

## SF 40: Attracting and supporting institutions of science and research as incubators for sustainable development

Fr	B	C	NY	S	T	Total
8	8	7	7	1	2	33

### Example:

„Rendezvous mit der Zukunft“ („Rendezvous with the Future“): A completed project relating to Baden-Wuerttemberg’s sustainability strategy. The aim of the project was the fostering of a dialogue between universities and their regional environment. Besides business and environmental organisations, other social groups (chambers of crafts, community and student initiatives, associations, various ministries, etc.) were involved. The knowledge transfer was performed in an exemplary way by a regionally coordinated schedule of lectures on sustainable development and a university open day. This was carried out by means of a Forum for Sustainable Development (Hochschulregion Tübingen-Hohenheim – the universities of the Tübingen-Hohenheim region) as well as by a concept for sustainable value creation (Lake Constance and Upper Rhine region). These measures are intended to result in a „helping hand“ which other universities (and other types of tertiary education institutions) can use with the aim of „designing an efficient transfer of knowledge for sustainable development“<sup>1</sup>

### 1. Differentiated description of the key field

Within the context of sustainable development, innovations are regarded as one of the most crucial keys to a successful economy<sup>2</sup>. The knowledge-based economy has thus been gaining in importance, which means that knowledge as a factor of production is thus coming increasingly to the fore<sup>3</sup>.

Research and academic institutions are essential to promote this development of innovative ideas and solutions and to act as a multiplier and disseminate this knowledge in the economy and society.

In general, „research“ is defined as an „organised and goal-driven analysis and search for new unknown facts and findings“.

Basically, two different forms of research can be distinguished: basic research and applied research.

- It is mostly universities and non-profit research organisations that carry out basic research with the aim of expanding and adding to already known scientific knowledge.

1 <http://www2.um.baden-wuerttemberg.de/servlet/is/42621/>, accessed 10.10.2013.

2 Cf. Eder, F.: Deutschland ist schon fast Weltmeister.

3 Franz P. (2007): „Knowledge Cities“: Wachstumsstrategien und institutionelle Barrieren für Städte mit Wissenschaftseinrichtungen, p. 154.

- Applied research serves to clarify (mostly) technical issues that are also economically applicable. Such research is conducted mostly at universities of applied sciences, businesses and institutions.

- Both types of research are linked to each other, since basic research provides knowledge for applied research, which in turn gives impetus for basic research.

Each research process is basically structured in the same way. It starts with the objectives being defined, followed by a build-up of the level of knowledge and a planning of experiments that is developed in a closed test environment. The next step is to document and interpret the results, which are summarized in a final report.

Research facilities get the research grants and contracts necessary to do so mostly from the state and the private sector. On average, states allocate approximately 3% of the gross national product to scientific and research facilities.

If cities and research facilities cooperate, new application-oriented strategies can be developed at the local level. It is, therefore, important to put the development of scientific institutions on the (local) political agenda.

### 2. Reference to sustainability:

These days, research facilities are essential for sustainable development. They play a key role as a model for development and also serve as an important source of information and education for decision-makers in various areas and students. The issue of sustainability in particular demands a multi-perspective approach which embraces economic, social and environmental aspects in equal measures. This gives one an idea of the great demand for the strong integration of research into the local sustainability processes, since sustainability is understood as a process influenced by changing conditions as well as by a variety of cause-effect structures and therefore constantly requires new solutions<sup>4</sup>.

For cities that put the focus on sustainability, cooperating with scientific institutions can, therefore, result in considerable in different areas:

Research and science contributions can contribute to an urban system’s resilience by generating innovations, which, in turn, may be able to contribute to increased flexibility in times of great change, high stress or crises.

In this context, knowledge institutions are also essential for environmental issues, since many cities are facing major environmental problems, which still need to be explored and can be solved by innovative thinking.

4 Schwägerl, C. / Bullinger, H. J. (2009): Forschung: Es geht um die Grundlagen des Wohlstands.

From an economic perspective, they can promote the city as an attractive business location for companies, and innovations can have an economically profitable impact for a city.

From a social point of view, free universities and organisations can challenge and support free thinking and the development of humankind. Thus, on a social level, the younger population group can gain subject-specific skills in a targeted manner, which brings with it greater awareness of sustainability issues<sup>5</sup>.

### 3. Relevance to industrial sectors?

Mobility:	Low
Energy:	Low
Production & logistics:	Low
Security:	Low
ICT:	Low
Water infrastructure:	Low
Buildings:	Low
Governance:	High

Brief description of the high level of importance:

### 4. Impact:

#### Positive:

Improved image of the community or region as an attractive business location when competing internationally

- Highly qualified staff is recruited
- Young people receive a very good education at universities and colleges
- Creation of local employment opportunities for graduates
- Increasing urban attractiveness for researchers and students (e.g. by creating housing opportunities, revitalizing the city centre, facilities for leisure activities)

#### Synergies through:

- Networking and exchange of knowledge between scientists and companies and industry associations
- Knowledge creation and transfer
- Strengthening of local creativity and innovation
- Improvement of the (technical) infrastructure

#### Negative:

- Financial resources are required; the initiation of various projects often results in the risk of regular jumps in costs, which have to be covered by those involved

<sup>5</sup> <http://www2.um.baden-wuerttemberg.de/servlet/is/42621/>, accessed 10.10.2013.

### 5. Implementation measures:

So that a city can develop and improve its region as a science base, there is the so-called „Knowledge City“ strategy, which can be regarded as an urban development policy model. Important elements of this mission statement include well-functioning networks between the local authority or region, academic institutions and businesses as well as business associations. Furthermore, it is crucial that fields of research focus on the needs of companies in the region and that other academic institutions and R & D-oriented companies settle there.

Measures taken by the municipality:

Development of a research and technology transfer centre (e.g. in the university) as well as science parks (test beds) and technology centres and business incubators

- Strengthening of fields of research according to the importance of the economic region
- Intensified development planning for „knowledge districts“ and the use of district managers
- Location marketing to attract new businesses

Measures taken by academic institutions:

- Image-building and reorientation of their own institution
- Lobbying for interests of academic staff at the local government (...)
- Support of spin-offs
- Support of cooperation with companies“
- Integration of the issue of sustainability into the guiding principles
- Fostering of student initiatives that promote sustainability at colleges and universities.

### 6. Actors: Who can shape things? With whom?

The main actors are institutions from various areas of research and science, authorities but also businesses and citizens (initiatives).

This active cooperation between actors is desirable because it means that a knowledge transfer can take place.

### 7. Prerequisites:

**Cultural:** Urban administration willing to develop and implement a long-term plan

**Technical:** Realistic goals through experience or the best practices of other cities

**Cultural:** The actors need to have a mindset already geared towards sustainability, otherwise there will be no such long-term commitment

## **8. Obstacles/barriers:**

Complex relationships between the various issues that should be addressed in the interests of the sustainable development of local authorities and research facilities can pose major challenges for the city administrations. Besides everyday (financial) problems, new problems may arise where a clear focus can first be set. This in turn presupposes that people working in the city administration are adequately trained and qualified to specify this direction. On the financial side, the means for the corresponding initiatives must first be allocated and the budget constructively distributed across promising initiatives.

Other barriers could be the legislation in the federal state, which prohibits or restricts certain areas of research because of security-related, religious or ethically relevant aspects (e.g. genetic research).

Particularly in Germany, a low level of autonomy is prevalent at the universities since management is largely in the hands of the provincial governments.

## **9. Indicators:**

- Number of research facilities
- Degree of cooperation between research facilities with the city, e.g. on the basis of jointly initiated projects

## **10. Special features/remarks:**