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Universities and their contribution to regional development

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St. Gallen, 24.9.2007

Central issues

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- ➔ What are the key factors contributing to the positive economic development of a region? What role can universities play?
- ➔ Universities cover the span between international and regional orientation
- ➔ The impacts of a university on the region
- ➔ 5 possibilities for the relationship of universities to their location
- ➔ Conclusion

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Current research status

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History of the regional economic theories

- Traditional location theories
 - Transport costs, work costs, ground rent
 - by Thünen, Weber, Christaller (1950's)
- Polarisation theories
 - Sectoral areas of growth, agglomeration effects, availability of work and capital
 - Perroux, Myrdal, Krugman
- Territorial innovation models
 - Cluster approach, milieu approach, „learning regions“, network relationships, process orientation, capacity for innovation and learning
 - Porter, Morgan (since the 1980's)



Current importance of the theories

- ➔ Basic paradigm shift in the regional and location theory :
 - ➔ The theoretical perspective changes from an exogenous to an endogenous point of view.
 - ➔ The theories move away from production factors in a strict sense, to an interactive correlation between institutions and/or actors.
 - ➔ The focus of the theories shift from a static view of location factors to development processes.
- ➔ Today there is no longer THE central location theory.
There is a range of diverse theoretical approaches that can clarify the success of regions and locations.

The predominant regional development strategies

→ **Endogenous regional development**

- Return to regional resources and skills show the necessity of using these, in order to generate development impulses and ideas.

→ **"Learning Regions"**

- Importance of knowledge, qualification and competence acquisition as a basis for the economical development of a region

→ **"Social capital approach"**

- Relationships between people as a resource also for the economic development of a region and/or borough.

→ **"Capacity Building"**

- Setup of institutions, which use the organisational and individual knowledge of a region for (economical) development.

Defining the Learning region

“To be effective in this increasingly borderless global economy, regions must be defined by the same criteria and elements which comprise a knowledge-intensive firm: continuous improvement, new ideas, knowledge creation and organisational learning.

Regions must adopt the principles of knowledge creation and continuous learning; they must in effect become knowledge creating or learning regions”

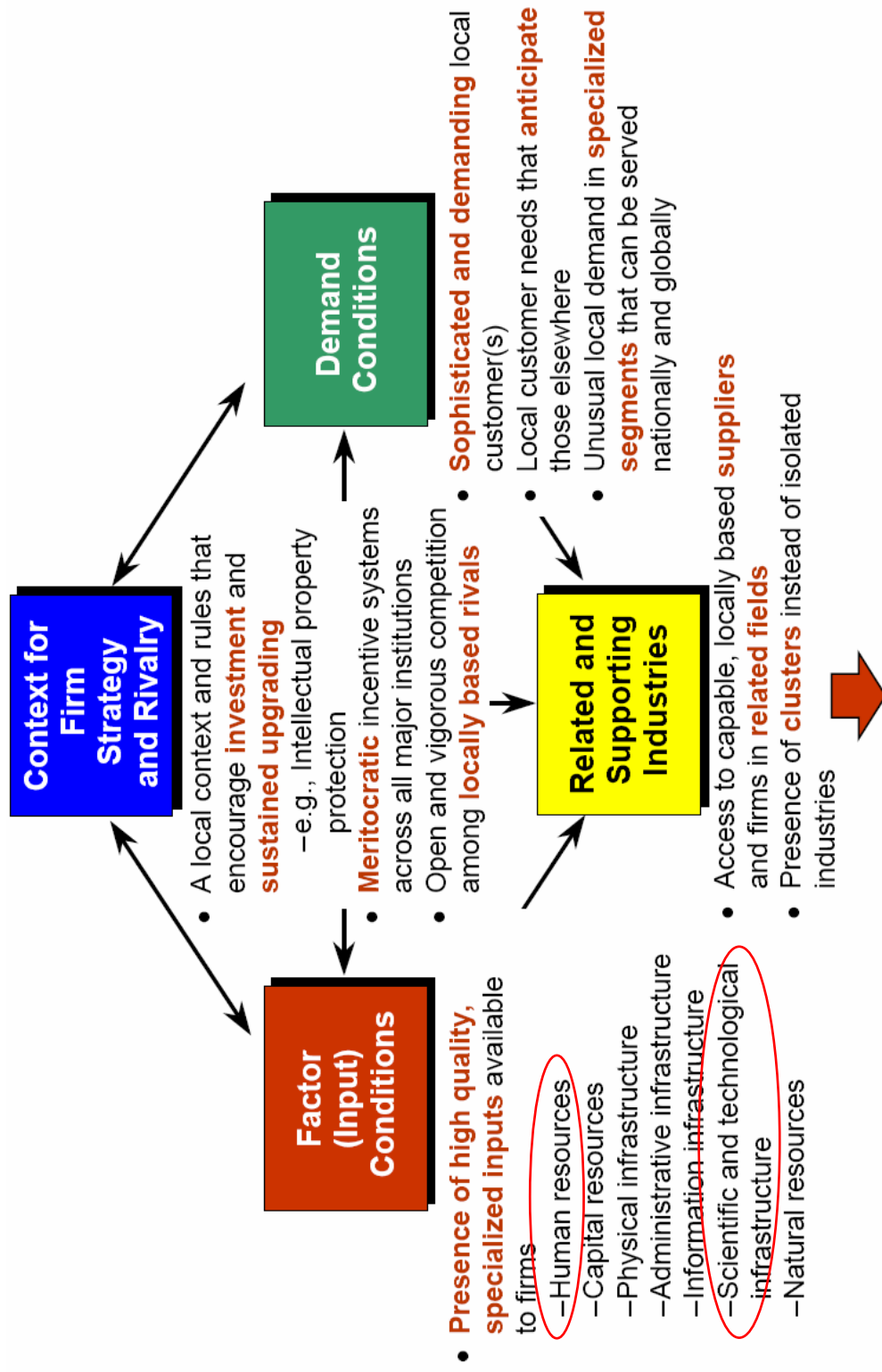
(R. Florida)



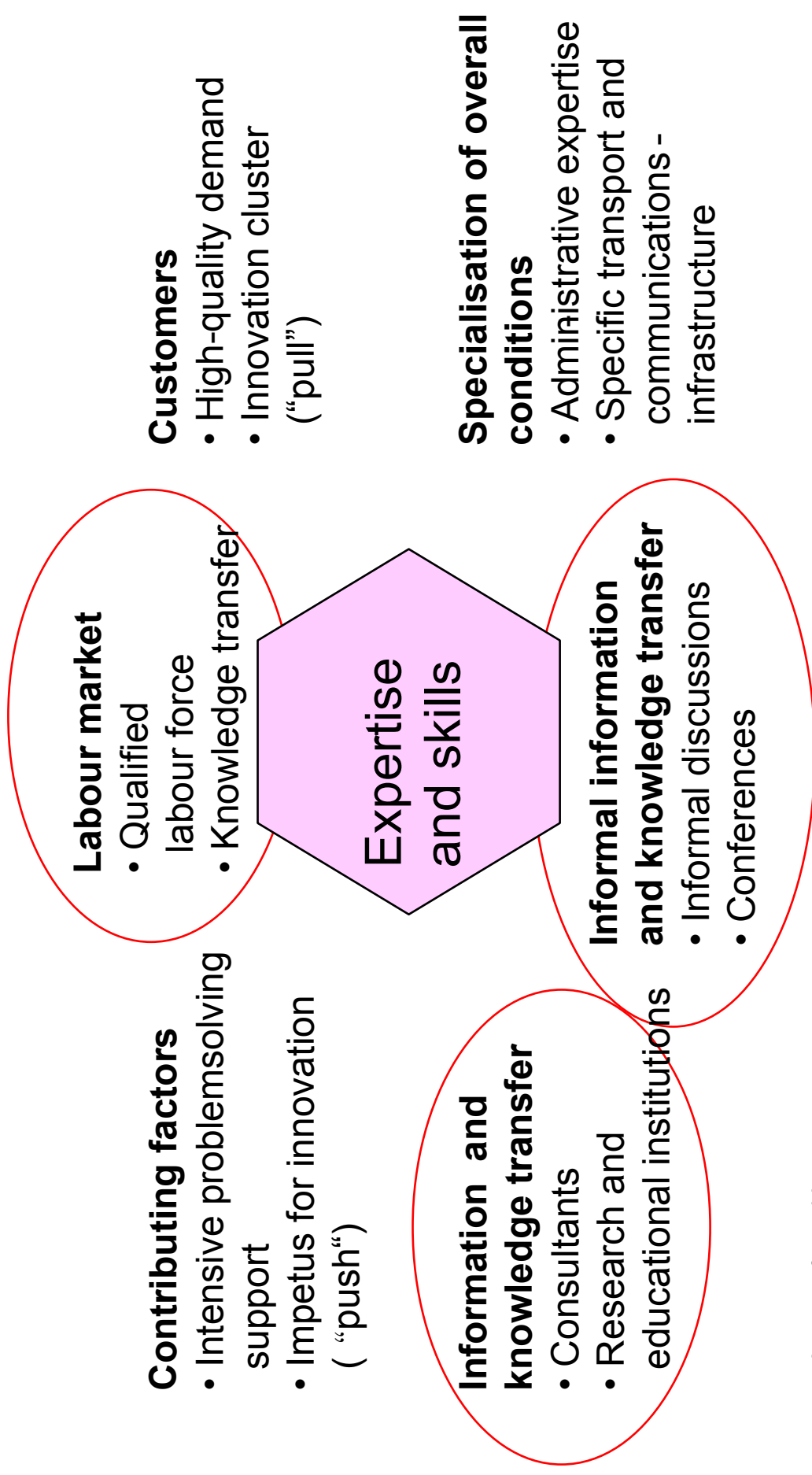
The central elements of „Learning Regions“

- The concept of the learning region distinguishes between three basic approaches:
 - **Human capital orientated approaches**, in which the development of a regional knowledge base, as well as co-ordination of further education opportunities in the region are the focus.
 - **Innovation orientated approaches**, in which learning by interacting as well as exchange of information and diffusion of innovations are the focus
 - **A policy network approach**, which deals with new co-operation processes through networks in the region.

Porter's diamond model for the competitiveness of regions

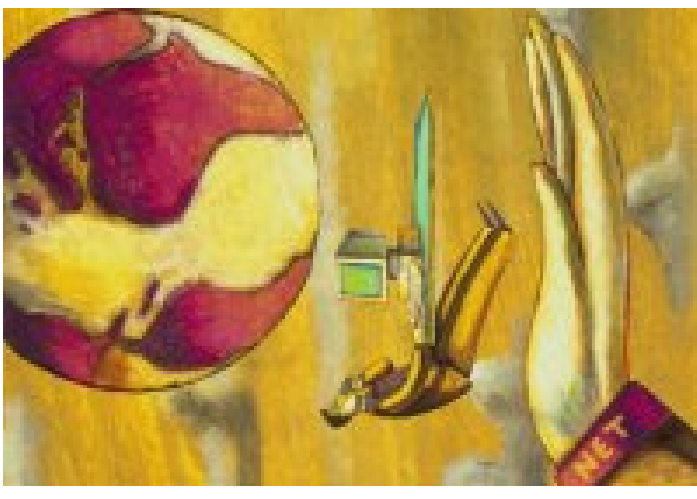


Regional skills and expertise



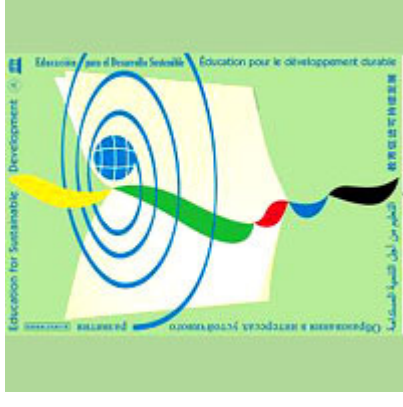
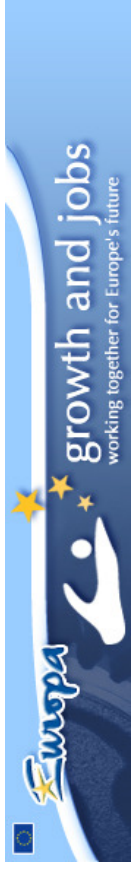
Knowledge and Regional Development

- ➔ For regions as an overall system, innovation and innovative ability are the central requirement, so that they can adjust in the long term to the constantly changing endogenous and exogenous terms and conditions.
- ➔ Only „learning regions“ can survive in the future.
- ➔ Knowledge and learning will be the central factors in the competitiveness of a location.



Importance of Knowledge and Innovation on the EU and UN-level

- **The EU-Challenge**
 - *"By 2010 the European Union must become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion." (Lisbon Strategy 2000)*
- **The UN-Focus**
 - *UN-Dekade of Education for Sustainable Development (2005-2014)*
 - *G8-UNESCO World Forum on Education, Research and Innovation (2007)*



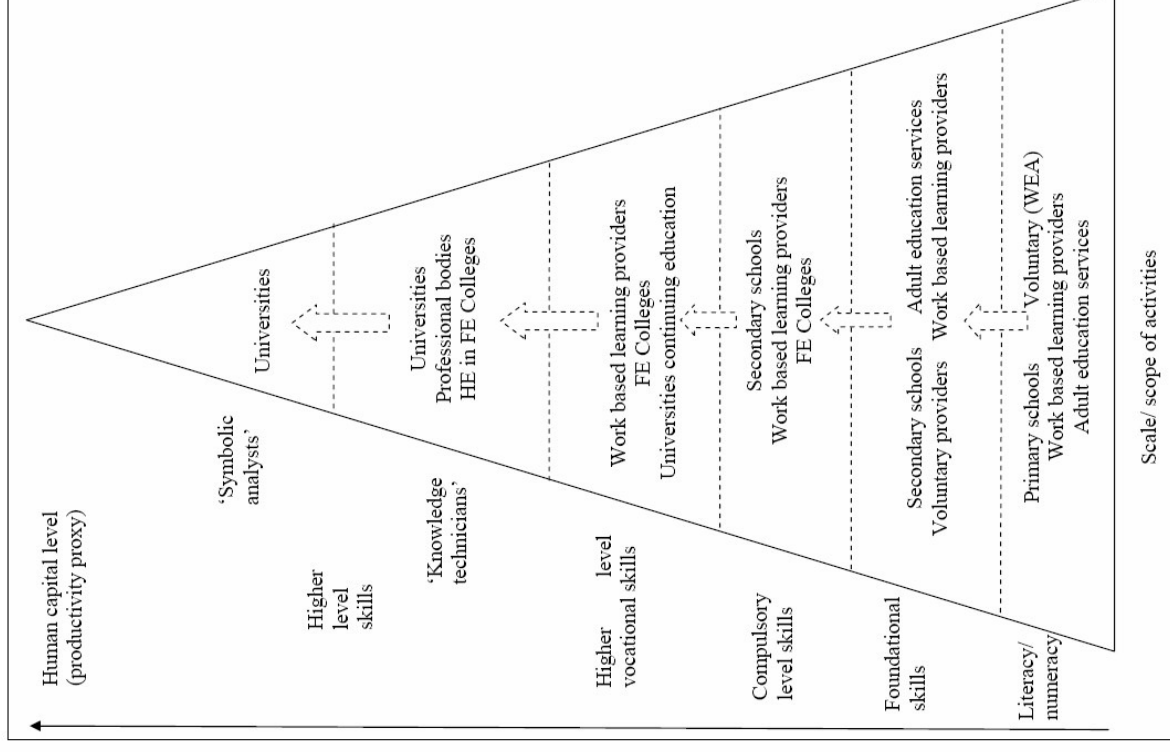
The universities dilemma between globalisation and regional responsibility

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The human capital level and the educational system



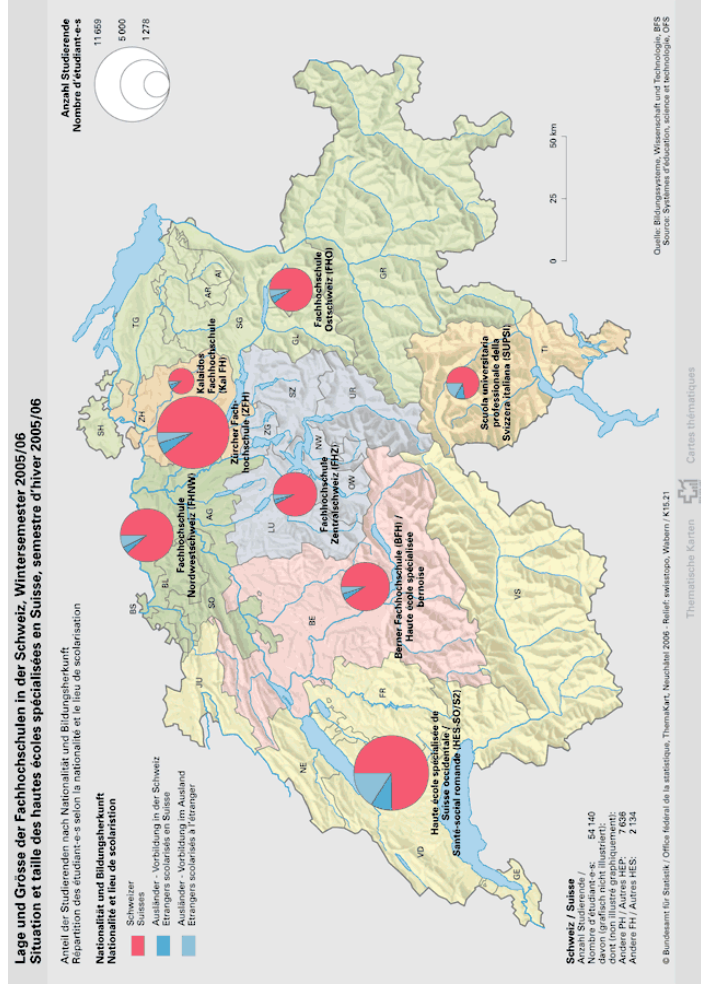
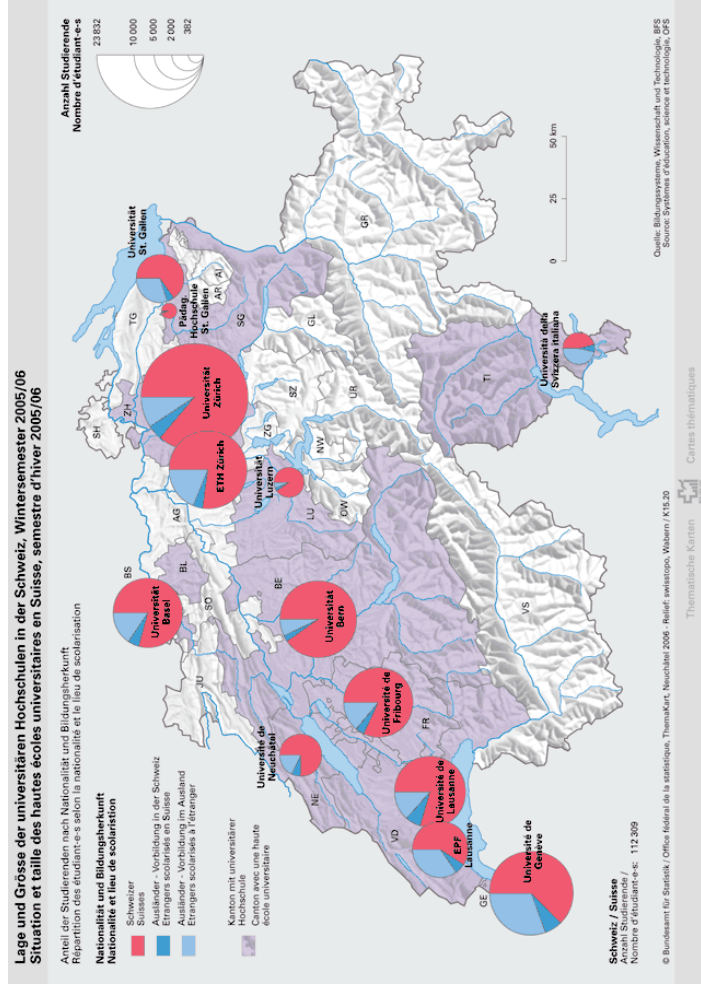
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Universities in Switzerland

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University of St. Gallen: Vision 2010

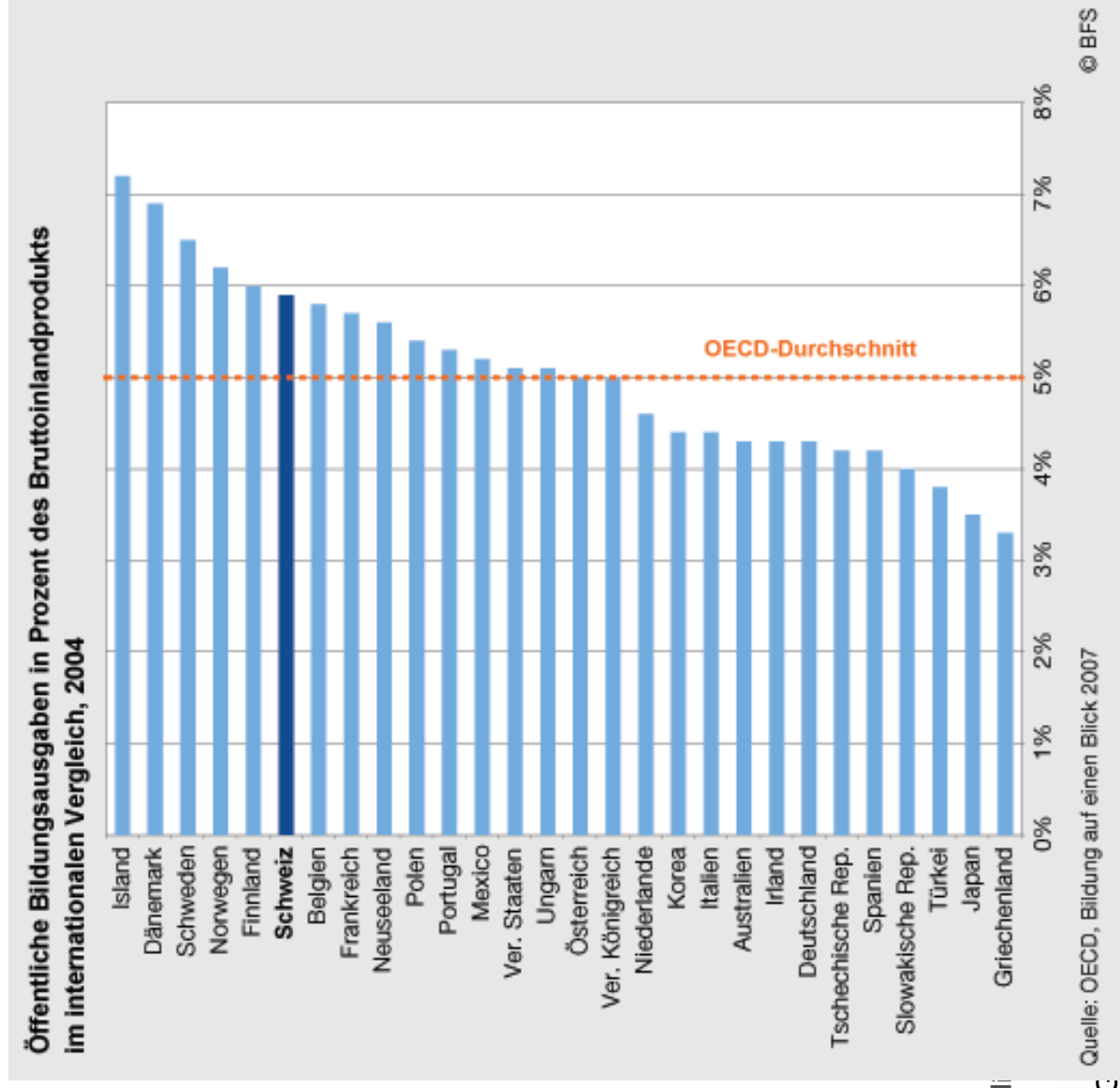
- **Acquisition - Education - Loyalty:**
 - We want to acquire students who wish to make use of their talents and capacities to benefit social responsibility and not only for personal success. We offer **internationally recognized degree programs and postgraduate courses** for life-long learning. In this manner, we also encourage long-lasting relations between the students and the University.
- **People - Research - University Added Value:**
 - We seek to provide academics with good conditions for innovative and creative research. In so doing, we satisfy both the demands made by science and the realities of working life. We strive for a leading **international position** in selected fields of research that are of high social relevance and strategic significance for the University. We encourage a division of work as well as cooperative ventures that enable researchers to exploit their varying skills and strengths to the full.
- **World - University - Region:**
 - We aim to develop the **internationalization** of the University systematically and continuously. By offering an international education, we want to attract students, academics, practitioners and professionals **from the region as well as from all over the world. In this way, we can make the benefits of internationalization available to the region.**
- **Entrepreneurship - Performance - Financial Strength:**
 - We cultivate individual entrepreneurship in the interest of the University as a whole. In this way, we secure and expand our academic freedom and our University's financial autonomy. We are conscious of the special responsibility that is associated with utilizing this freedom.



Regional legitimization

- The training expenditure of the public sector has greatly risen.
- A high back flow of investment is expected for these expenses.
- Science should contribute more strongly to the solution of business, economic and social problems.
- Universities are location factors which influence the image and location quality of a region.

Expenditures for Education (% of GDP)



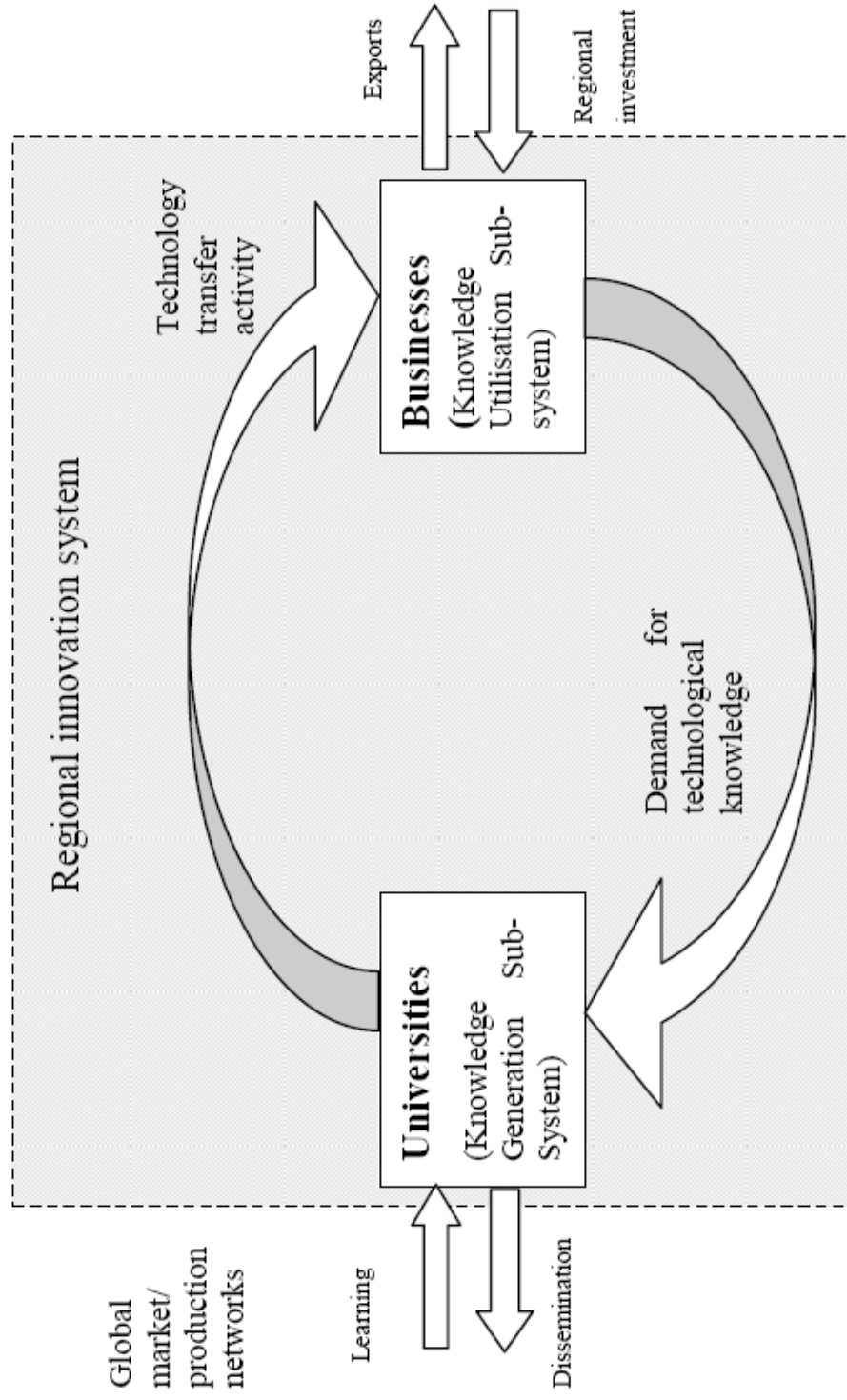
The effects of universities on their location region

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The regional innovation system



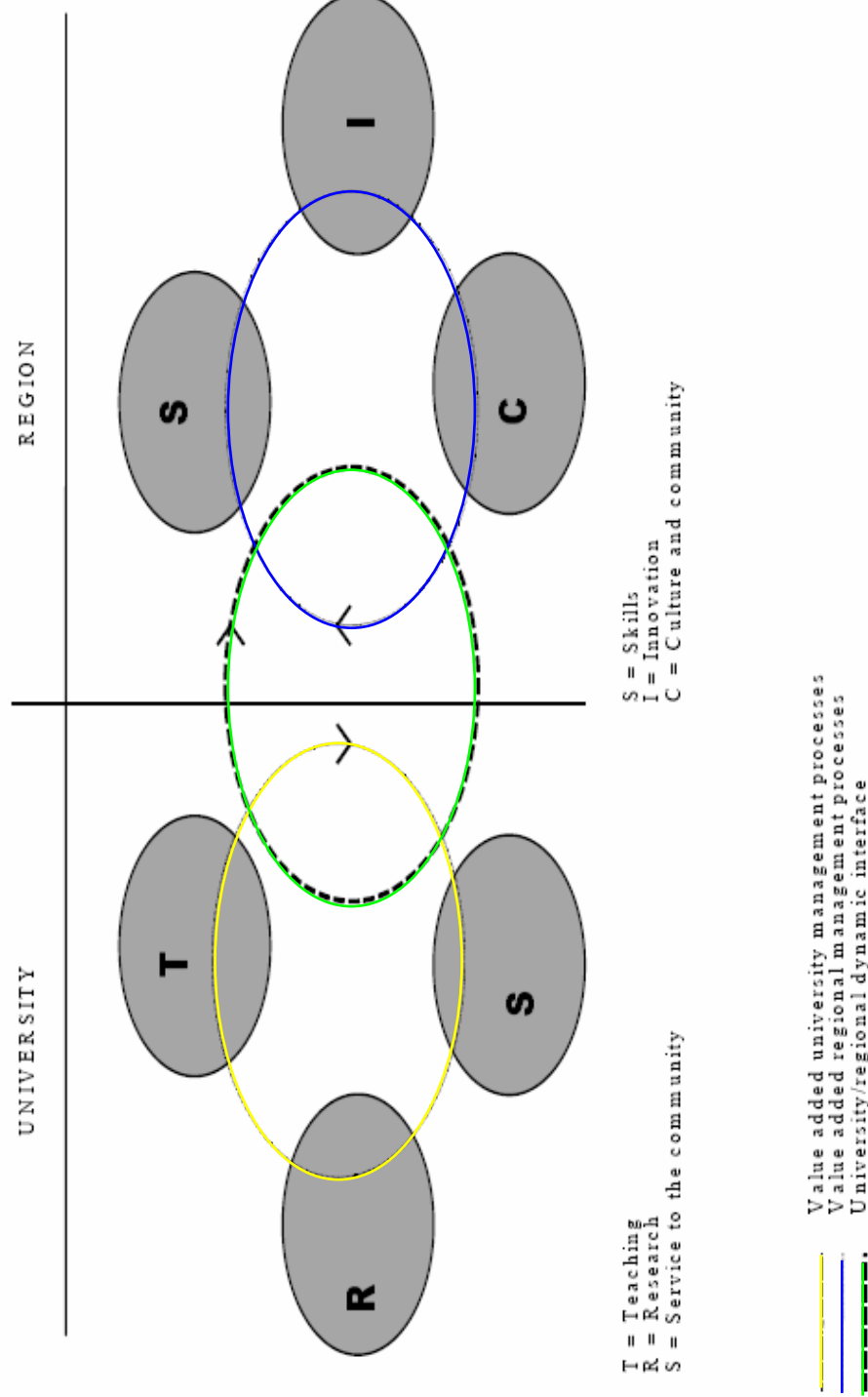
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Source: after Cooke (2004); in Benneworth (2004)

Universities and regions' added value



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Source: Goddard, John 2006

Regional effects of universities

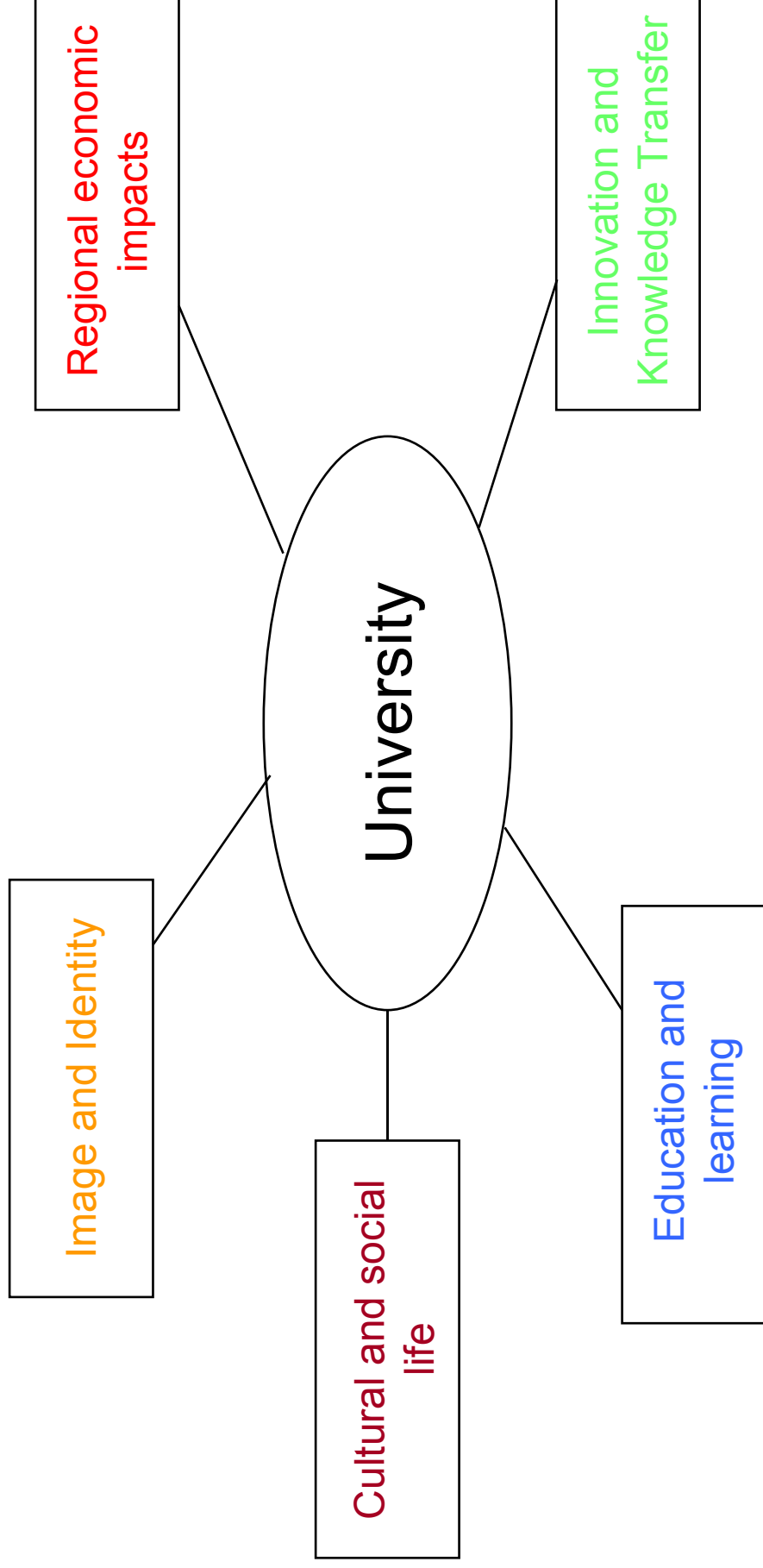
→ Quantitative effects

- e.g. financial impacts
- regional added value
- regional benefit

→ Qualitative effects

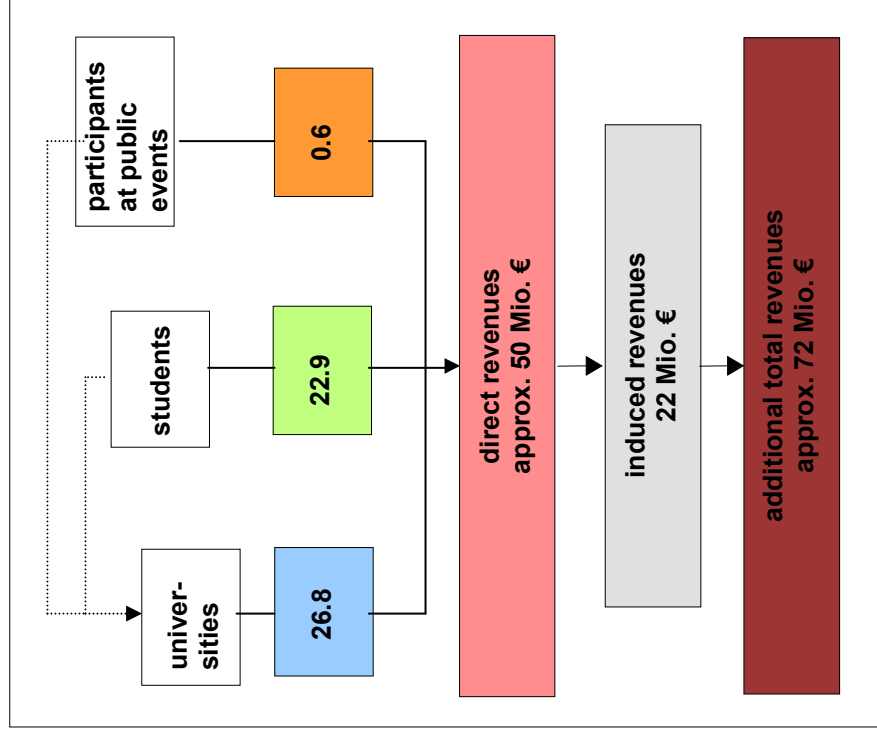
- occur in the ecological, economical, political and socio.culturell surroundings
- e.g. spin-offs
- e.g. image & identity

Impacts of universities on their location regions



Regional economical effects

- ➔ Increase of regional spending capacity
- ➔ Increase of regional added value
- ➔ Creation of direct and indirect jobs
- ➔ Additional regional turnover due to investment
- ➔ The universities have positive regional economic effects on their location



University as employer: Example Central Switzerland

- 1,000 people are employed by the three universities (full-time positions)
- The universities together are among the five largest employers in the canton of Lucerne (quantitative aspect)
- Most of employees have a tertiary educational degree.
- The percentage of highly-qualified residents has increased (qualitative aspect)
- Also students are visible on the regional labour market: about 75% of the students hold jobs while they are studying.

Knowledge transfer

- ➔ Networking with regional players
- ➔ Specialists from companies have part-time contracts as lecturers
- ➔ Companies make use of the universities for further education
- ➔ Universities have service contracts to address issues and problems stemming from the business sector
- ➔ Students create networks with companies
- ➔ Graduate organisations (alumni)
- ➔ Companies are active in university committees, university members are active in associations and public committees
- ➔ Knowledge Transfer Centres, Academy of Applied Sciences

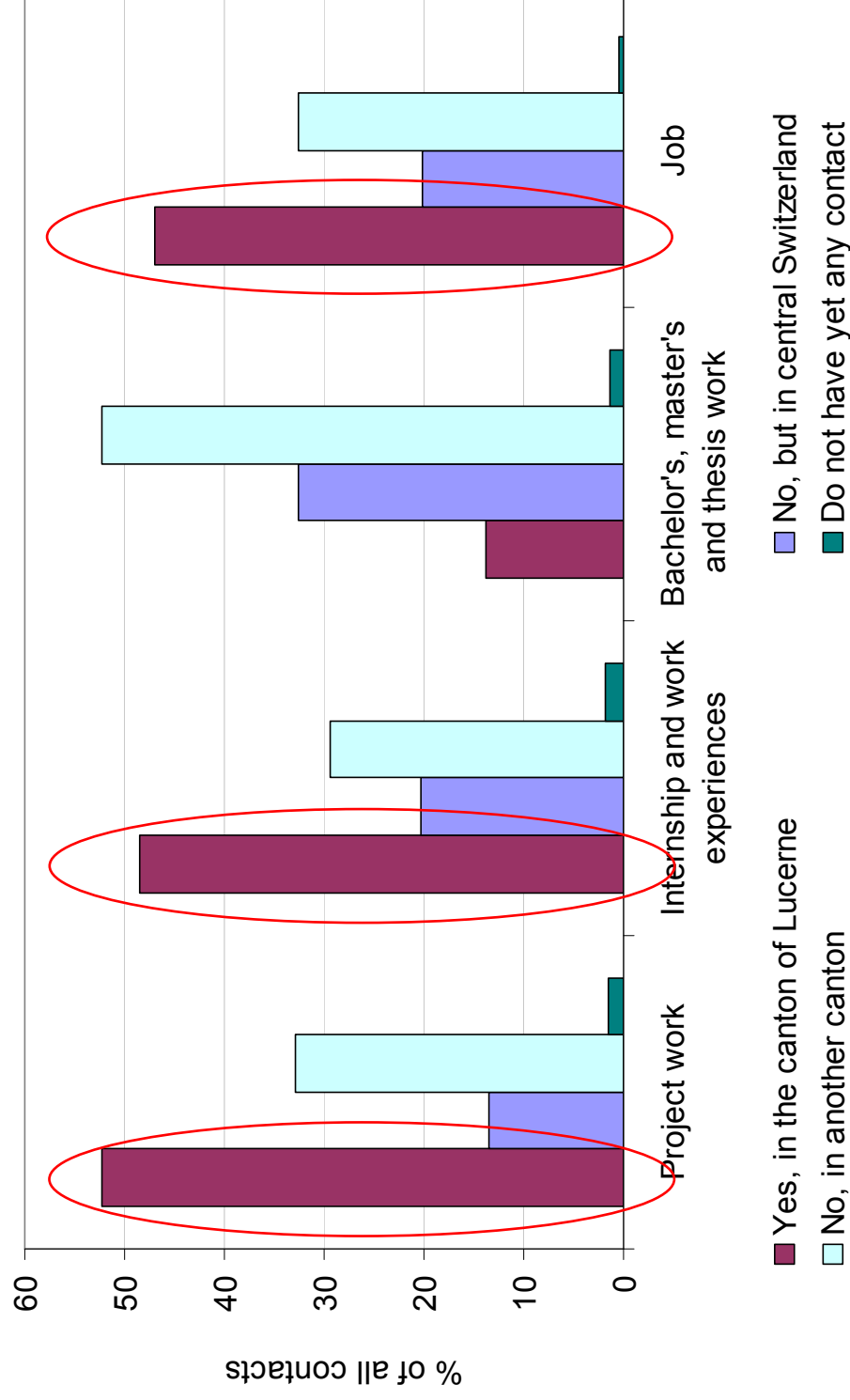
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Knowledge transfer - student contacts to companies and institutions



Education and learning

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- The universities influence on educational level and people staying in their home region
- Number of students from the region
- Graduates remain in the region
- The brain gain is fostered and the brain drain prevented
- The population's propensity to learn and its level of education is raised

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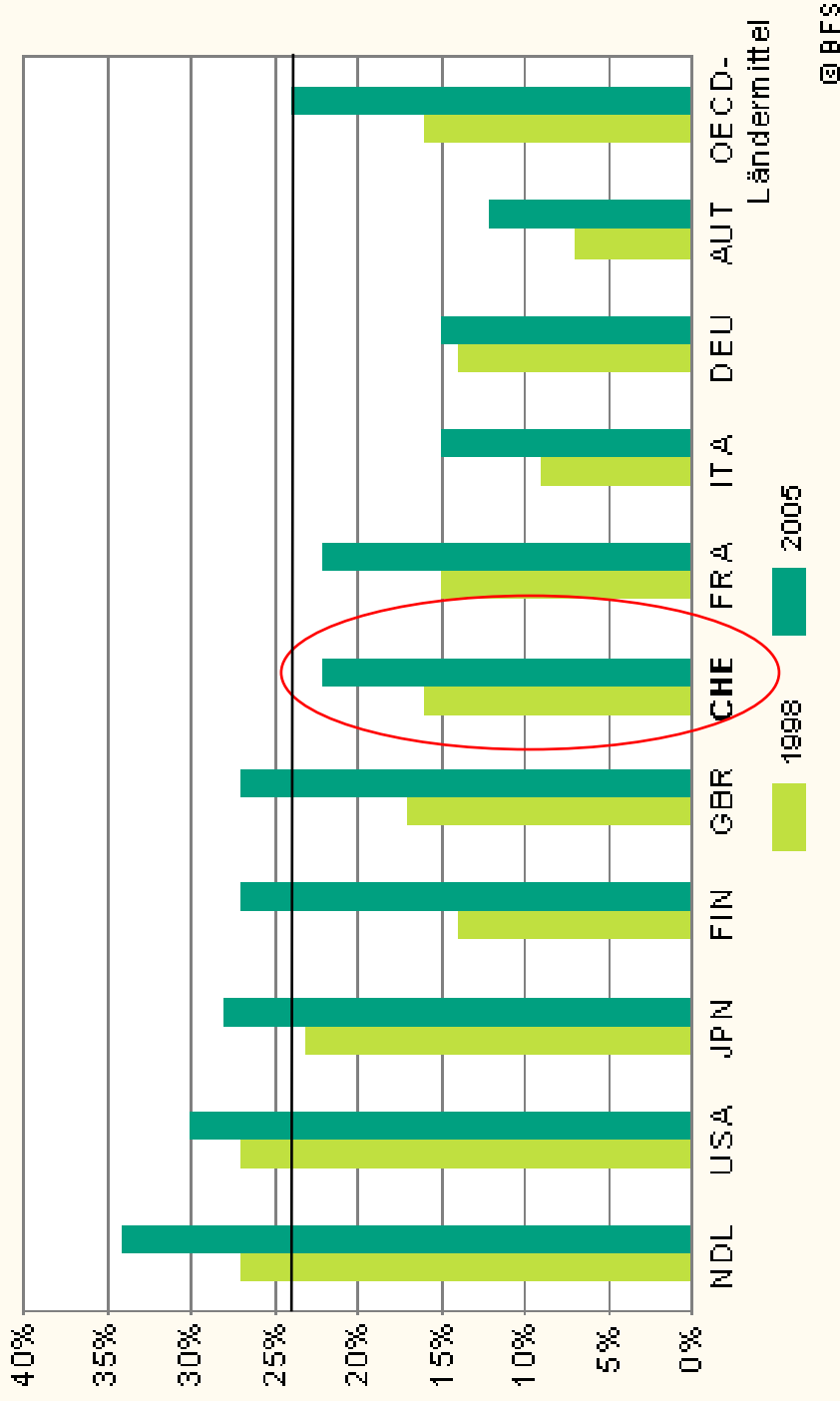


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Higher educational level of the population 1998 and 2005

Bildungsstand der Bevölkerung, 1998 und 2005

Anteil der Bevölkerung zwischen 25 und 34 Jahren mit Hochschulabschluss (ISCED 5A oder 6)

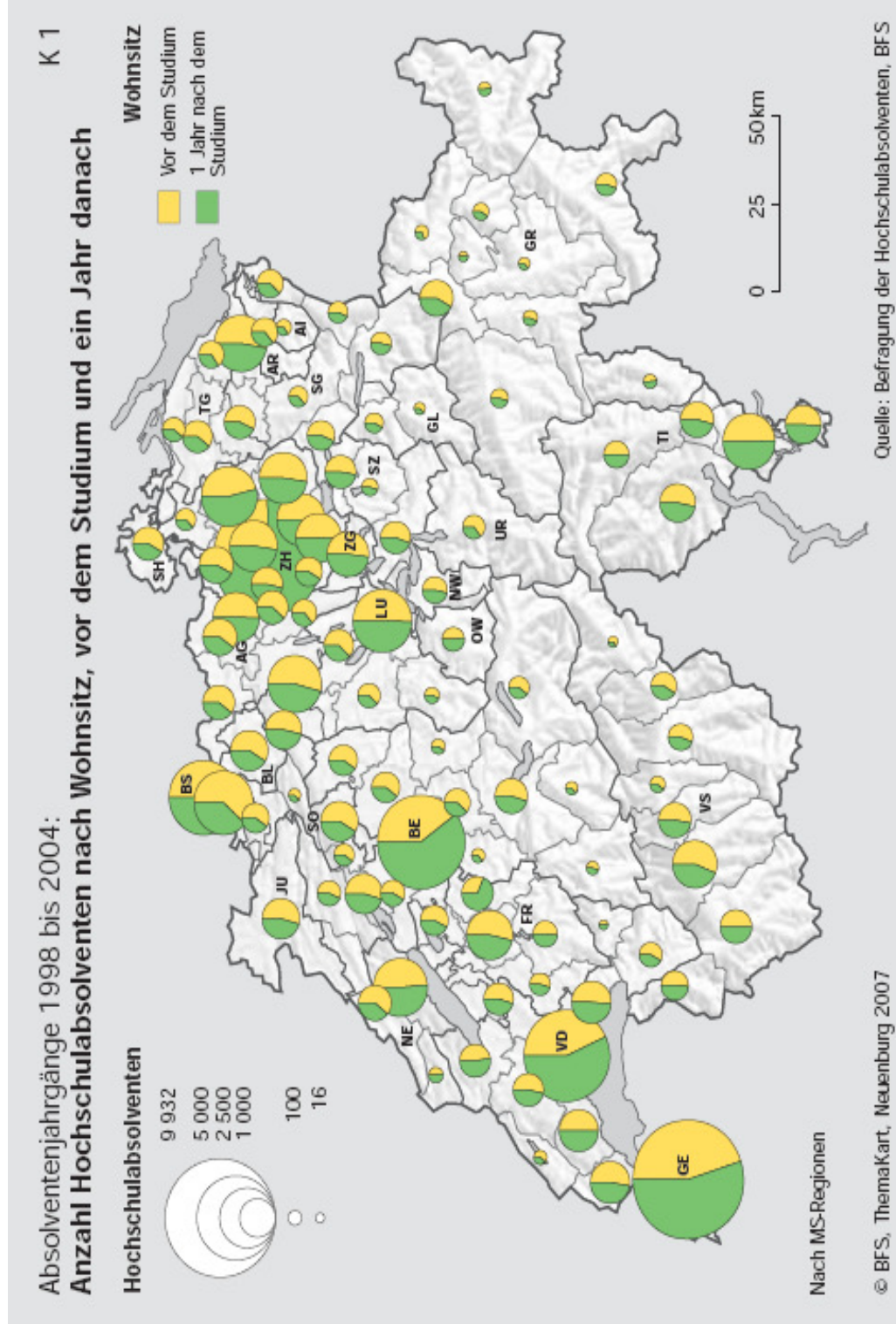


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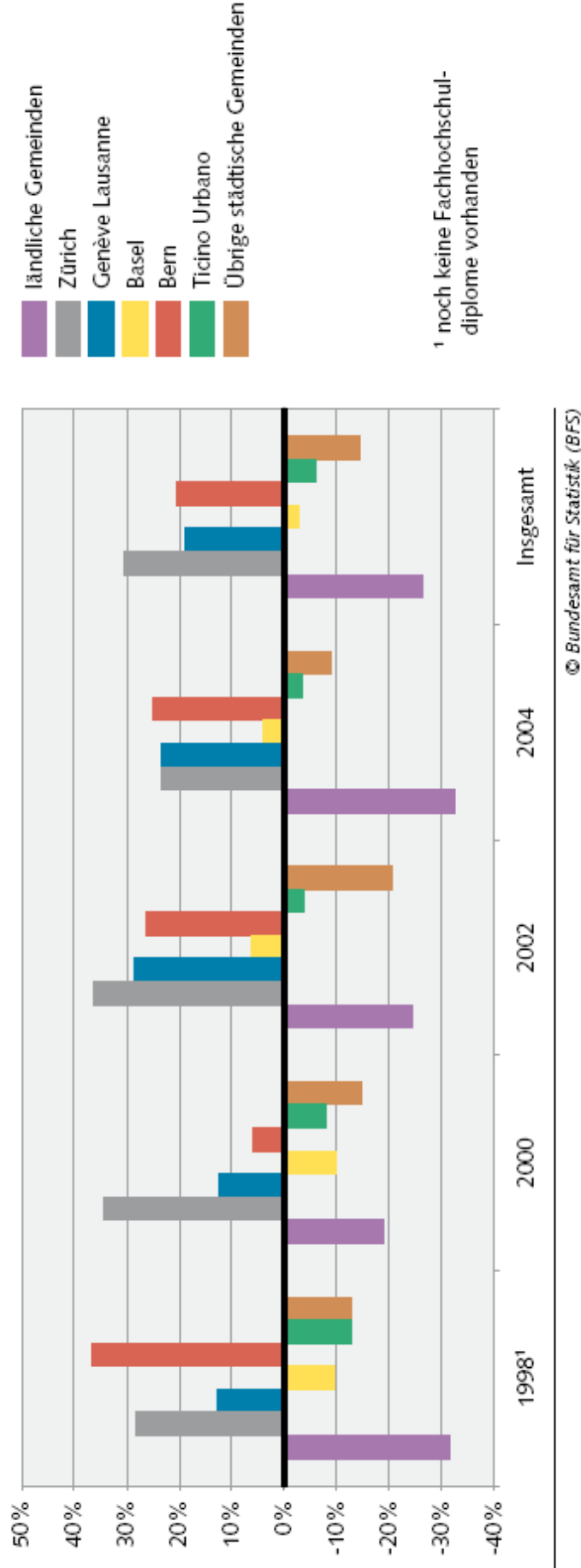
Regional migration



Drain Gain vs. brain drain

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Zuwachsrate an jungen Hochqualifizierten nach Metropolitanräumen,
Absolventenjahrgänge 1998 bis 2004 G 7



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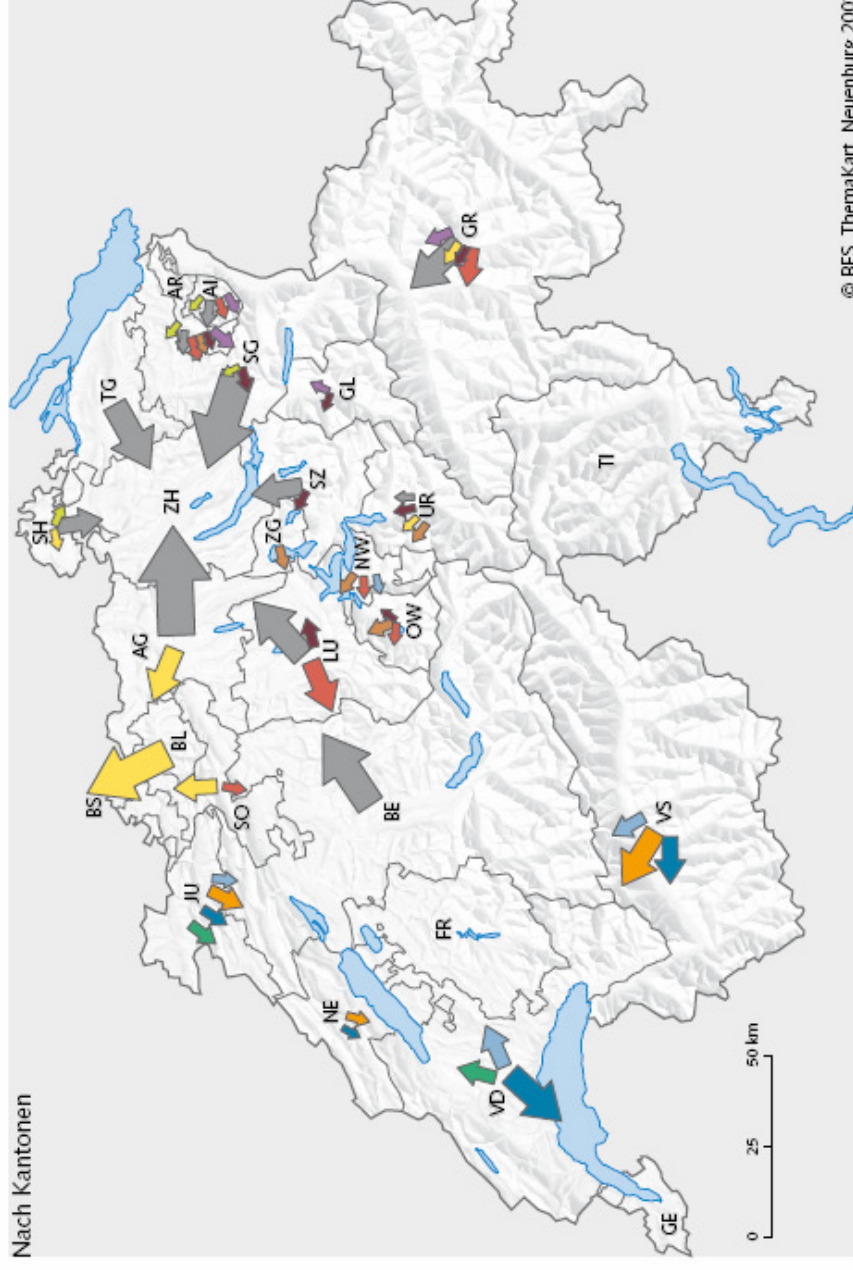
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Regional brain gain

Absolventenjahrgänge 1998 bis 2004:

Die wichtigsten Zuwanderungskantone ein Jahr nach Studienabschluss

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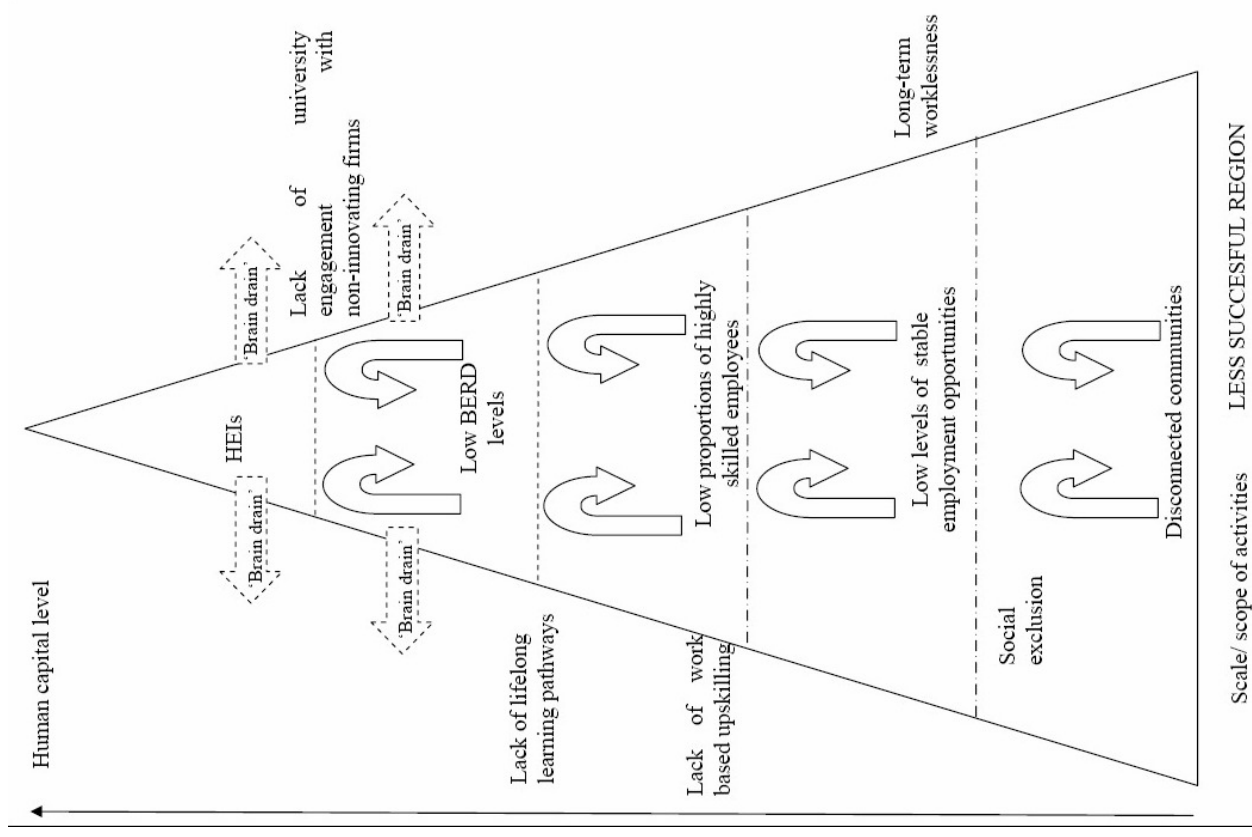
Quelle: Absolventenstudien, BFS

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Barriers faced to human capital pathways in ordinary regions

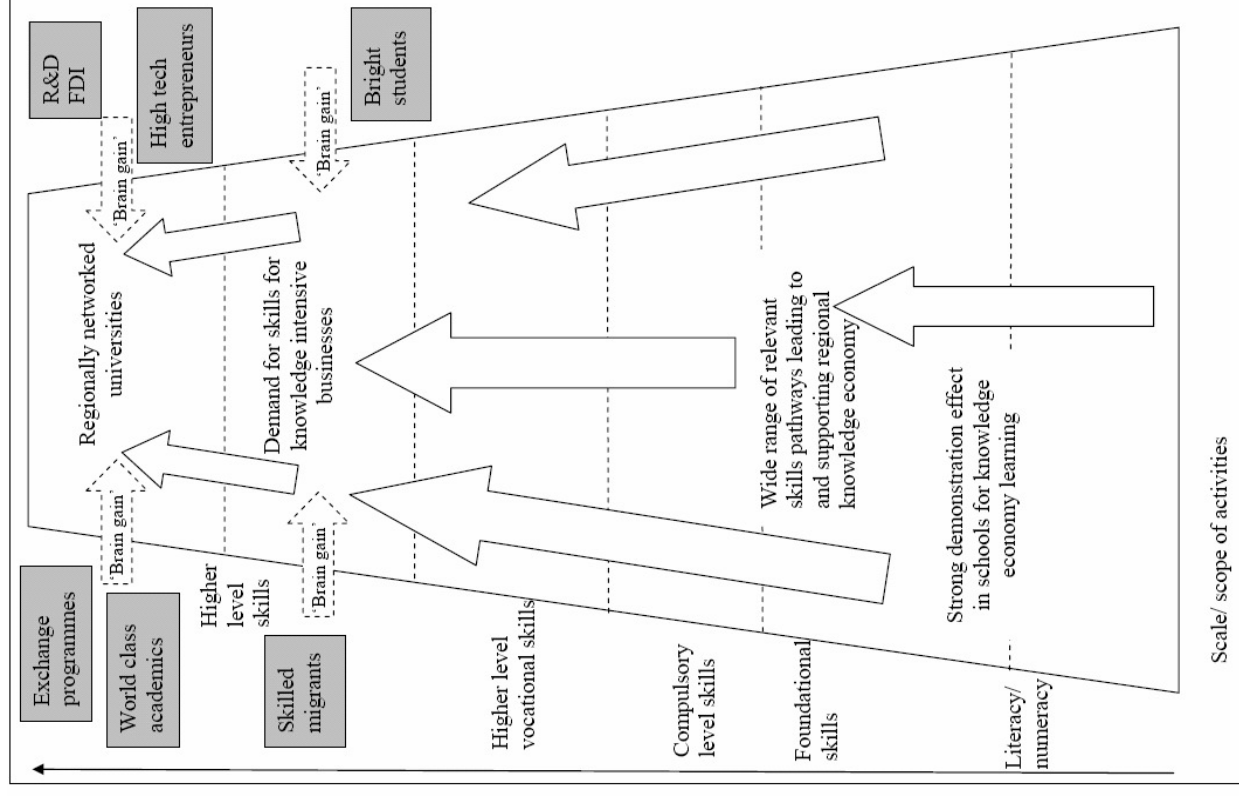


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Universities at the heart of the human capital upgrading process

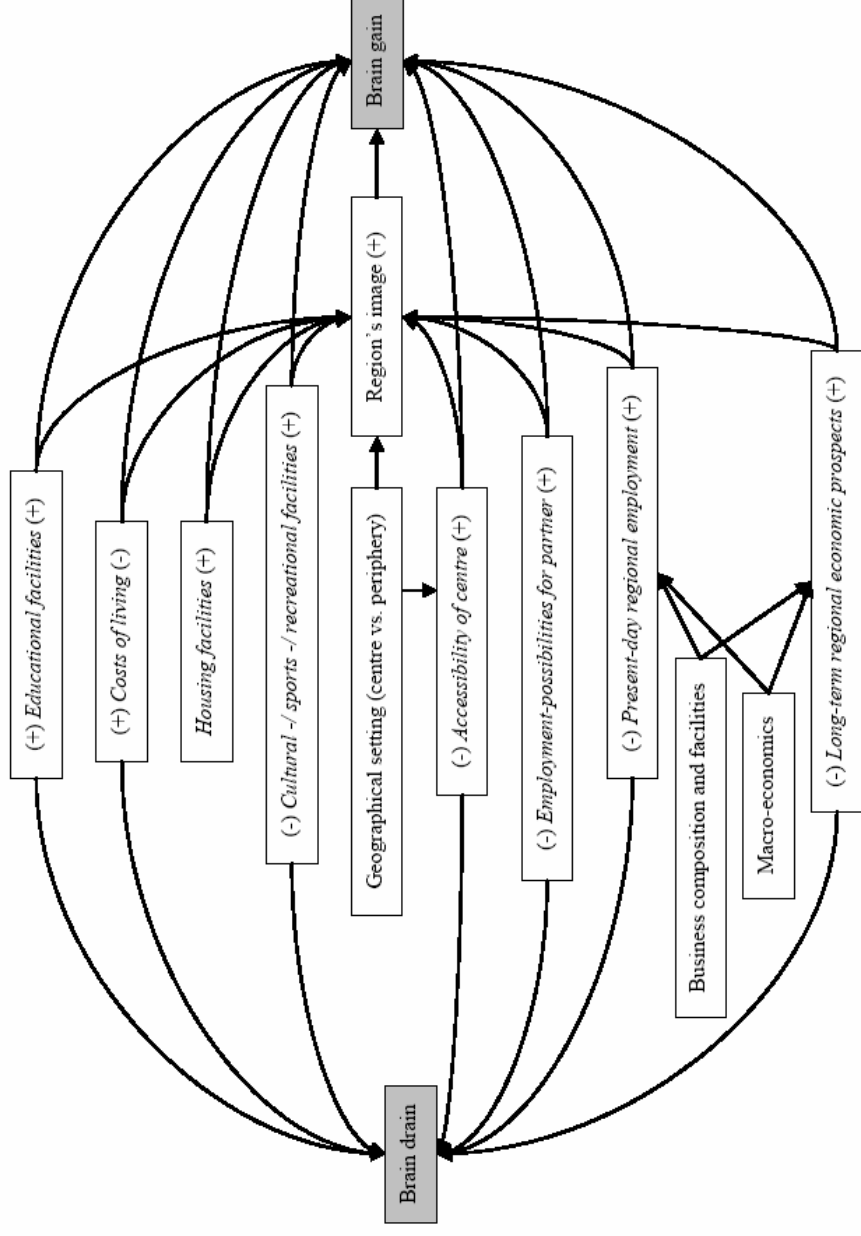


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Example of location attractiveness: How to explain brain drain vs. brain gain?



Quelle: Flikkers D.J. (2004:4)

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Cultural and social life

- ➔ Range of public events (e.g. speeches, concerts, sport events)
- ➔ Public further education programmes
- ➔ Provision of infrastructure for outsiders
- ➔ Commitment of those associated with the university in regional associations, clubs and bodies

Image and identity



Image

- how a region is perceived
- presentation of a region itself
- press and media reports
- ➔ opportunity to build an image of being an open, innovative and modern location



Identity

- impact on the region's self-image and identity inwardly
- Increasing self-confidence
- students can enrich life in the region
- ➔ university can serve as a point of identification

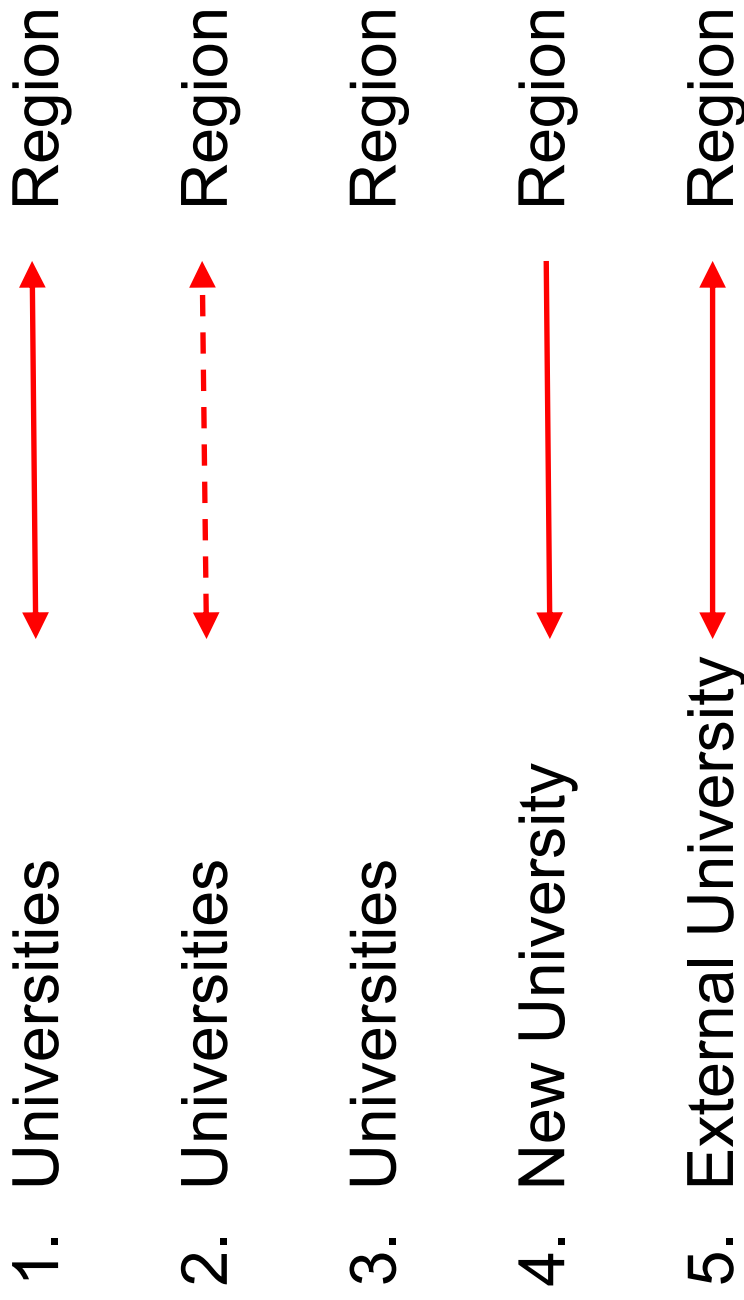
Possible relations between a university and its location region

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Relation between universities and its locations



Possibility 1: University ↔ Region

- Initial situation
 - Universities and regional economy work in close co-operation
- Setting of goals
 - Use of the university as an area of growth for the whole economic development
- Measures
 - Targeted – also constructional – extension of universities and their environment into „parks of knowledge“
 - High attractiveness for technology and knowledge affined companies
 - Strong promotion of spin offs from the universities
 - Innovation and knowledge transfer as an indirect service
- Examples
 - Science City Zürich (CH)
 - Max-Dellbrück centre Berlin (D)
 - Technopol concept France (FR)

Example 1: BioTop Berlin-Brandenburg

→ Content

- Construction of a technology park in the direct vicinity of the university and a research centre with the focus on life science (Campuspark Berlin-Buch)

→ Strategy

- Construction of a technology park, in which companies from the sector can settle
- Promotion of Spinoffs from the R&D facilities by provision of rooms, laboratories and finances
- Active networking between knowledge carriers from the university, research centre and company

→ Successes

- Reestablishment and/or settlement of 120 companies
- 1,200 new jobs created
- Around € 600 million private capital acquired



Source: www.biotop.de

Possibility 2: Universities Region

- Initial situation
 - University and regional economy have various connecting factors as regards content
 - Cooperations between university and economy does not exist or only very limited
- Setting of goals
 - Use of the university as node of knowledge and innovation for the regional economy
- Measures
 - Installation of a knowledge and technology transfer centre
 - Construction of a regional knowledge management system
- Examples
 - ITC (Innovation transfer Central Switzerland) (CH)
 - WTT consortium

Example 2: InnovationTransfer Central Switzerland

- **Content**
 - Promotion of competitiveness of the economy of Central Switzerland via the organisation of knowledge and technology transfers between science and economy and to create services for the economy (task of the FHZ)
- **Strategy**
 - Society of university, FHZ, Central Swiss government, economic promotions, companies and individual persons
 - Benefits: test business potential and market chances, establish contacts, protect and use intellectual property, use promotion programmes, promotion prices and trusts, accompany start-up, spin-off and succession rules, develop strategies, concepts and plans
- **Successes**
 - Almost 1,000 WTT-supporting actions, of which around 220 are in the FHZ and 780 in companies
 - Around 240 first consultations



- ➔ Initial situation
 - ➔ Profile of the university and that of the regional economy show few consistencies
 - ➔ Cooperation between university and economy does not take place due to lack of need
- ➔ Setting of goals
 - ➔ 1. Stronger inclusion of universities into the development of the regional economy
 - ➔ 2. Extension of the regional branch portfolio towards scientific profile
- ➔ Measures
 - ➔ 1: development of corresponding training and further education opportunities on an academic level
 - ➔ 2: Construction of competence and/or technology centres as well as incubators for the promotion of spin offs from the universities
- ➔ Examples
 - ➔ 1: International Institute for Packaging Schaffhausen (CH)
 - ➔ 2: ~~Technopark Zurich~~ / Winterthur / Brugg-Windisch (CH)

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Example 3 : International Packaging Institute

→ Content

- The IPI International Packaging Institute, hosted in Schaffhausen (Switzerland) is worldwide the only international competence center for lightweight primary packaging. The IPI is a registered society according to Swiss law and is supported by international enterprises and regional Universities.

→ Strategy

- To train qualified managers for the international packaging industry on a top level
- Technological hub between the packaging industry and the packing industry as well as to the related scientific and technological institutions
- To strengthen and widen the technological leadership position of the packaging industry in this area

→ Successes

- The IPI Institute the first Master of Engineering in Packaging Technology qualification.



Possibility 4: New University Region

- Initial situation
 - Regional economy is already strongly orientated towards knowledge and innovation
 - Until now the region has never had its own university
- Setting of goals
 - Creation of a need orientated node of knowledge in the region
- Measures
 - Start-up of a university for academic training and further education
 - Construction of regional research and competence centres in the joint sponsorship of university and economy
- Example
 - Competence network light in Vorarlberg (A)

Example 4: Competence network light

→ Content

- Construction of a virtual competence centre for lighting technology, which is integrated into an Austria-wide research and competence network. The founders are 4 large lighting technology companies (Zumtobel group, Osram, Bartenbach and WoWo Sonnenlicht design).
- At the same time the University of Applied Sciences in Vorarlberg was constructed.

→ Strategy

- Initiation of research projects with optimal use of national and European subsidies
- Professionalisation of professional training and further education in the university course of studies on light design

→ Successes

- Numerous new patent registrations in the area of light
- Settlement of new future-oriented LED production companies

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Possibility 5: External University ← Region

- Initial situation
 - The region has strong rural characteristics and shows a relatively low population density
 - The region has until now never had its own university
- Setting goals
 - Need orientated linking of the region to the nationally important nodes of knowledge
- Measures
 - Physical linking of the region to the nodes of knowledge via corresponding IKT offers
 - Networking of regional and national opportunities via corresponding training and further education opportunities on location
- Example
 - Project Uni-Mobile (A)
 - ETH- Centre in Bergell

Example 5: Project Uni-Mobile

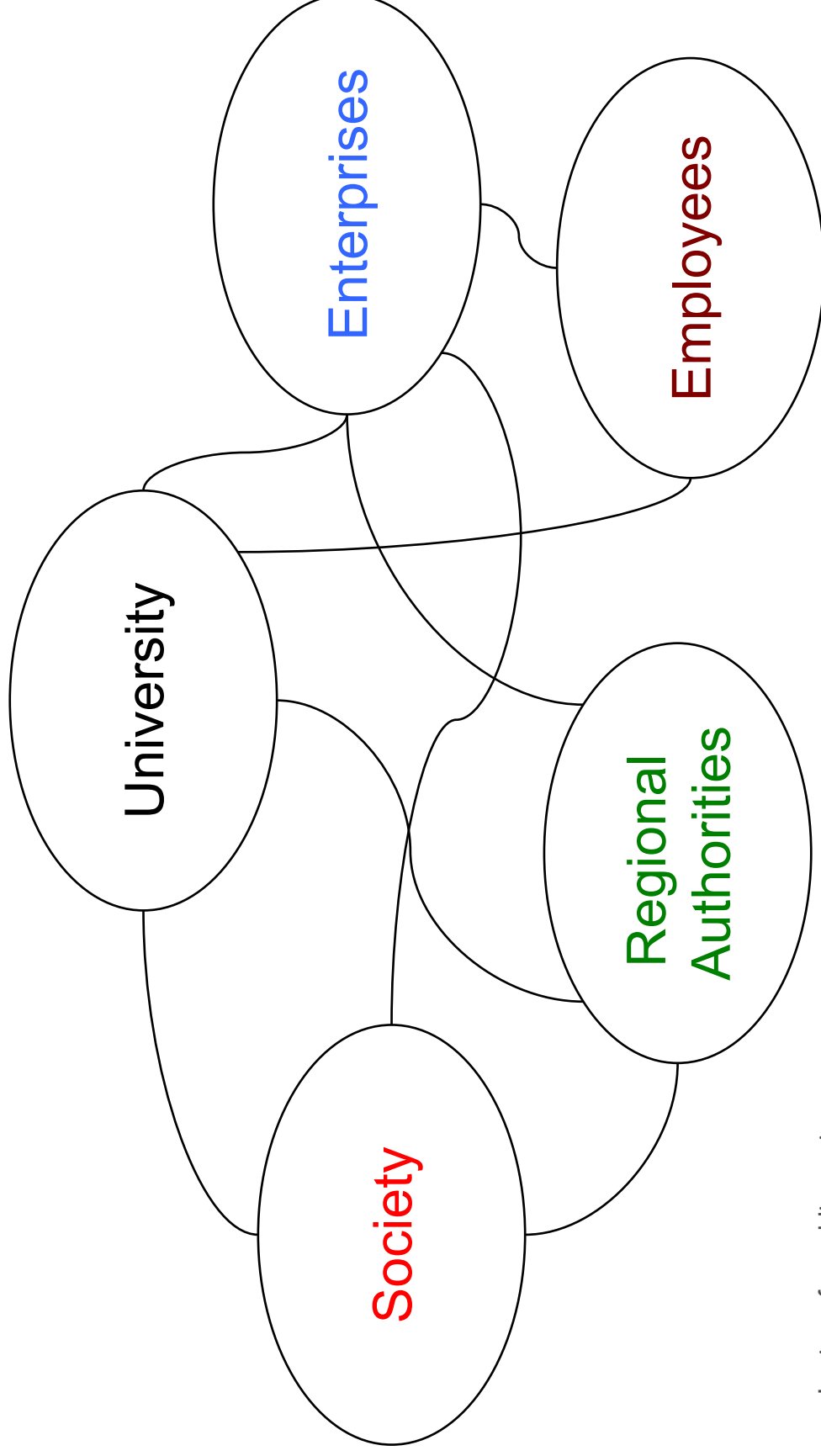
- ➔ Content
 - ➔ The region has strong rural characteristics and has the problem, that well educated people move out of the area
 - ➔ Project coordination via the Technical University of Vienna, project team, borough (LEADER-Project)
- ➔ Strategy
 - ➔ Counteract the Brain Drain Effect
 - ➔ Opportunity for students together with the people in the region to develop demand orientated projects
 - ➔ Sensitisation project, mutual benefits
- ➔ Successes
 - ➔ e.g. participative village renewal projects, creation and evaluation of natural and cultural heritage



Conclusions

Relevant Stakeholders

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General statements

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- **The relationship of universities to their location can be very varied.**
- **Whether or not universities positively contribute to the development of their location depends on various factors**
- **The proximity of the universities and their regional anchoring is always a deciding factor.**
- **The universities are not the only responsables; rather the regional companies and politics must also contribute.**

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Requirements for universities

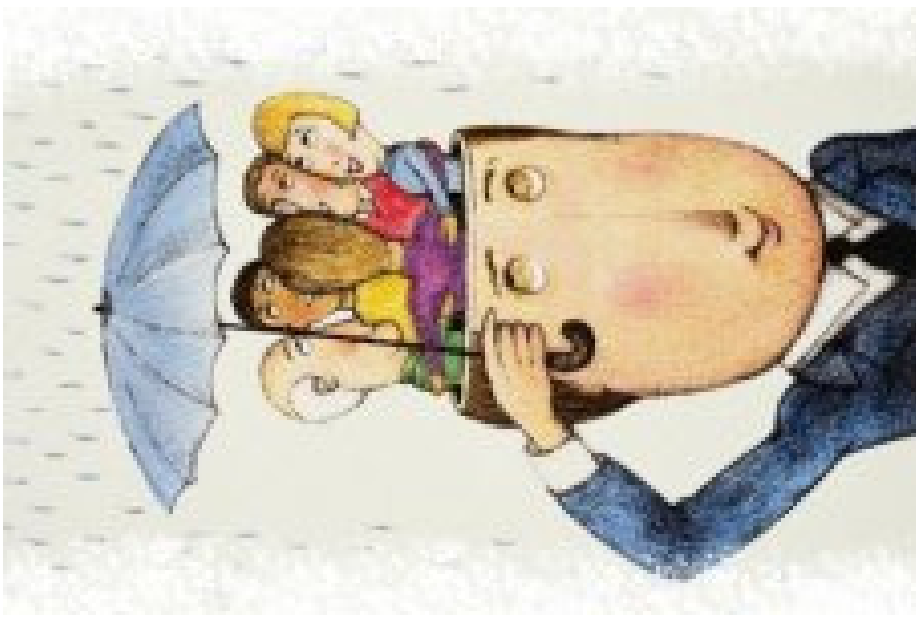
- Don't just look at global competitiveness, but also at the regional innovation and knowledge transfers
- Universities have more to offer than education and research
 - Updating skills of employees
 - Identifying and solving social problems
 - University expertise is needed in an increasingly large range of professional and political fields
- research results have to be transferred into innovation process
- regional agencies, knowledge-based enterprises and universities have to create environments which attract and foster creative individuals and firms
- change from a passive to an active role as a regional player (responsibility)

Requirements for regional players

- Take the universities seriously as a player and partner, Mind map
- Using universities as a repository of knowledge
 - help the region to understand itself
 - gateway to global information to meet the needs of different sectors of the regional economy
- Incorporation into regional action plans and programmes
- Creating a mechanism through which the resources of universities can be mobilised to contribute to the regional development process

Partnership between Universities and regions

„For Universities, the learning region may be the best kept secret of the dying days of this century. In practical terms this implies blending and combining competition in the „new enterprise environment“ with collaboration; fostering and support „boundary spanners“ who can work across borders of the university in effective discourses with other organisations and their different cultures; fostering cultural change to enable universities to speak and work with partners from many traditions and persuasions as more learning organisations emerge and together enrich their various overlapping learning zones or regions.“ (Duke, 1998)





Thank you for your attention!

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