KARL-FRANZENS-UNIVERSITÄT GRAZ
INSTITUT FÜR WIRTSCHAFTS-, SOZIAL- UND UNTERNEHMENSGESCHICHTE
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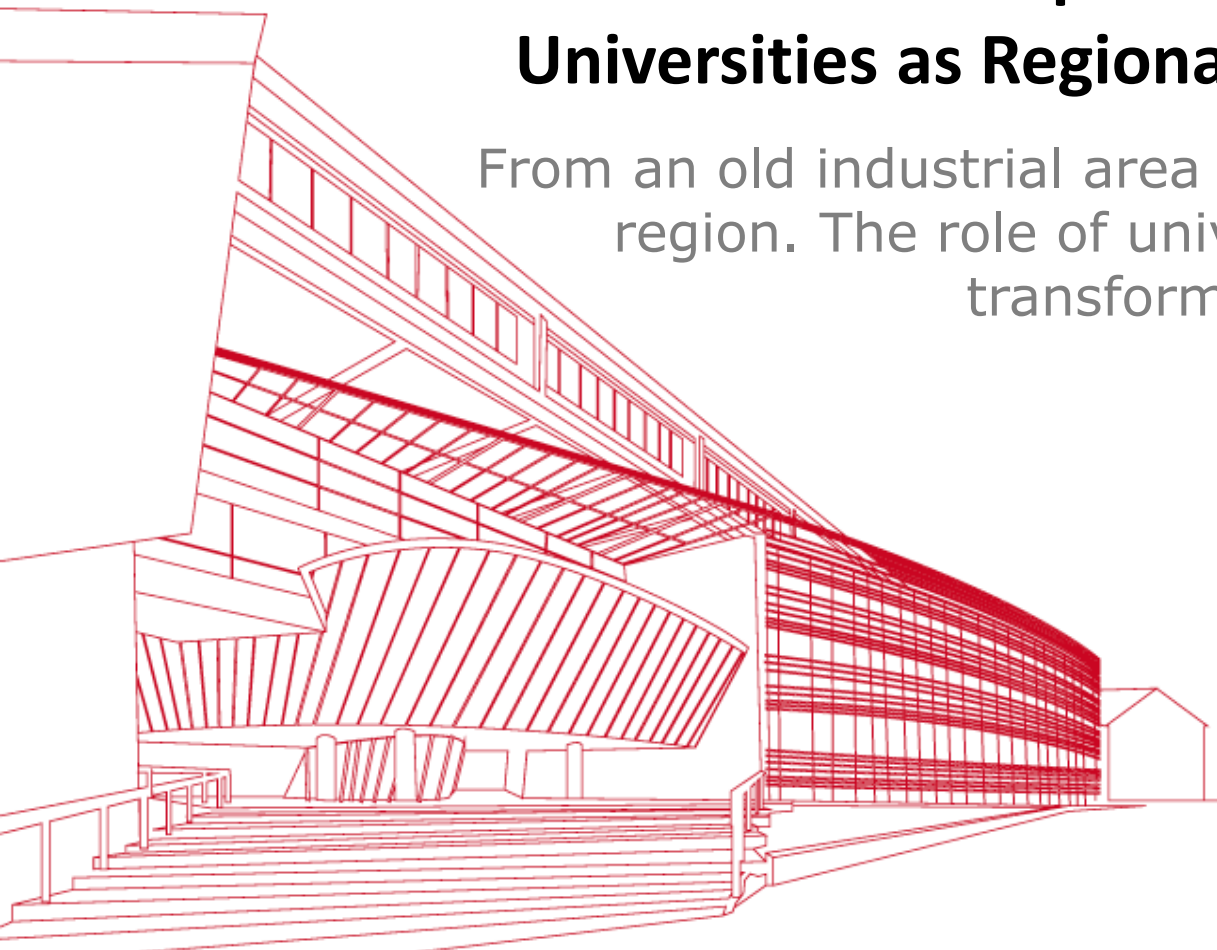
EUA – Smart Specialisation (RIS 3)- Universities as Regional Lead Institutions

From an old industrial area to a modern knowledge region. The role of universities in Styria's transformation



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Historical Background

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- In 1980s manufacturing sector of Styria got into huge structural troubles.
- Most companies situated in primary industries lost international competitiveness → e.g. steel processing, coal mining
- At the time regional economy heavily relied on (nationalized) manufacturing sector → Land Steiermark suffered
- Common problem among Europe → Locations dubbed as “Old Industrial Areas”.
- Situation was depressing

Historical Background II

Facts in numbers:

- In 1993 average unemployment in Styria peaked
- Between 1981 – 1991, 11,4 % of all jobs in Upper Styria lost
- 20% of the population unemployed at least once a year.
- Average period of unemployment increased from 9 to 21 weeks
- Share of unemployed aged over 50 increased from 7 % to 29 %
- Birth rate dropped to -1,9 %

Historical Background III

- Kapfenberg 1987: CEO of industrial Holding of Nationalized Industries, made significant statement to demonstrating workers

"*Please understand, we are bankrupt, we are completely bust*!"

- Kapfenberg 2018: cornerstones of first special steel work in Europe in past 40 years have been laid
- With € 350 Mio. Investment → most modern in the world.

What has happened between those two events?

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Theoretical background

Theories for the change

Need for change to overcome crisis:

- → Old paradigm was to mainly invest in and subsidize industrial production sites
- Led to → Period of stagflation in 1970s & 1980s
- New concepts of innovation, endogenous growth, entrepreneurship & management of proximity were introduced

Theoretical background (selection)

- **Marshall** described positive effects of agglomeration & proximity in 1920s
- **Schumpeter** introduced innovative impact of entrepreneurship
- **Arrow (1962)** described how knowledge externalities work as public good & how they are geographically localized
- **Vernon (1966) & Abernathy and Utterback (1978)** showed how product cycles turn successful locations of production in uncompetitive areas without innovation
- **Romer** introduced endogenous growth theory of how technological R&D based strategies stir up growth in 1980s
- **Porter (1990)** showed role of strategic combination of clusters, factors & governance for the competitiveness of locations.
- **Etzkowitz (1995)** introduced "triple helix" concept → regions act in close strategic alignment between government, industry & universities to improve
- **Audretsch (1997)** added externalities of entrepreneurial success and failure

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To sum it up:

- New thinking about successful economic development emphasized the role of knowledge and proximity as basis for modern economies and the role regions are playing within them.

- In this context role of universities can not be underestimated in process of regional development.

Core Aspects of the Styrian transformation

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What made the difference in Styria?

1. the substance and technological core competence of the manufacturing sector
2. the broad & vivid landscape of universities and research entities.

So, why not combining the two assets & enrich them with various additional measures?

Measures included:

- To guarantee freedom of action → led to the privatization of the manufacturing sector
- To extract technological core of companies → get a focus point for the endogenous development
- To concentrate public funds & subsidies on innovative processes & products
- Find new competitiveness through diversification and concentration (technology-oriented niche policy)

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Three interesting examples of network projects including universities:

1. The introduction of cluster organizations alongside the value chains of branches → including universities as research and educational units.

1. Implementation of a Strategy platform "innoregio styria" (2000s) → most significant players of the research system are co-operating & discussing important topics & strategies development.

1. Universities and companies invested together in subsidized research entities within the Austrian COMET program, called "competence centers" (22 u.t.). → e.g. Mobility, Materials, Biotech, Microelectronics, Pharmaz. Engineering

Special role of the universities

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Core:

1. knowledge creation based on R&D efforts in firms, research laboratories & universities
2. knowledge flows between actors inside a region
3. Flow of knowledge embedded in employees

In Detail:

- To ensure the technological spillovers from science to industry → integration of all three parts of the R&D process (basic r. + applied r. + development)
- To guarantee flow of newly trained graduates from universities to industry → especially in technical fields
- Graduates or researchers leaving universities to start new firms in incubator centers or science parks.
- Researchers working as R&D consultants or serving on company boards
- Accessibility of university knowledge to smaller companies → actively integrating them via transfer institutes

Did Universities also change?

- In 2002 role of the classical universities was redefined by important legal act
  - → Shifted power to rectorate
  - → Universities became a strategic entity
- Universities became then an active stakeholder in regional innovation process
- New and broader openness for co-operations
  - → traditional close co-operation between industry and institutes of TU Graz and Montan University Leoben
  - → Co-operations with industry were deepened and professionalized
  - → also the non-technical Universities are now much more open-minded about their active part in the regional innovation process (e.g. entrepreneurship, incubators
  - → investment in 22 out of 46 competence centers in this region (nearly 3.000 additional researchers working on basic and applied research, jointly financed by industry, government and universities.

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Summary

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- Economic troubles in 1980s - 1990s due to decline of steel & coal industry in Upper-Styria → slow response to changes

- Debate showed way to new paradigm of knowledge, innovation, entrepreneurial spirit & endogenous growth → based on technological development.

- Development of formal & informal networks → promoting knowledge spillovers.
  - Universities & research played special role in process
  - Knowledge creation based on R&D, research, networks & partnerships → Creating knowledge spill-overs.
  - Provided trained graduates & researchers
  - Universities took responsibility as stakeholders & network-partners