the immediate risk of a decrease in the number of students, the need to increase the demand of high-skilled labour, and to create an interest as well as a matching offer for up-skilling the regional labour force.

The new University management built three main pillars to push and maintain the change process. These have been (i) a 360-degree reform of the approach to teaching and learning; (ii) the introduction of a three-fold system, which includes a College (Bachelor programmes), a Graduate School, which combines Master and Doctoral Programmes, and a Professional School with a well-defined range of further education offerings; and (iii) a large-scale approach to define and build a new leading role of the University in the regional innovation system.

[1] Hence, the region of Lüneburg was classified as one of the convergence regions in the European Union, eligible for specific public funding conditions. The region was in 2006 the only convergence region in Western Germany.

Core to the first pillar is a truly interdisciplinary study programme, the Leuphana Bachelor's Programme, introduced in 2007, that gives students the opportunity to build their individual study programmes choosing a major, two minors and a selection of complementary courses. This as well as the one-semester introductory programme to research methods and academic writing ("Leuphana Semester") can be considered as a radical innovation in the German higher education system.

Leuphana's change process to date has been successful as key figures on teaching and research (Box 1) show.

Box 1. Leuphana University of Lüneburg in figures, 2007-2014

	2007 *(approx.)*	**2014** *(approx.)*
Number of students	9348	9076
First semester students	1404	2339(1)
Professors(2)	179	184
Researchers/lecturers(3) other teaching staff	452	744
Administrative staff	315	465
University budget	67.003.062 €	113.927.648 €
Third-party funding	8.260.511 €	35.926.115 €(4)
Peer-reviewed publications	251	712(5)
Total publications	1 329	1 297

Notes: (1) The total number of first semester students in 2014 is composed of 1 536 in the College, 711 in the Graduate School, and 92 in the Professional School; (2) Professors include Leuphana regular professors, visiting professors and interim professors (*VerwalterIn einer Professur*); (3) No distinction is made between researchers and lecturers in German statistics; (4) As of 2013; (5) This includes 220 publications listed in the Web of Science.

The Leuphana University of Lüneburg has been the winner of the German Science Foundation's "Excellence Award of Small- and Medium-sized Universities" (several times in a row), the International Award for Innovative Practices in Higher Education by Arizona State University, and several German government awards (e.g., EXIST Entrepreneurial Universities, 365 Innovative Places).

Source: Leuphana University.

The Incubator has been central to Leuphana's efforts to establish itself as a major player in a nascent regional innovation system. Supported by the European Union and the state of Lower Saxony with a total investment volume of EUR 98 million, the Incubator has successfully triggered the formation of a nascent regional innovation system in an economically-lagging region with the emergence of new innovation players in various industry sectors mainly related to digital media, health, and sustainable energy. It has done this by supporting innovative business start-ups, attracting inward investors, bringing in active and regionally-engaged scientists, increasing the innovation capacity of existing local firms, creating new networks and infrastructure for knowledge sharing, and improving the reputation of Leuphana University as an engine of innovation-led regional development amongst researchers and companies.

About the report

This case study report presents the results of an assessment of the Lüneburg Innovation Incubator. It was prepared by the Organisation for Economic Co-operation and Development as part of its programme of work on entrepreneurial and innovative higher education institutions, HEInnovate.[2] The OECD Secretariat, in collaboration with CURDS at the University of Newcastle upon Tyne, undertook a study visit to Leuphana from 11 to 14 May 2015 and met with approximately 100 key stakeholders inside Leuphana and from key organisations collaborating with the University on the Incubator. In addition, background information was provided by the University, and official reports and other documents related to the planning and implementation of the Incubator were analysed.

The remainder of the report is organised in three parts: (i) project activities, (ii) key achievements, challenges and lessons, and (iii) conclusions.

LÜNEBURG INNOVATION INCUBATOR PROJECT ACTIVITIES

The Lüneburg Innovation Incubator was implemented from 2009 to 2015 with a total investment volume of EUR 98 million, co-financed by the European Regional Development Fund (ERDF) and the Federal State of Lower Saxony. The objective was to raise the innovation capacity and the competitiveness of the regional economy.

Based on a detailed analysis of the region's strengths, weaknesses, opportunities and threats, 45 projects were designed. Together they build a portfolio of five measures and 16 submeasures (Table 1).

Table 1. Measures and submeasures of the Incubator

Measure	Submeasure
1. Expansion of regional research capacity through attracting international scientists	1.1 Competence Tandems 1.2 Preparation activities and coordination of Competence Tandems 1.3 Cooperation and Development Projects with SMEs 1.4 Leuphana Graduate School 1.5 Case Studies 1.6 Regional Networking
2. Growth of employment opportunities in skilled services	2.1 Start-up Projects 2.2 Transfers and innovations assistants 2.3 E-Learning Content 2.4 Creation of management and advisory capacities 2.5 Projects with the creative economy
3. Development of advanced education and training	3.1 Leuphana College 3.2 Implementation of a Leuphana continuing education model
4. Project Management	4.1 Project coordination and administration
5. Investment in infrastructure	5.1 IKT Infrastructure – regional knowledge data base 5.2 Construction and research infrastructure

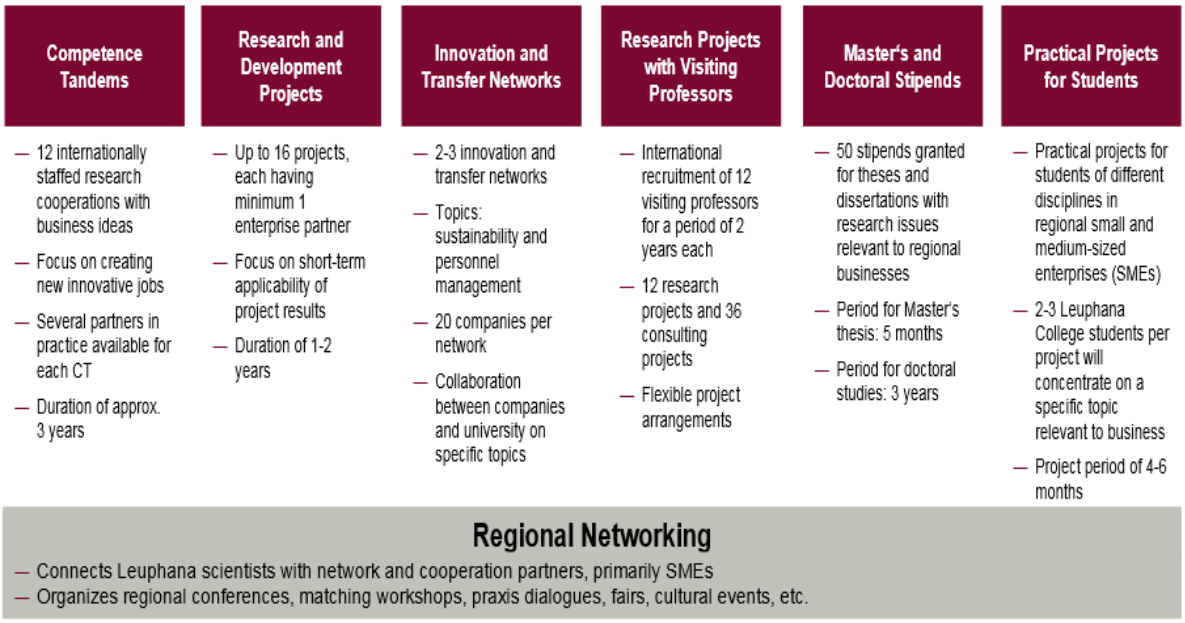
Source: Leuphana University.

[2] HEInnovate (www.heinnovate.eu) offers HEIs a free self-assessment tool with instant reporting and downloadable materials. HEInnovate is a tool to promote peer learning and organisational development. It was jointly developed by the EC and the OECD.

The activities implemented as part of the Incubator can be grouped in several activity areas: the so-called Competence Tandems, which are a dozen internationally-staffed research co-operations; research and development projects, focused on short-term applications of research results; innovation and transfer networks; visiting professors; scholarships for master and doctoral students; and a wide range of practical projects for students.

Different forms of regional networking, such as conferences, fairs, and cultural events built a common framework. Figure 1 provides an overview of the six activity areas and how they were organised.

Figure 1. Activity areas of the Lüneburg Innovation Incubator



Source: Leuphana University.

KEY IMPACTS, CHALLENGES AND LESSONS

Introduction

The Lüneburg Innovation Incubator has performed particularly strongly in terms of building knowledge networks through co-operative and knowledge transfer projects with SMEs. It has exceeded many of its initial targets in this area. Their final impacts will be more difficult to measure than "hard targets" such as jobs, start-ups, etc., which can be counted within a specific timeframe. What can already be observed, however, is a transformational change that involves building the capacity and creating the partnerships that will drive future innovation.

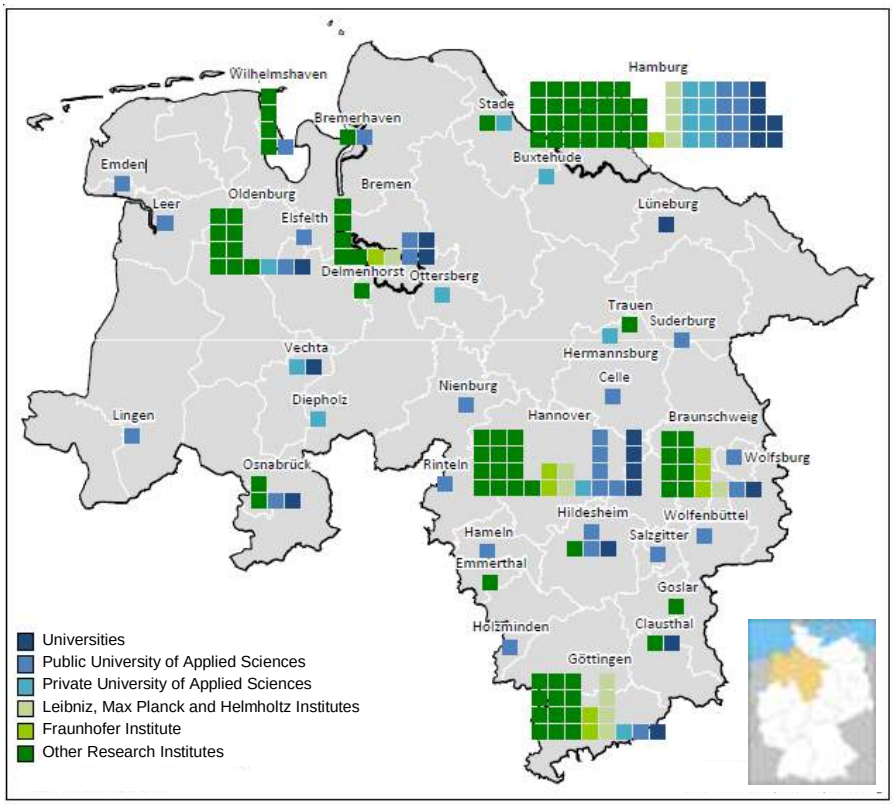
A useful starting point to assess the impact of the Lüneburg Innovation Incubator on the region is to explore it through a smart specialisation lens as this is a current approach to driving regional innovation which ascribes an enhanced role for universities compared to past approaches. According to Kempton et al. (2013) in a policy briefing for the EU Smart Specialisation Platform:

> "There is increasing prominence given to the role of universities beyond 'just' core functions of teaching and research by national, regional and local governments as well as supra-national bodies such as the European Commission and the OECD […]. In response, universities are rethinking their role and responsibilities, and engaging in learning and co-production of knowledge beyond the campus walls, resulting in discoveries which are useful beyond the academic community and that directly benefit the public. There is a growing recognition between universities and local/regional leaders of the potential for mutually beneficial relationships, and the active role of universities in terms of their contribution to local and regional development and innovation has gained a new salience in the context of [smart specialisation] as a future focus for European regional policy."

The smart specialisation framework advocates a "building on the past" approach in terms of working with and building upon the industrial and knowledge assets that already exist in a given region. However, in Lüneburg the existing industries – agriculture, logistics and construction – have been in decline since the Incubator's inception. Furthermore, given that it's the only university[3] in a region which overall can be described as "institutionally-thin" in terms of innovation actors (Figure 2), offering support to declining industries which were outside the University's key research areas and competencies was clearly not going to bring about the change needed to drive innovation and growth.

[3] Besides Leuphana, there are two research centres in Trauen and Stade, specialising in Cleantech and Engine Technology respectively, a local branch campus of the Ostfalia University of Applied Sciences in Suderburg, and private higher education institutions

Figure 2. Innovation Actors in Lower Saxony



Source: Adapted from CMA Institute für Regionalwirtschaft GmbH (2015).

Hence, Leuphana took an approach whereby it looked to its own strengths (notably in sustainability) and the strategy[4] of the wider region to grow its digital and creative industries, to fulfil the need for cleaner and more sustainable energy and to meet the increasing demands of an ageing population –these have been some of the thematic areas around which the project activities have been based. Taking this approach has been a brave move as it involved growing expertise in some areas where the University had either little track record or no reputation whatsoever (e.g., digital media).

In fact, recent revisions to the smart specialisation approach, including those made by the architect of the policy himself, Dominique Foray (2015), have acknowledged the need for a different approach in lagging or peripheral regions that may not have the assets to build on that core regions enjoy. According to Foray, "perhaps the radical founding of high-productivity industrial domains are absolutely necessary" in regions like this. Furthermore, the "building on the past" approach can lead (in some places) to innovation policies being hijacked by vested interests, or to a "lock-in" situation that would result in path dependency rather than path creation. Therefore, the case of the Lüneburg Innovation Incubator could well be seen as a trailblazer for other peripheral, institutionally-thin regions who are looking to their higher education institutions to support the development of their regional innovation systems.

[4] See: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/policy-document/lower-saxon-regional-innovation-strategy-smart-specialisation-ris3.

The Incubator can also be described as unique in terms of its project design and delivery in the ERDF context, where it is usually the case that projects of this size and scale involve heavy investment in infrastructure (science parks, labs, etc.).This is frequently critiqued as a "first build it and then new actors will come" approach, which risks failure if skills, research and absorptive capacities are underdeveloped or missing. The Incubator investments, however, were almost entirely focused on building knowledge and social and human capacity.

Reviewing the outcomes of the Incubator to date, five key areas of achievements can be analysed. In the following these are presented in terms of results, challenges faced and lessons. These lessons should not only be seen as relevant to Leuphana. They provide useful learning for other higher education institutions and for managing agents of local/regional development funds, who wish to enhance the role and impact of higher education institutions in innovation-led development.

1. Building knowledge capacity through the introduction of new innovation actors: the supply side

Institutional thinness, declining industries and the proximity to the economic agglomerations of Hamburg, Bremen and Hannover have been key development challenges at the Incubator's start. In defining a strategic roadmap for the project, Leuphana looked to its own strengths and the wider region's development aims. The approach of building new niches instead of dwelling upon the region's traditional industries set the Incubator's agenda on path creation instead of path dependency.

Leuphana successfully introduced new actors in the regional innovation system. Examples are the User Research Lab, a collaboration of a Leuphana spin-off with the British Broadcasting Corporation (BBC), the *Celler Netzwerk Gesunde Arbeit*, which brings together key employers, insurance companies and health care providers in the region, and the Thermal Battery, a compact heat-storage tank for unused waste heat in private households, for which a patent was filed and follow-up collaborative research is underway.

Results

The Lüneburg Innovation Incubator has overachieved on almost all key indicators related to the aim of introducing new innovation actors (Table 1). Only the target for "industrial location" has not yet been fully met. This can be explained by longer-than-expected lead times from product to market in some projects, and difficulty in identifying industrial partners in the Lüneburg region. In one case this led to the staff forming and spinning out their own business instead.

Table 2. Indicators on new innovation actors

Key Indicators	March 2015	Target Value	%
Number of created jobs (excluding project buildings and infrastructure)	998.2	901.4	111
Number of cooperative projects (Competence Tandems, R&D projects and Innovation Networks)	192	47	409
Number of start-ups (Competence Tandems)	12	10	120
Number of newly-settled firms in the region (Competence Tandems)	3	5	60
Participations in fairs and technical exhibitions (R&D projects and Innovation Networks)	50	24	208
Number of registered patents	3	--	
Number of created jobs in technology spin-offs and start-ups (Competence Tandems, R&D projects and Innovation Networks)	67	--	

Source: Leuphana University.

Impacts

One core element of the Incubator took the form of twelve so-called Competence Tandems, which each involved up to 30 scientists under a double leadership of a professor from Leuphana and an international scientist with an outstanding reputation in the area of research covered by the Competence Tandems. A team of specialised business-development agents supported the Competence Tandems to convert their research results into business ideas and to grow them to their full potential through spin-offs, start-ups and co-operation with existing enterprises in the region. With an approximate budget of EUR 2 million, these research-to-business projects saw Leuphana's critical mass of focused research topics grow internally. The Competence Tandems were designed to encourage (or even compel) multidisciplinary working. For example, the E-Mental Health project has involved expertise in digital, health care and health economics.

In some areas, such as digital media, the Incubator provided the University opportunities to utilise the professional and or personal networks of some of their staff for the benefit of the institution (Box 2).

Box 2. Building Capacity from the Bottom Up – The Centre for Digital Cultures (CDC)

The Centre for Digital Cultures provides a strong example of how the research capacity, critical mass, and reputation of the University have been successfully built up; prior to the Innovation Incubator the University had little or no reputation or capacity in this field. The CDC was initiated by four Competence Tandems in the digital media segment of the EU Major Project. It has become an umbrella structure for the new critical mass that is being built up at Leuphana around top issues such as hybrid publishing, gamification and the effects of digitalisation in everyday life. The global digital shift is reshaping cultural and creative industries. The CDC scrutinises this shift through transdisciplinary global research projects involving media, cultural and social studies, and various experimental practices.

The University has recently recruited six new professors, all of whom have significant international reputations. The Incubator funding was a catalyst for other funding – for example, EUR 3.3 million from the Volkswagen Foundation.

Source : Leuphana University; http://cdc.leuphana.com/about/

In terms of building the reputation of the University, making international experts part of the team has helped to promote the research of Leuphana in global networks while building, at the same time, capacity internally. An example is the research team working on a heat-storage tank known as the "Thermal Battery" (see also below), which now can be claimed as world class in three areas of research (corrosion, thermal energy and sustainable campus).

A number of measures have successfully contributed to building partnerships and knowledge networks on an interregional/international scale. For example, each of the Competence Tandems required some elements of global links and local partnerships. As well as collaborating with local researchers, visiting professors and researchers advised doctoral students, held seminars, and in several cases afforded opportunities for doctoral and post-doctoral researchers to make exchange visits.

A key performance criterion for the Competence Tandems was the number of spin-offs and start-ups created. The number of new enterprises created by Leuphana graduates, staff and alumni increased from 19 in 2009 (i.e., prior to the Incubator) to 29 in 2011 and 56 in 2014. Crucial to this was the Entrepreneurship Hub, which is the entrepreneurship centre at Leuphana that provides courses, coaching and start-up facilities for budding entrepreneurs. The Entrepreneurship Hub was established prior to the Incubator, but the latter has helped to drive forward its activities both in terms of

awareness raising, entrepreneurship education, and start-up support measures. The resultant availability of more resources has led to improved standards of coaching, new teaching formats, and also more courses (e.g., 39 curricular and 40 extracurricular courses in entrepreneurship).

Challenges

One of the great challenges in place-based initiatives is how to embed or root them in the area on a more long-term basis. This is less challenging when targeted industries are dependent upon physical characteristics of the region (e.g., natural resources, environmental conditions) or certain infrastructural advantages (e.g., a deep sea port, proximity to key markets). Population characteristics such as high skills and tacit knowledge can also create a certain amount of "stickiness" for otherwise-volatile economic activities, but these comparative advantages may erode or become obsolete over time.

Acknowledged research expertise in a particular field can have a magnetic effect for the region, particularly when it comes to innovative, research-intensive industries. To this end, the Lüneburg Innovation Incubator has been successful in building a critical mass of activity in the region around the targeted industries (digital media, sustainable energy, health). The question will be whether this can be sustained in the longer term once the funding ends.

The Incubator projects were successful in building "sticky knowledge" by combining of place-specific experience and tacit knowledge from local businesses with knowledge produced in the University and its research networks. In this, some of the Incubator projects – for example, the activities in digital media – heavily built upon knowledge inflow from outside the region, whereas others re-combined in new ways knowledge ascertained from studies conducted by Leuphana under the sustainability umbrella concept. One of these projects is EnERgioN, which has been researching the question of how to store power that is generated from renewable energy sources once the power net is saturated.[5] Given that Leuphana has no research strengths in engineering, the focus was on legal and economic issues and consumer behaviour in energy consumption, where there was existing expertise at Leuphana. With regard to the latter, the project has had considerable success in building a demonstrator model which can be used to educate citizens and businesses about energy transition. However, more time and expertise is needed to turn this model into a commercial product. It requires a culture change among utilities companies and SMEs, which often takes longer than anticipated.

There is evidence that individual researchers and research groups have utilised the Incubator as a sort of springboard for further activities and funding. However, other areas of activity seemed less confident in their respective abilities to maintain the necessary amount of critical mass at Leuphana once the Incubator funding is over, and had concerns of a "brain drain", which may occur if researchers leave due to not gaining enough third-party funding.

Learning

Funding of this scale has enabled Leuphana and all actors involved in the Lüneburg Innovation Incubator to be experimental and ambitious – to "let a thousand flowers bloom" and from that process to identify those which can grow and thrive. While some may voice concerns about a "brain drain", it

[5] Several utilities companies, network operators and consumers were part of the project and designed a virtual power plant that balance power generation, storage and consumption. To store temporary electricity surpluses, EnERgioN examined, amongst others, the Elbe Lateral canal in the pilot region Uelzen/Lüneburg, to assess to what extent the difference in elevation of a waterway at a canal lock can be used as regional energy storage.

is inevitable that after a large scale project (which also invested mostly in people) some personnel will move on once the funding ends. This should be a planned outcome and managed, for example, through training, coaching and mentoring to help individual scientists and research teams to progress their work and to look for new opportunities. It is also worth noting that some activities lend themselves to attracting partners and investments better than others, and for some individuals an entrepreneurial, opportunistic approach comes more naturally than for others.

Some products and services are easier to develop and market. They tend to be more "transactional" – with clear objectives, timescales, costs and benefits. When the focus is on more "transformational" outcomes (which have unclear objectives, timescales, etc., at the outset) more time and effort are needed. Changes in direction are also to be expected, as it is not known from the start where the end point will be. Three years, which was set as the maximum duration of Competence Tandems, may be too short in some cases to build, especially when starting from scratch, the necessary capacity, partnerships and industry links that are required for the activity to have realistic prospects for sustainability in the longer term. This will require some flexibility in project management, as demonstrated by the Incubator. Changing culture sustainability is notoriously difficult and time consuming. Projects which are expected to require some element of behaviour or culture change among beneficiaries need to factor this in from the outset, particularly in terms of time planning. This may also have implications for levels of investment, personnel and the organisation of projects.

Raising supply-side capacity – that is, a university's research capacity – may not in and of itself be sufficient to grow and retain innovative companies in the region, especially in industries where mobility is high. Projects should therefore consider simultaneously growing the demand side by introducing new actors into the innovation system in question, for example by supporting new firm formation and encouraging companies to relocate to the region. Incentives such as cheap/free access to research, investment opportunities, business accommodation, access to students, training, etc., can attract firms to relocate in geographic proximity to and/or to collaborate with other firms.

2. Fostering absorptive capacity through knowledge transfer and capacity building: the demand side

Through knowledge transfer and various capacity building activities, the Incubator has fostered the absorptive capacity of firms in the region. In addition to the above-mentioned Competence Tandems, nineteen R&D projects and several innovation networks involved around 600 firms through formal partnership agreements in knowledge exchange activities. Also, Leuphana scientists acted as expert facilitators in more than 80 thematic events, which applied highly innovative methods such as design thinking. More than 8 300 entrepreneurs, employees and local development actors participated in these events.

Through direct contacts with scientists and the development of background knowledge, these activities can be expected to have significantly raised the absorptive capacity of companies in the region, and to have lowered the commonly-present distance of small and traditional firms and other organisations in reverting to universities as knowledge and innovation partners. The University’s increasing numbers of joint applications for third-party funding, support services for regional firms, and collaborations with (high-)tech firms, who traditionally often seek collaborations with technical universities, are indicators for this.

The Incubator also nurtured the intensive collaboration of all key innovation actors in the region, such as the economic chambers[6], development agencies and others. The Lüneburg region has also become one of Germany's model regions in terms of innovation and industry development, according to the Federal Employment Agency, which monitors regional market dynamics.

Results

The Lüneburg Innovation Incubator has achieved almost all key indicators in this area, with a considerable number of above target achievements as well (Table 2). The number of projects with regional SMEs suggests a high level of interaction with businesses in the region, something which is critical to knowledge bridges and to raising the absorptive capacity of firms. Job creation – especially in terms of knowledge-intensive or technology-intensive jobs that require graduate degrees – is another indicator of growing absorptive capacity in SMEs. To date only a third of the target for innovative job creation has been achieved. However, it should be noted that there is often a lag from intervention to growth in turnover/profitability and from growth to new job creation. It would be useful to revisit this indicator in particular in 6-12 months.

Table 3. Indicators on absorption capacity

Key Indicators	March 2015	Target Value	%
Amount of innovative* jobs created in Lüneburg region(only Competence Tandems)	56	156	36
Knowledge transfer projects (only those located in Graduate and Professional school)	89	32	278
Co-operation projects with SME (only Regional Networking project)	70	50	140
Publications (only related to projects creative industries and bureaucracy reduction)	25	27	93
Number of SMEs involved in creative economy projects	370	296	125
Number of "Leuphana Tandems" (College Studies in Practice, Leuphana College)	102	90	113
Number of co-operations between "Leuphana Tandems" and regional SMEs (only Leuphana College)	72	60	120
Number of SMEs involved in Competence Tandems (R&D projects, Innovation Networks; creative economy, bureaucracy reduction projects)	711	296	240
Number of SMEs with signed partnership agreements	326	--	
Number of SMEs listed in Regional Knowledge Database	95	100	95
Number of new jobs created in SMEs involved in Competence Tandems, innovation networks and R&D projects	100.5	--	
Number of innovative jobs safeguarded in the region (Competence tandems, R&D projects)	308,.9	--	

Note: * The term "innovative jobs" refers to jobs created in the industry sectors of digital media, health, and sustainable energy.
Source: Leuphana University.

Impacts

Several of the interviewed visiting professors described how they transferred the knowledge from their previous research at other universities and research organisations into projects for students and businesses in the region. For example one professor was able to carry on with his earlier research and make progress on some new aspects, which would have not been easily possible in his previous job.

[6] The term "economic chambers" in this case includes both the Chambers of Commerce and Trade and the Chambers of Craft.

Several other professors have begun certain comparative studies about the particularities of the Lüneburg region and similar regions in other countries. All of these had or have clear connections with local business concerns. The physical presence of these researchers was crucial for firms to establish contacts.

A range of activities entailed close involvement of SMEs, particularly when it came to knowledge-transfer projects, student placements and networking events (Box 3). While it is notoriously difficult to measure changes in absorptive capacity, especially in the short term, there is anecdotal evidence from SMEs about the positive effects of their involvement in the project. For many local firms, their involvement in the Incubator projects was their first encounter with a university. One of the small business owners reported feeling "much more courageous" thanks to the support of the network with which she was involved. This interaction has led in turn to the development of a EUR 4 million project on biodiversity. A mid-sized company reported that Leuphana had helped them fill in certain knowledge gaps so that they could make the changes needed for them to compete in a global market. A micro-entrepreneur, holding a patent in a specific cooling technology, talked about support from the University which is helping to improve his business, saying he would not have had the time to do this alone.

Box 3. Building Absorptive Capacity among SMEs – Networks and Knowledge Transfer

The *Innovationsverbund Nachhaltiger Mittelstand* INaMi was one of the innovation networks in the Incubator. It brought together SMEs from different sectors in an expert-moderated knowledge platform that provided access to research findings and generated practice-oriented knowledge. The network includes 74 SMEs from nine districts in the region and from more than 20 different sectors – e.g., food manufacturing, real estate, retailers, furniture manufacturing, architects, goldsmiths, stonecutters, elderly-care homes, mobility providers, industry laundry services, etc. The key issues these firms deal with on a daily basis are how to increase sales with sustainability-oriented products and services, and how to build management systems and an organisational culture that raises awareness and motivates employees.

Scientists from Leuphana provided input knowledge in the form of short discussion papers for one-day conferences and regular working-group meetings (during the evenings and weekends), facilitated debates, and prepared documentary information, such as guidelines, checklists and handbooks. In total, INaMi organised 14 full-day events and 60 meetings for 17 working groups. Ten guidelines, 19 scientific publications and 60 news items were produced. The creation of 18.5 newly-created jobs and 18 safeguarded jobs are also some results of the activities undertaken by the network.

Source : Interviews with INaMI members and Leuphana University staff.

Challenges

The Incubator was a highly complex project which involved high levels of management and administration. It is a testament to the vision, leadership and management of the Incubator that it has managed to deliver without creating any sort of rigid, inflexible or heavy-handed bureaucracy. Building a flexible and robust partnership between University actors, government agencies of Lower Saxony, the European Commission, and key innovation stakeholders in the region has been a challenging task for the Incubator Management, which was successfully managed by a young and dedicated professional team.

There have been some inevitable cases of gaps in as well as overlaps or repetitions of activities. For example, the tourism office in Celle is planning to create a pathway for Celle to become the first "sustainable city" in Lower Saxony, but they were not aware of the INaMi network or some of the other sustainability initiatives at the University. Likewise, the project Leuphana Business Connect was

not aware of other research projects which have led to the development of tools for business efficiency and conflict resolution for craft businesses.

Another area to consider is how to continue to support SMEs in the region in a sustainable way. Many of the activities aimed at SMEs were free at the point of delivery. There are many studies and research papers that would argue that SMEs must make some contribution, even if it is just symbolic or nominal in nature. Furthermore, issues of displacement should be considered. Are these "free" services pushing commercial operators out of the market or are these activities that address a gap in the regional innovation system?

Businesses and other public and civil actors can be highly sceptical about working with universities, fearing an "ivory tower" culture and that academics are not operating in the real world. Building trust and social capital takes time, and is usually initiated by a relationship between individuals. Many of the visiting professors have built relationships with businesses and other organisations in the region. However, at some point these relationships need to be institutionalised, so that they do not depend solely upon the presence or availability of specific people.

The Lüneburg Innovation Incubator was a highly ambitious project for a small university to take on. It has seen Leuphana "punch above its weight" in a range of areas. While this approach has yielded impressive results so far, the management of stakeholder expectations (especially external stakeholders) needs to be considered. This requires succession planning to be in place for when people or projects leave or close down. The already-demonstrated strong partnership with the economic chambers in the region will be crucial for this as will the already-agreed-upon continuation of the knowledge transfer office at Leuphana.

Learning

Complex projects should make great use of internal events and methods like design thinking, sandpits, action learning, etc., to create a forum for different areas of activity so as to meet and share ideas. While much importance is often attributed to the need to network with external stakeholders in the region and beyond, building internal networks should not be overlooked, either. Projects could even go as far as to recruit an internal networker/matchmaker as a way of keeping track of what is happening and where there are potential synergies, or at least to explore social media tools and other digital interactive platforms to find ways to connect people and activities. The ultimate objective should be to ensure that "the whole is greater than the sum of the parts."

Identifying and encouraging synergies in complex projects like this can be a challenge. Creating "shell" or umbrella structures – such as the above-mentioned Centre for Digital Cultures (see Box 2) – for projects to be "housed" is one way of providing a framework and building coherence.

The building of certain transitions will be important for the continuation of the knowledge exchange activities with businesses. It would seem that an apparently obvious solution to the longer-term sustainability of business services would be to get SMEs to pay a fee. However, introducing a charging system can be extremely difficult when businesses have been accustomed to making use of the results of projects they had been involved in at no additional costs in cases wherein they had been actively involved. One option would be to introduce membership fees and symbolic payments. Another option would be to provide them with a limited number of vouchers which would offer them some direction when they go about choosing how to spend their money. Over time, when it is established that project outcomes are valued and have had an impact, then these payments could be gradually increased. To trigger such development, it might be useful to identify new sponsors (e.g., the economic chambers) for the initial period to facilitate transitioning to fee-based services.

In terms of ensuring consistency and continuity with external stakeholders, taking a corporate-style, client-management approach can be a useful way to ensure that relationships are not dependent upon individuals but institutionally embedded. Networking events, showcases, award ceremonies, etc., are all useful ways to build up the sense of institutional rather than individual relationships.

3. Nurturing human and social capital through the creation of new, connected learning environments

Leuphana University has undertaken an all-around innovative approach to teaching and learning which gives learners a very high degree of autonomy and responsibility. Small groups, intensive collaboration of students in which educators act as facilitators, various opportunities to get involved in research, and Leuphana's third mission activities are all characteristics of a holistic approach that enhances experiential learning. Study programmes are organised in three schools: a College, which offers bachelor's degree programmes, a Graduate School with master and doctoral programmes, and a Professional School with degree and certificate courses, all of which follow a blended learning approach that provides flexibility for learners to combine work, private life and studies.

Box 4. Building New Learning Environments – The Leuphana Approach

The *Leuphana Semester* is an intensive course programme during the first semester which builds a strong basis in research methods and academic writing. This is complemented throughout the study programmes with interdisciplinary activities, which are open to all students. Examples are the *Schreibwerkstatt* (academic writing workshop), where students learn in small teams how to structure texts and communicate to different publics, and what is called the "College Study Reflection", which includes more than 130 mentors, who advice students students as they go about choosing majors, minors and complementary courses. Students are assisted right from the start to build their capabilities of identifying, formulating and pursuing research questions of global relevance. Key to this is the *Startwoche*, a one-week intensive programme for all first-year students (approximately 2 000) with a suite of different course formats, pedagogies and high-level speakers from governments, industries and civil-society organisations around the world. The 2014 edition dealt with the local and global opportunities and challenges of demographic change. In the final idea competition, a study visit to Jordan was one of the prizes for the winning student teams.

Source : Interviews with Leuphana University staff.

As one of the 33 higher education institutions in Germany7 which currently have all of their study programmes accredited, Leuphana is promoted by the Lower Saxony government as a role model to achieve the Bologna targets.

Results

One of the best indicators of increased human capital is the proportion of graduates in the regional workforce. This can only be measured ex-post. In the meantime, there are proxy indicators for human capital development, namely the number and types of learning opportunities. Most of the targets set for these indicators have been overachieved. Only the amount of degrees awarded fell slightly short of its target. This can be explained by the disestablishment of Leuphana's "Campus Suderburg" in 2009, which resulted in an almost 50% drop in the number of bachelor's students, who make up the greatest share of the student body. Nevertheless, since then the number of bachelor's students has continuously increased, as have master's and doctoral students and students of professional programmes. In the winter semester 2014/15, Leuphana had 9 076 students.

[7] Currently, 399 higher education institutions are registered in the Higher Education Compass, which is curated by the German Rectors' Conference and includes both public and private higher education providers in Germany.

One way of demonstrating the building of social capital is through networking events. Here, Leuphana has well exceeded the Incubator target.

Table 4. Indicators on the value of new learning environments

Key Indicators	Status March 2015	Target Value	%
Number of Leuphana graduates employed in the Lüneburg region (only Graduate and Professional schools)		Ex-post	
Number of teaching concepts (Case Studies, E-learning)	78	62	125
Number of degrees issued (College, Graduate and Professional schools)	6 555	6 746	97
Number of networking events (Regional networking)	56	33	170
Number of further education activities offered (Graduate and Professional schools)	64	38	168

Source: Leuphana University.

Impacts

Since the start of the Lüneburg Innovation Incubator in 2009, Leuphana has achieved a much higher visibility in the region. Scientists and students are outward looking and engage with SMEs in the region in various knowledge exchange activities, which combine joint research with further education. A main challenge for Leuphana has been the low absorption of high-skilled labour in the form of hired graduates by SMEs in the region. In order to better understand the needs of firms, a training needs assessment, with a representative firm sample, was undertaken in preparation of the Incubator project proposal. Results showed a high demand for collaboration with Leuphana in areas such as marketing, human resource management, further education, and innovation management. In response to this, Leuphana developed a wide range of tailored activities in continuous professional development and continuing education.

Prior to the Incubator, the Professional School had three staff members, offering six programmes for less than 300 students, only few of whom were from the region. Today, the Professional School is fully self-sustainable. It has nine employees, offers 36 courses, and student numbers have increased by 300%. All further education programmes are tailored to meet current demands and are preceded by scoping and feasibility studies. The Professional School is closely linked with the Digital School, which offers a wide range of online courses, several of which are white-label courses that Leuphana develops for other providers; one such course has 17 200 students and is offered by the Goethe Institute.

Learning

In summary, it can be said that the Incubator has significantly supported the educational reform process undertaken by Leuphana, which in many aspects can be considered unique in Germany and neighbouring countries. The Incubator provided Leuphana with the unique opportunity to build an international and transdisciplinary network around current and future key research questions. In the period 2009-2015, more than 550 scientists were recruited, many of whom came from the Top 100 Universities in the Times Higher Education ranking.

These new networks are a major contribution to Leuphana's three-fold focus as a "humanistic, sustainable, action-oriented" higher education institution. The networks built transdisciplinary bridges that laid the foundation for the combining of the University's focus on humanities and social sciences with engineering studies and key, current research in natural sciences.

4. Placemaking through infrastructure development and creating a focus on Lüneburg

Results

The Incubator created several opportunities for Leuphana to become a "place maker" for the Lüneburg region. Crucial to this – because of its magnitude and cultural relevance – is the new central building, designed by internationally-acclaimed architect Daniel Libeskind. Expected to open in 2016, it will have a total usable space of 13 000 square meters and an auditorium maximum for 1 200 visitors. The Incubator funding went into the creation of a permanent research infrastructure with more than 3 000 square meters and 222 offices and research spaces. Other key results of the Lüneburg Innovation Incubator include key activities in the international art scene and regular international conferences in Leuphana's main research areas.

Impacts

The Incubator funding as leverage has enabled the commissioning of this new campus building, which has brought much attention to the University and Lüneburg. It is fair to say that opinion – of the public, on campus, and in the press – has been divided, and there were several hold ups in the planning process. However, the project is now back on track and the opening of the building is expected to take place in 2016.

Box 5. Leuphana as a "Place Maker" – The New Campus Building

Leuphana University is located in an area formerly used as barracks by the German Wehrmacht. The design by Daniel Libeskind, who is teaching at Leuphana as a visiting professor, represents a distinct architectural counterpoint. Libeskind engaged in an intense exchange of ideas with students to ensure that the wishes and ideas expressed by the most amount of users were taken into account in the building's design. Existing structures are broken up to reflect the free spirit and diversity of scholarship, as well as to symbolize openness, transparency, and democratic commitment.

The central building will "open up new opportunities for interaction between disciplines, University lecturers, social areas, presentation rooms, and areas of contemplation," said Libeskind during the foundation stone laying ceremony.

The new eight-story central building, including an innovation center, a research center, a seminar center, student facilities, and a café as well as modern multi-functional and exhibition spaces, also brings together different parts of the campus that had previously been separate. At the same time, the auditorium maximum of the central building will serve as a conference facility for the City of Lüneburg; it thereby reflects the important role of the University in public life. The new Campus of Leuphana will be carbon-neutral.

Source : Interviews with Leuphana University staff.

Being close to Hamburg, Lüneburg has always been present on the international art scene. It is the result of projects such as KIM, the *Kunstraum Leuphana*, and the Daniel Frese prize that a new spotlight has been put on Lüneburg and the wider region. The ambition from the start was to create links, networks and dialogues between regional and international artists. This has been done by promoting the prize through international media and using people from the art world as judges, which gave the award further credibility. The success of the initiatives to date has led the City to decide to continue offering the prize.

The Digital Games Research Association (DiGRA) is a non-profit, international research association whose work focuses on digital games and associated activities. It is a leading academic organisation in the field of digital games. DiGRA organises a major conference each year. Past

conferences have taken place in Tokyo, London, Stockholm and Vancouver. It is a testament to the growing reputation of Leuphana as an international hub of excellence in digital media that Lüneburg was chosen as the location for the 2015 annual conference.

Challenges

Certain placemaking activities, particularly those which involve creating new infrastructure and attempts to create "iconic" structures, will almost inevitably lead to tensions and disagreements arising from conflicting vested interests, perhaps even to the point of controversy. Regardless of the adage that "there is no such thing as bad publicity", placemaking activities can be undermined when the controversy becomes the story itself.

Events, exhibitions and conferences can be important tools in placemaking, but ensuring their legacy or sustainability can be more challenging once their funding source has closed. Physical infrastructure and buildings, on the other hand, have an inherent legacy, of course, as they become part of the built environment of the city or region.

Learning

Involving stakeholders in the planning and design process for new buildings can help to alleviate potential areas of discord later on. Leuphana created an exhibition space for the public, schools, etc., to learn about the new Campus building through display models, videos, etc. There have also been on-site events such as organised tours. A further initiative could be to bring the exhibition out into the city, such as in the town hall, and to engage as many people as possible in the discourse.

Events such as conferences and high profile awards can be excellent ways to build the reputation of the place as a centre of expertise in certain areas. These also have considerable benefits to the local economy in terms of bringing in visitors who spend money in local businesses. These effects can endure through identification of new sponsors and growing partnerships and networks.

5. Building the University's own capacity and international reputation

Digital Media has been the focus area of the Incubator where Leuphana had no prior existing reputation or capacity, but key people in the University had as contacts star scientists and gatekeepers. Building on these contacts through the Competence Tandems, visiting professors and scholarships for talented students, Leuphana has created a robust research capacity and a critical mass from scratch. A main result of this is the above-mentioned (Box 2) Centre for Digital Cultures (CDC), which generates international, cutting-edge research which to date has raised funds amounting to around EUR 3.3 million from the Volkswagen Foundation and the German Research Foundation.

Implementing such a complex project as the Incubator has built Leuphana's own capacity and reputation in handling major funding applications. Leuphana is now seen as a centre of excellence because of the experience and success of this project. Because of this, Leuphana has been asked to lead KENUP, a major new investment proposal involving more than 70 high-profile, international partners (Box 6).

Box 6. Building its Own Reputation and Capacity as an Institution – KENUP

Led by Leuphana, KENUP is an Investment Platform active in Europe's healthcare industries. It works alongside the new European Fund for Strategic Investments (EFSI) – the key part of the so-called "Juncker Plan" - and in support of the existing European Investment Bank's well-rounded portfolio of investment instruments. By optimising the regulatory, financial and societal investment environments, KENUP will realise investments in healthcare ventures of all stages that would normally not materialise in Europe. Its aim is to advance a small number of highly relevant target industries to the level of global market leadership. In a portfolio approach, KENUP focuses on four highly relevant target industries: immunisation for adults, personalised medicine, predictive health, and value-based healthcare.

The KENUP Partnership consists of more than 70 global innovation leaders spread across 20 countries in Europe, the United States, the United Arab Emirates and China. It includes the governments of Malta and Croatia, the World Health Organisation (WHO), Israel's bold National Innovation Program in Personalized Medicine, aspirational programmes from Jordan and Palestine, some of the world's best universities and research institutions – including the Program on the Global Demography of Aging at Harvard University, MIT Media Lab, the Weizmann Institute, Karolinska Institutet Holding AB and the University of Zurich – several civil society organisations and 24 corporations.

Source : Leuphana University.

Results

Table 5. Indicators on international reputation and university capacity

Key Indicators	**Status March 2015**	**Target Value**	**%**
Amount of third-party funding	12.542.722 EUR	--	
Number of third-party funding applications	68	55	124
Volume of third-party funding applied for by Incubator projects	> EUR 40 million*	--	
Number of international peer-reviewed publications	222	--	
Number of further scientific publications	215	--	
Number of scientists recruited (e.g., visiting professors, Competence Tandems)	550	--	

* In addition, the KENUP consortium, led by Leuphana, is continuously preparing major funding and investment proposals worth more than EUR 1 billion (see Box 6 above).

Source: Leuphana University.

Impacts

The visiting professors programme has made a significant contribution to the process of growing local knowledge and expertise through the development of links and networks beyond the region. It can be described as a "revolving door" for intellectual capital, fresh ideas, networks and building research capacity in the University. For example, the Tourism Office in Celle connected with a visiting Professor from Japan, who is now helping to promote the area as a destination for Japanese tourists.

As regards further building up Leuphana's international reputation in research, interviewees from several of the Competence Tandems described how the funding from the Incubator has enabled them to build sufficient capacity for their research to now be seen as "world class" in several areas. The fact that the most recent advertisement for visiting professors resulted in 40 applications, compared to just

a handful in the early stages of the Incubator, further indicates the growing international profile of Leuphana.

The capacity and resources created by the Incubator has allowed staff to seek additional or future funding for their activities. The Incubator can therefore been seen to have acted as a lever for other sources of third-party funding for the University. From 2011 to 2014, third-party funding significantly increased as a result of the Incubator's activities; it exceeded EUR 12.5 million.

The scale and nature of the funding allowed staff and teams the space to "experiment around the edges" in exploring new relationships and activities. This institutional slack (c.f. Cyert and March, 1963/1992), as described also by Goddard and Vallance (2013), can be at the root of future innovation. Scientists also reported capacity development on an individual level, describing how they were "indoctrinated by the Incubator" to engage with private sector actors, getting involved in intellectual property development, negotiating with investors, etc., all of which have been "totally new experiences". This has helped them to seek and secure alternative funding sources, resulting in activities that will be sustained after the Incubator funding ends.

The Incubator has also resulted in the development of two profit-making centres for Leuphana: the above-mentioned Professional School and the Digital School. Not only has the creation of the Digital School already resulted in the creation of at least one successful start-up, but it has also served to position Leuphana as a thought leader in the field of e-learning.

The Incubator has also helped to underpin the post-merger transition process in Leuphana. Visiting professors, scholarship holders and project staff were explicitly recruited with the aim of bringing in new ideas and approaches from other places. The recruitment of over 600 new staff (mostly scientists), during the duration of the project, has helped to create a new culture within Leuphana.

Challenges and learning

While the "revolving door" policy of attracting outside talent for short periods can act as a stimulus for staff and research in the University, it can also raise issues of continuity. How is the handover of contacts and networks managed when these people depart? Furthermore, how can the new capacity built around individuals be maintained once they have left?

The Innovation Incubator significantly built up the capacity and reputation of the University, despite the development challenges posed by the nature of the region (with its institutional thinness, declining industries, etc.). It can be argued that the innovation ecosystem was so fragmented and fragile to the point that the University had to take a lead and set the future agenda. This can be a very important lesson for other regions, especially peripheral regions.

Whilst significant third-party funding of this scale can risk both becoming a distraction to the university's core missions of teaching and research as well as turning the university into just another delivery agent for locally-bounded development programmes, the Lüneburg Innovation Incubator is an excellent example of how the societal engagement of a university can significantly enrich teaching and research.

CONCLUSIONS

Overall, the Lüneburg Innovation Incubator has proved and continues to prove itself as a pioneering and inspiring example of how a university can successfully be mobilised to support innovation, local development and smart specialisation in an economically lagging region. In the process, its experience highlights some difficult issues that can arise, as is to be expected in such a radical and large scale project.

While Foray (2015) supports the approach of the "radical founding" of new industries in peripheral or low innovating regions, he goes on to warn that if efforts are orientated solely on the development of supply-side investments in science and technology these are likely to result in "white elephants" unless they are complemented with activities that build bridges between university research and the needs and capacities of firms. It is important to notice that the latter are not static but reactive to supply-side developments.

Leuphana has clearly made considerable progress in building these external capacities. However, it is, as this case study highlights, very challenging to build multi-level capacities simultaneously. At the end of a project of this scale there remain issues to be addressed in terms of maintaining and mainstreaming the achievements to date. This will require a continuation of existing partnerships as well as the building of new ones, and new models of delivery and financing to sustain results in the longer term may also be necessary.

The Lüneburg Innovation Incubator also illustrates the tension around the geographic reach of a university versus the geographic focus of regional funding and agencies. While business development organisations can restrict their services to organisations in specific geographic areas, universities operate in national and international arenas. Universities are "leaky" institutions, with highly mobile staff and student populations. It must be accepted that some of the activities and outcomes will inevitably locate elsewhere and thus result in spill-overs across regional geographic borders.

Leuphana has downscaled the tenure system for academic staff and has used incubator funding to attract new staff in the form of visiting professors and experts. The strategy has been to create a "revolving door" for new expertise to challenge thinking and introduce change. This approach has contributed to a dynamic, creative environment and has helped the post-merger transition process. However, steps need to be taken to ensure effective institutionalising methods for handovers of knowledge and contacts made by short-stay staff. Social capital and trust in the relationships of a university with businesses and other public and civil society actors are built through individuals. It is thus important that at some point these relationships are institutionally embedded. It should also be recognised that people can be "sticky" as well. Personal and family circumstances might lead to people laying down roots in the city and the region, which means they may be reluctant to move on.

One of the major successes of the Incubator was the way it acted as a springboard for new and additional activities that will endure beyond its funding. The financial support provided can therefore be seen not simply as an end in itself but also as a means to an end. The capacity and expertise that have been built up have enabled staff to identify new partners (private, public and academic) and funding sources.

In large-scale, innovation-driven projects like the Lüneburg Innovation Incubator, creating the right balance between focusing activities on transactional versus transformational measures can be challenging. The latter have the potential for most impact but are more difficult to manage, less

tangible, and often develop organically. Having appropriate management frameworks which supply both coordination and flexibility is essential to providing structure and to being flexible as new opportunities arise. In short, being open to new opportunities and approaches, as the Incubator has clearly been, is critical to maintaining the innovative spirit of the endeavour.

Due to the nature of the region – with its institutional thinness, declining industries, etc. – the Incubator has had a major impact on the building up of the capacity and reputation of the University itself. This is an important lesson, especially for peripheral regions. In a fragile or inexistent regional innovation system, universities can take the lead in establishing new paths for development. This is a long-term process. Thus, in addition to time, it requires consistency and commitment to contemporaneously build capacity at multiple levels, especially when it comes to a university's capacity to engage in a process of knowledge generation and exchange as well as in the region's absorptive capacity.

It is still early to claim with certainty, but the approaches undertaken to overcome inevitable challenges and barriers and the achievements to date, on the part of Leuphana and all actors involved in the Innovation Incubator in Lüneburg, suggest that a self-sustaining, vibrant regional innovation system is in the making. The Incubator is therefore a pioneering and excellent case study for managing agents of regional funds, in particular EU funds, regional authorities and leaders of higher education institutions when designing projects to stimulate innovation-led development and smart specialisation agendas.

The Incubator is therefore a pioneering and excellent case study for managing agents of regional funds, in particular EU funds, regional authorities and leaders of higher education institutions when designing projects to stimulate innovation-led development and the smart specialisation agenda.

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ANNEX 1

LIST OF INTERVIEW PARTNERS

Executive Management Team

First Name	Last Name	Role within Incubator
Holm	Keller (MA, MPA Harvard)	Executive Vice President for University Development and the Lüneburg Innovation Incubator
Tim	Kawalun	Co-Head of Operational Management
Thorsten	Kurtz	Co-Head of Operational Management
Martina	Bechter	Co-Head of Operational Management

Other interview partners, in alphabetical order

Title	First Name	Last Name	Role within Incubator
Prof Dr	Nizar	Abdelkafi	Visiting Professor
	Hilko	Aikens	Founder of ADDACT GmbH
	Antonieta	Alcorta de Bronstein	Networking and Event Management
	Claudia	Assmuth	Founder of Mela Wear GmbH
	Ingo	Auhagen	Project Management, E-Learning Content, Leuphana
	Arno	Baltruschat	Founder of Prozubi GmbH
	Wolfram	Beins	Diakonie Celle, Incubator partner
	Philip	Bernert	Scholarship holder
	Uwe	Beständig	Member of Innovation and Transfer Assistance, Leuphana
Dr	Ilka	Bettermann	Member of Innovation and Transfer Assistance, Leuphana
Prof Dr	Timon	Beyes	Digital Media Area Initiator, Vice Director of Centre for Digital Cultures (CDC)
	Torsten	Blankenburg	CTO at SIEB & MEYER AG, Incubator partner
	Christian	Borck	Management Team of Adference GmbH
	Johann	Bronstein	PhD scholarship holder
	Jan	Burk	Founder of ArvoMed GmbH
Dr	Marcus	Burkhardt	Head of Hybrid Publishing Lab, Leuphana
	Hanna Lisa	Eckerth	Innovation Network "Organizational Heal"
	Markus	Eicher	Head of Coordination Unit for Competence Tandems
	Michael	Elsner	Chief Executive of "Herbergsverein Wohnen und Leben e.V.", Incubator partner
Dr	Mark	Euler	Member of Entrepreneurship Hub at Leuphana
	Felix	Fischer	Founder of Prozubi GmbH
	Sonja	Fitzek	Member of Gamification Lab at Leuphana
	Christian	Friedrich	Head of Project Management at "Leuphana Digital School"
Prof Dr	Mathias	Fuchs	Coordinator at Art and Civic Media Competence Tandem
	Harald	Habermann	Member of Project "Regional Knowledge Database"

	Tobias	Hannemann	Chairman of Chamber of Industry and Commerce, Celle
Prof Dr	Erik	Hansen	Visiting Professor
Dr	Karina	Hellman	Coordinator at "College Studies in Practice"
	Christiane	Heß	Member of "Schreibwerkstatt" team
	Lars	Holstenkamp	Scientific Coordinator of Competence Tandem "EnERgion"
Prof Dr	Eric	Horster	Scholarship holder
	Andrea	Japsen	Head of Innovation and Transfer Assistance, Leuphana
	Meike	Jürs	Partner in Innovation Network"Organizational Healt"
	Claudia	Kalisch	Partner in Innovation Network "INaMi"
	Cornelia	Kastelan	Head of KIM project
	Barbara	Kenner	Partner in Innovation Network "INaM"
	Christoph	Kleineberg	Project coordination of "Case Studies" Project
	Marianne	Krohn	Celle Tourism and Marketing GmbH
	Frank	Krüger	R&D Project "Activated Biochar"
	Jörg	Krüger	Employee of Delta Systems, Incubator partner
Prof Dr	Daniel	Lang	Member of R&D Project "One Lüneburg"
Dr	Dirk	Lehr	Project Manager at Project "GET.ON" Health Training Online
	Sascha	Ludenia	Head of Finance
	Rina	Maas-Deipenbrock	Member of project team "Regional Networking"
Prof Dr	Esra	Memili	Visiting Professor
	Jakob	Menz	PhD scholarship holder
	Claudia	Meyer	Head of Central Services and University Development
	Jan	Neubauer	Founder of ArvoMed GmbH
	Theresa	Neuhof	Coordinator at "Research Networks"
	Christine	Noller	Member of Innovation and Transfer Assistance
Dr	Florian	Nottorf	Adference GmbH
	Susanne	Ohse	Head of Campus Development
Dr	Oliver	Opel	Institute for Sustainable Energy and Environmental Chemistry; Research Team "Thermal Battery"
	David	Orloff	Master scholarship holder
Prof Dr	Andreas	Pacholski	Visiting Professor
	Christine	Pakura	Evaluation and Process Monitoring of Support for Start-Ups
Dr	Holger	Petersen	Partner in Innovation Network "INaMi"
	Michael	Petz	Head of Innovation and Technology Counselling, Member of Chambers of Commerce and Trade, Lüneburg- Wolfsburg, and Stade)
	Franziska	Pohlmann	CEO of Pohlman Creatives GmbH
	Peer	Priewich	Head of Networking and Event Management
Prof Dr	Markus	Reihlen	Vice President of Graduate School
	Marc	Riedel	Communications Manager at the Centre of Digital Culture
Prof Dr	Hermann	Rotermund	Partner in Public Service Media 2.0 Lab
	Pia	Rudzinski	Member of "Regional Networkin" project team
Prof Dr	Stefan	Schaltegger	Member of R&D project "SUST BMA"

Prof Dr	Hans-Heinrich	Schleich	Member of R&D project "Operations Excellence"
	Christof	Schmitt	Coordination of Special Projects at Professional School
	Clemens	Schroeder	Founder of Prozubi GmbH
Prof Dr	Andreas	Seifert	Professor of Quantitative Methods, Leuphana
Prof Dr	Thorsten	Semrau	Visiting Professor
Dr	Nishant	Shah	Partner in Hybrid Publishing Lab
Prof Dr	Sascha	Spoun (HSG)	President of Leuphana University
	Marcus	Steffens	Member of Innovation and Transfer Assistance, Leuphana
	Anja	Stegert	Member of "College Study Reflection" team
	Stella	Strüfing	Member of Project "Reducing Bureaucracy"
Dr	Mareike	Teigeler	Member of "College Studies" team
	Jana	Timm	PhD scholarship holder
	Gunnar	Timmann	Member of Regional Knowledge Database Project
Dr	Petra	Trimborn	Head of Graduate School Project Management
Prof Dr	Roman	Trötschel	Member of R&D Project "Sustainable Costumer Management"
	Bastian	Urban	Head of Business Development, Incubator
Prof Dr	Brigitte	Urban	Member of R&D project "Activated Biochar"
	Dirk	Veit	Founder of ADDACT GmbH
Prof Dr	Achatz	von Müller	Academic Head of Leuphana College
	Sebastian	Waack	Founder of Edkimo GmbH
	Anne-Sophie	Wellna	Student
	Carsten	Wille	Head of Business Development, Entrepreneurship Hub
Prof Dr	Ulf	Wuggenig	Head of Project "Creative Industries"
	Sevda	Yüksek	PhD scholarship holder

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