Institute for Systemic Management
and Public Governance

University of St.Gallen

Science parks and their contribution to regional development:
The example of the Campus Tulln Technopole

Simone Strauf

15.05.2011, Delft, NL

Central issues

- The importance of knowledge and innovation for regional development
- Definition of science parks
- Case Study Campus Tulln Technopole:
  - Characteristics of the University and Research Centre Tulln (UFT)
  - The UFT's goals
  - Reference projects
  - Interdependent regional networks
  - Regional impact monitoring
- Conclusions

Knowledge, innovation and regional development

- Theories changed from a static to a dynamic point of view
- Regions' ability to learn and it's deposit of knowledge are the crucial development factor (Porter, Krugman, Florida)
- Bring forward discussions about regional development and the success of regions
- Geographical proximity, social capital, networks and knowledge as key factors of successful science, technology and innovation activities

Science parks as a policy tool

- The concentration of research activities, innovation and knowledge transfer play an important role
  - But: could not explain solely differences in promotion of innovation in some regions more successfully than in others
- Science parks are often seen as an effective tool to accelerate growth and competitiveness of regions and nations
- Science parks are regional economic factors, image factors and affect the location quality of a region

- Many countries introduced programmes to promote knowledge and innovation

Definition of science parks

- Aim
  - increase the wealth of its community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions
- Stimulate and manage the flow of knowledge and technology amongst universities, R&D institutions, companies and markets
- Facilitates the creation and growth of innovation-based companies through incubation and spin-off processes
- Provides other value-added services together with high quality space and facilities
- Managed by specialised professionals

International Association of Science Parks (2012)

Technopol Program Lower Austria

- Aim
  - To develop locations with public and semi-public R&D institutions as places of “technology-oriented economic activity”
  - to link these with companies in order
  - To increase value creation of the economy in Lower Austria
- Characteristics of technopoles:
  - Critical number of R&D institutions, whose research emphasises one or more key aspects and which have built an appropriate infrastructure for that purpose.
  - Direct local links to academic training are essential in order to connect research with teaching.
  - Competent businesses create demand for R&D and help to commercialise the generated know-how in the national and international markets.
  - Enterprises are located in immediate proximity to the research institutions
- Criteria are fulfilled at three locations in Lower Austria

Case Study: University and Research Centre Tulln (UFT) on the Campus Tulln Technopole

Institute for Systemic Management
and Public Governance

University of St.Gallen







City of Tulln

Institute for Systemic Management and Public Governance

University of St.Gallen

The city of Tulln

- About 15’000 inhabitants
- Attractive place to live, increasing internal migration
- 45km from Vienna
- Work in the Vienna region (many commuters)
- Structural change from agriculture to knowledge based industries as a goal
- Improve image as a science and research location







The University and Research Centre Tulln (UFT)

- Since 04/2011
- Public investment: 64 Mio. €
- Up to 350 workplaces
- 45ha test area and laboratories
- Domicile of University of Natural Ressources and Life Science Vienna (BOKU) and Austrian Institute of Technolgy (AIT)
- Interdepartmental and interdisciplinary body
- Research topics: bioanalytics, renewable natural ressources and biotechnologies
- Part of the Campus Tulln Technopole
  - 487 high-tech jobs
  - 21 University departments
  - 157 students
  - 8 Companies







The UFT's (and technopole's) goals

- «Centre of Excellence» with a critical mass
- Strengthen research and technology network
- Initiate strategic partnership between BOKU and AIT, strenghthen cooperation
- Improve research quality, produce new knowledge
- Better (international) positioning of both institutions to remain competitiveness
- Creation of high-tech and high-qualified jobs
- Knowledge and technology transfer within institutions at the Campus Tulln Technopole and between UFT and companies (regional and national)
- Attract companies to the region and stimulate the local economy
- Step towards the change of Tulln into a place of research and science
- Positive effects on the image of Tulln and its positioning within the Vienna Region

Reference projects

- Karlsruhe Institute of Technology (KIT), (D)



- Science and Technology Park Adlershof, Berlin (D)



- SP Technical Research Institute of Sweden, Boras, (SE)



- Institut Polytechnique de Grenoble, (F)



- Technoparco del Lago Maggiore Verbania, (I)



- Science City Davos (CH)



Comparison of reference projects

	Karlsruhe Institute of Technology (KIT)	Science and Technology Park Adlershof, Berlin	SP Technical Research Institute of Sweden, Borås	Institut Polytechnique de Grenoble	Tecnoparco del Lago Maggiore, Verbania	Science City, Davos
Founding year	2009	1991	1975	2007	1977	2004
Turnover	€730m	€2.1 billion	€100m	n/a	n/a	€155,000
Number of employees	8,800	14,100	936	1,100	n/a	2
Number of students	20,000	7,800	-	5,300	-	-
Size of host city (inhabitants)	300,000	3m	100,000	160,000	30,000	10,000
Academic institutions	11 faculties, 12 research programmes	6 institutes of the Humboldt University, 11 extra-faculty institutions	No university, public extra-faculty institution	6 faculties	-	1 institute of the ETH (Swiss Federal Institute of Technology)
Link between academic and extra-faculty research	XXX	XX	XX	XX	XX	X
Promotion of knowledge transfer	XXX	XXX	XX	XX	XX	XX
Coordination centre for knowledge transfer	XXX	XXX	X/-	XXX	XX	XX
Support of spin-offs	XX	XXX	X	XX	XXX	-
Cooperation with firms from the region	XX	XXX	X/-	X	XXX	X/-
Regional embeddedness: cooperation with regional actors	XXX	XX	X	X	XX	XXX

Recommendations for the Campus Tulln Technopole

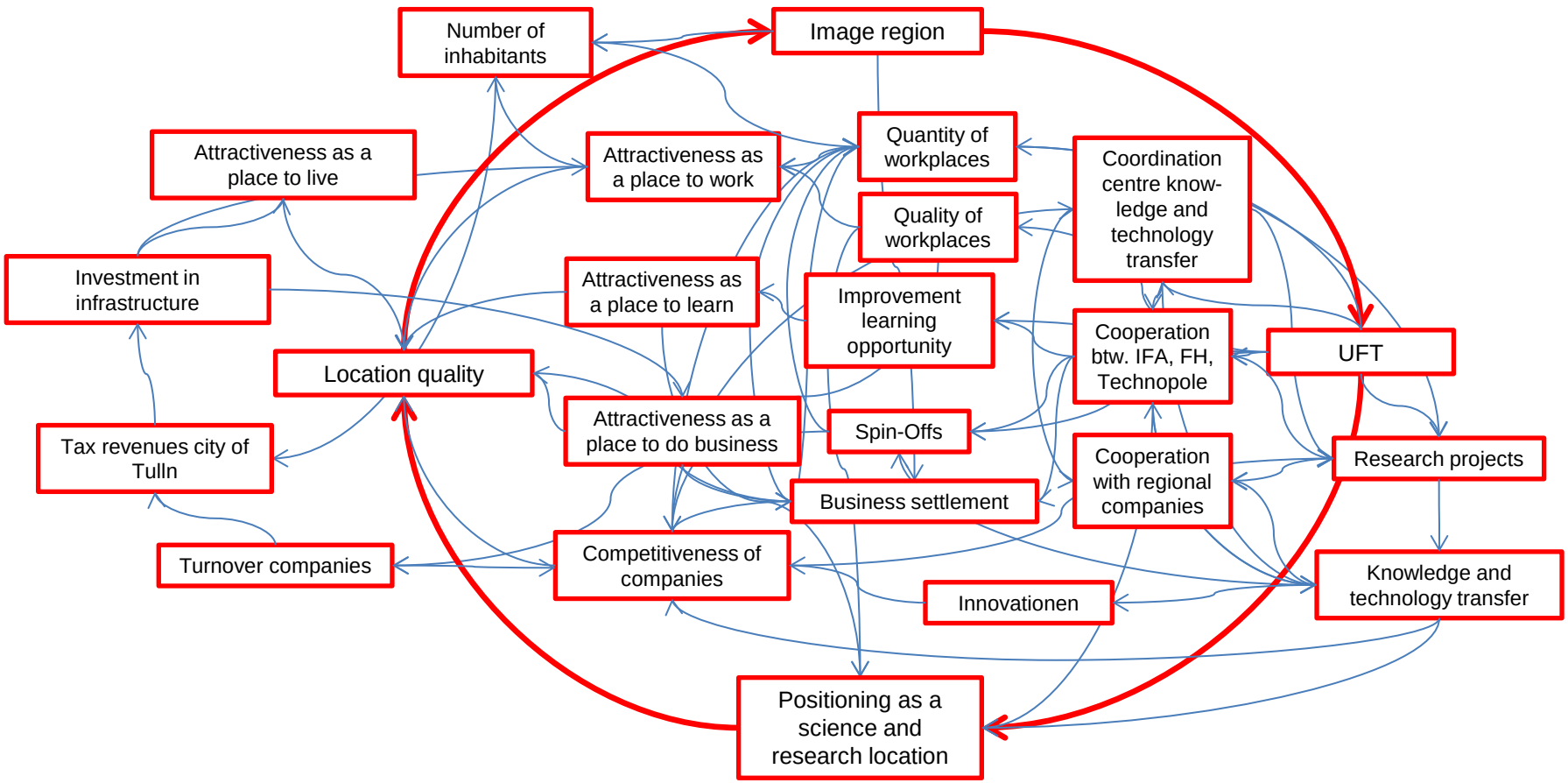
- The Campus Tulln Technopole and the regional actors ***need a common understanding of a shared vision*** in order to be able to assume their responsibility for the region together.
- The ***quality of the research and teaching*** are essential for the positioning of Tulln as a place to do research. It is the only way the Campus Tulln Technopole can gain international recognition and have a positive effect on the region.
- In order to achieve critical mass and to create regional effects, the Campus Tulln Technopole must ***be perceived as a whole*** by both the internal and external actors involved.
- To facilitate the transfer of knowledge between the institutions, regional firms and the region of Tulln, ***efficient coordinating bodies*** are needed to facilitate cooperation both within the scientific community and between the latter and its (economic) environment.

Interdependent regional networks

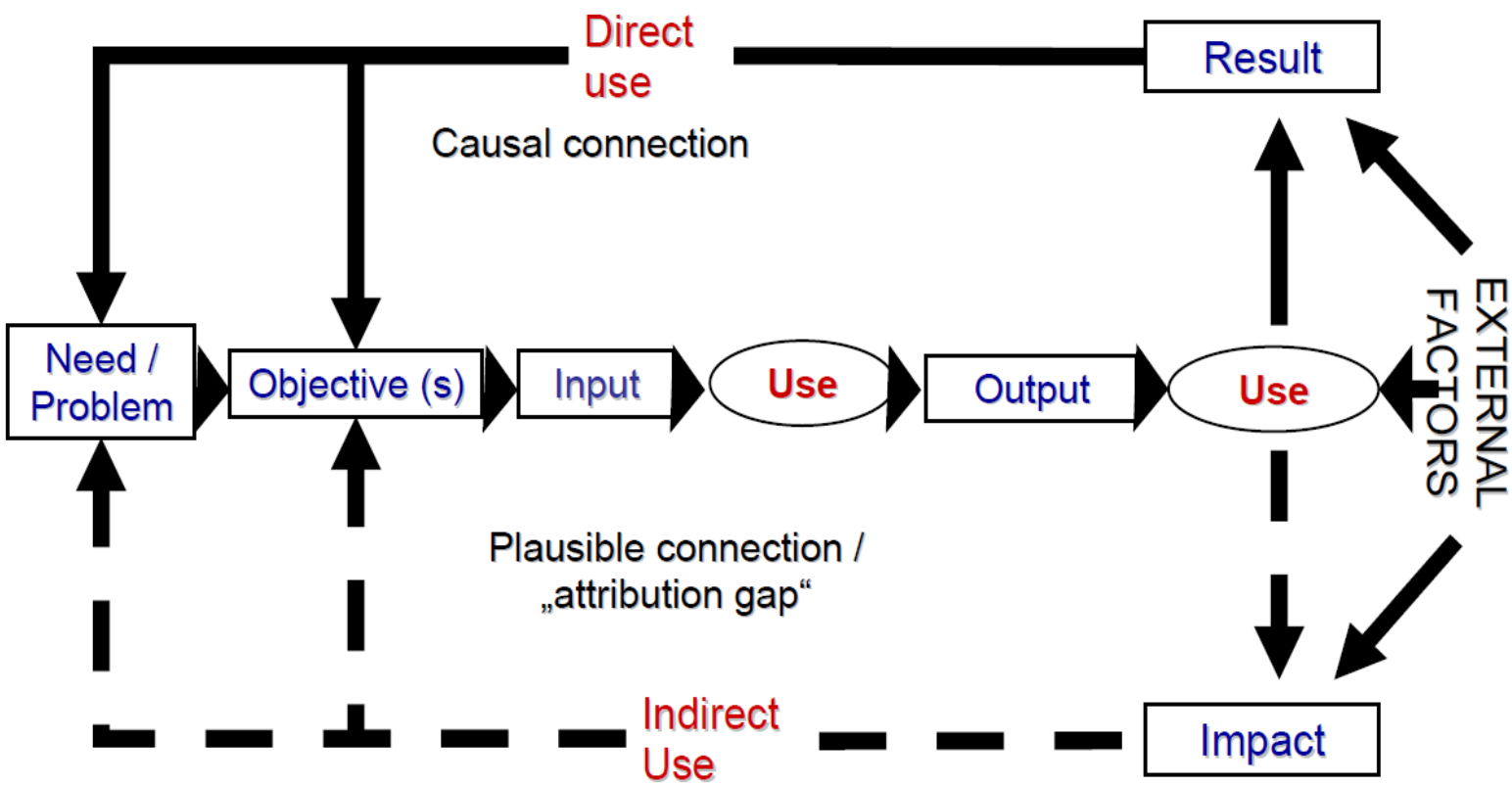
- Based on the approach of «networked thinking»
- Networked thinking is a way to understand complex issues as a dynamic network of factors, outcomes and impacts.
- Visualisation of influencing factors and its interdependencies

- Relevant networks for the UFT
  - Research and teaching
  - Knowledge and technology transfer
  - Location quality

Interdependent regional network «location quality»



Monitoring of impacts



Hummelbrunner (2005:6)

Outcome indicators

quantitative	qualitative
UFT's expenditure at the location of Tulln	Companies' awareness of bio-resources
Number of conferences and seminars	Own business activities
Number of event participants	Degree of integration of relevant enterprises
Percentage of workers with residence in Tulln	
Percentage of equity financing of a cluster	
Number of degree and training courses	
Number of students	
Number of employees at UFT and campus	
Employment ratio for graduates	
Number of joint projects by BOKU and the AIT	

Impact indicators

quantitative	qualitative
Trend in population figures	Innovation activities by SMEs
Trend in the number of overnight stays	New products and processes by regional SMEs
Trend in the real-estate value	Integration into (international) networks
Number of attracted and newly incorporated companies	
Additional turnover for regional SMEs	
Spin-offs and start-ups from the UFT	
Number and quality of publications	
Number of (international) research projects	
Amount spent on R&D	
Number of patents	

Requirements for a successful regional impact monitoring

- Ongoing collection of relevant key indicators
  - Transparency of activities
- Reflection on the observable effects of regional impacts
  - Possibility of strategic management
- Communication of the results of impact monitoring
  - Legitimacy and acceptance

- but:
- Who is responsible?
  - Coordination of activities and collection of information

Conclusions

- The UFTs and Campus Tulln Technopole's contribution to regional development depends on a common vision of all actors involved.
  - All actors have to assume responsibility for regional affairs.
- The goals and the services on offer should be reviewed periodically.
  - A regional impact monitoring is an important instrument.
- Positive effects and a successful positioning is based on the committment of the institutions and their employers as well.
- The basic conditions in Tulln are good, but efforts are required to take advantage of the whole potential.