

# In the region – for the region?

The multiple roles of universities for their (rural) siting region

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*"Everything we do needs to feed back into our core competences".*

Statement of the university management, University of Twente



# Evolution of the (societal) role of universities

1st academic revolution:  
Humboldtian university:  
research and academic freedom

Mode 1: universities as  
knowledge providers for industry

Universities support  
socio-economic  
development at the  
national level

After World War II:  
contribution of  
economic development

68er revolution:  
democratic mass  
universities with  
access for all

2nd academic  
revolution:  
knowledge and tech  
transfer as core  
missions of the  
university (Third  
mission)

11<sup>th</sup>- 18<sup>th</sup> century

19<sup>th</sup> century

20<sup>th</sup> century

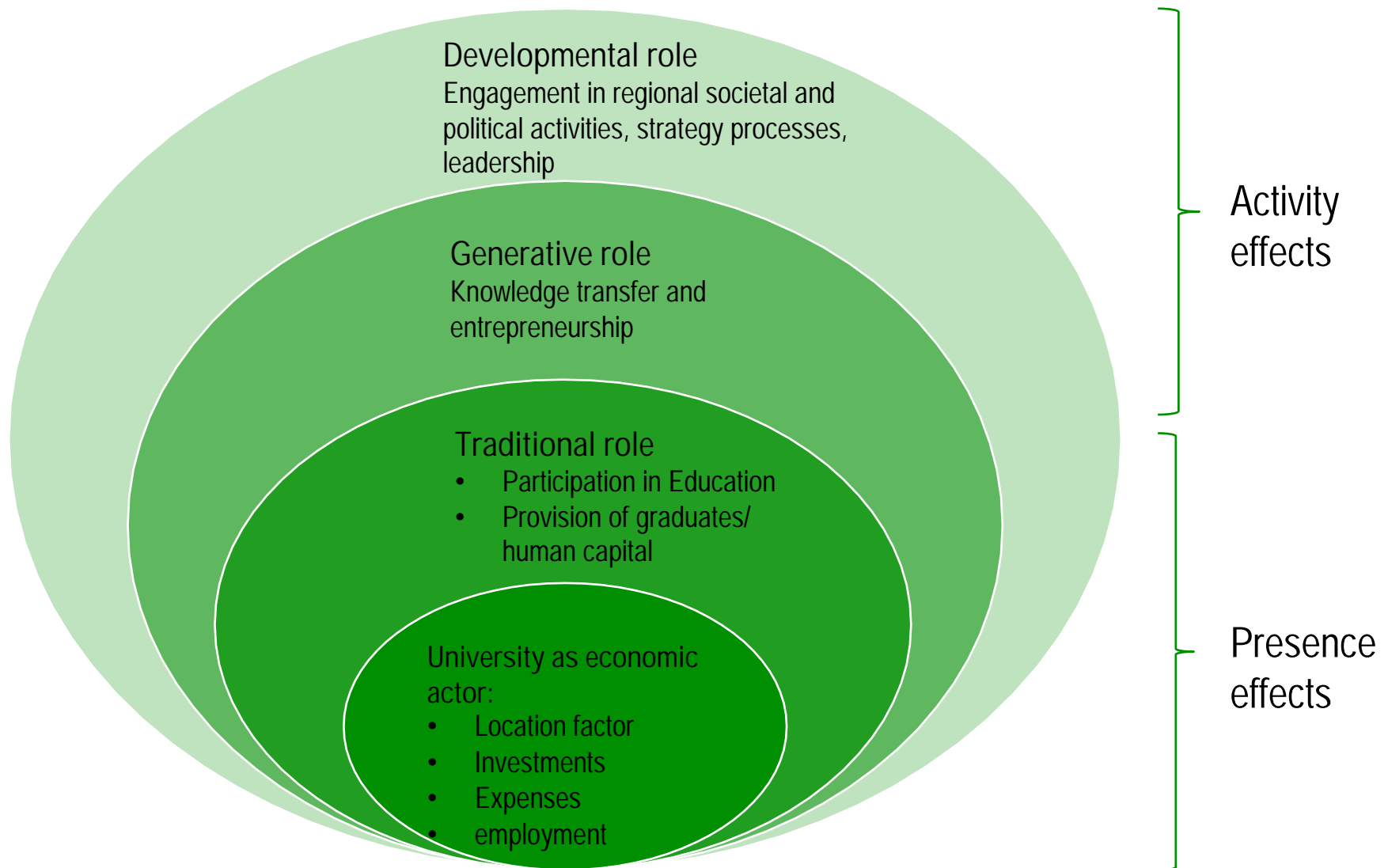
21<sup>st</sup> century

# What does this mean for the regional role of universities?

- The core competences of universities have changed over time
- Organisational and institutional changes have accompanied these processes
- The Higher Education landscape has diversified and decentralized
- But these new developments and changes lead to the same question: **Alongside teaching and research are there other tasks for a modern university in a knowledge society (macro level)? And especially what is the role of the university for its siting region (micro level)?**

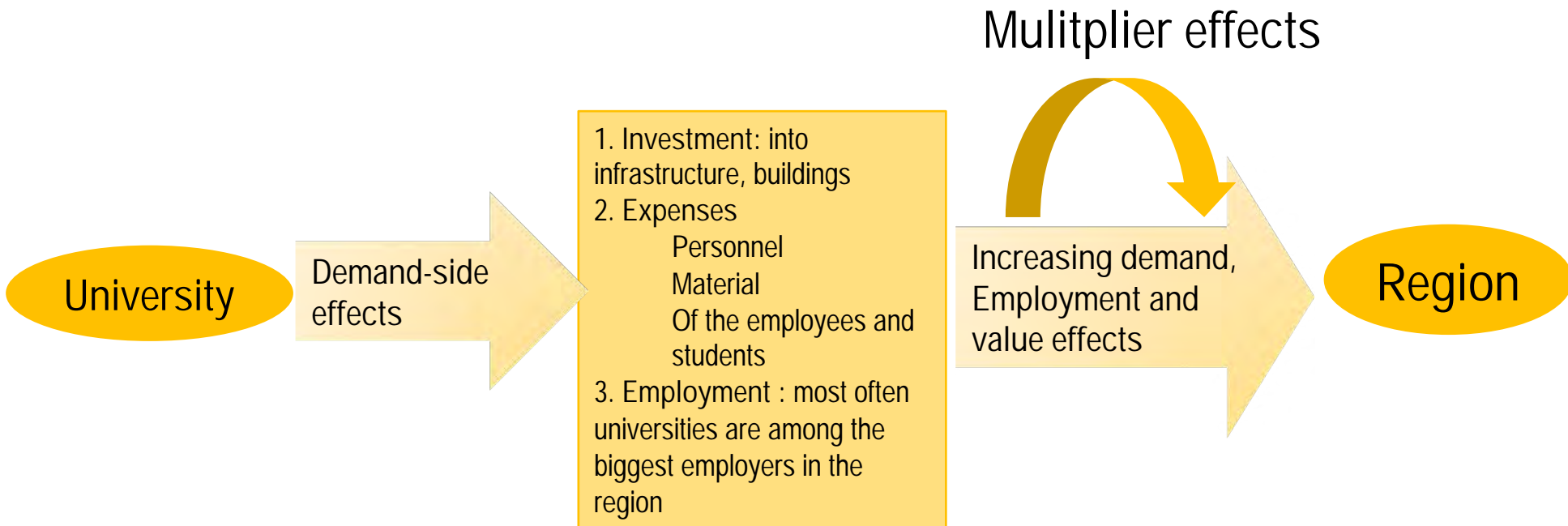
# Content

1. Regional role of universities based on presence effects
2. Regional role of universities based on activity effects
3. Determinants influencing the regional role of universities
4. Challenges for universities in rural siting regions
5. Strategies
6. Conclusions



(Adapted from Hamm and Koschatzky, 2020)

# University as economic actor - demand-side effects



Numerous studies have been conducted to elevate the multiplier effect (e.g. the income multiplier ranges between 1.3 -1.8, similar to value creation multiplier (1.8 - 2.0) (Hamm and Koschatzky 2020)

(Adapted from Hamm and Koschatzky, 2020)

## Traditional role: effects of universities on the participation in higher education

- Decentralized (rural) university locations result in more regional inhabitants considering participating in higher education programs  
(Kunzmann and Tata 2000, Peer and Penker 2014)
- Nevertheless several studies (Bühler-Conrad 1985, Connor 2001) emphasize that **geographical proximity** is not a sufficient precondition, also **social proximity** (determined by the social status of the parents) is influential.
- The probability to pursue a study degree is twice as high for children whose parents have a high school certificate (Matura).

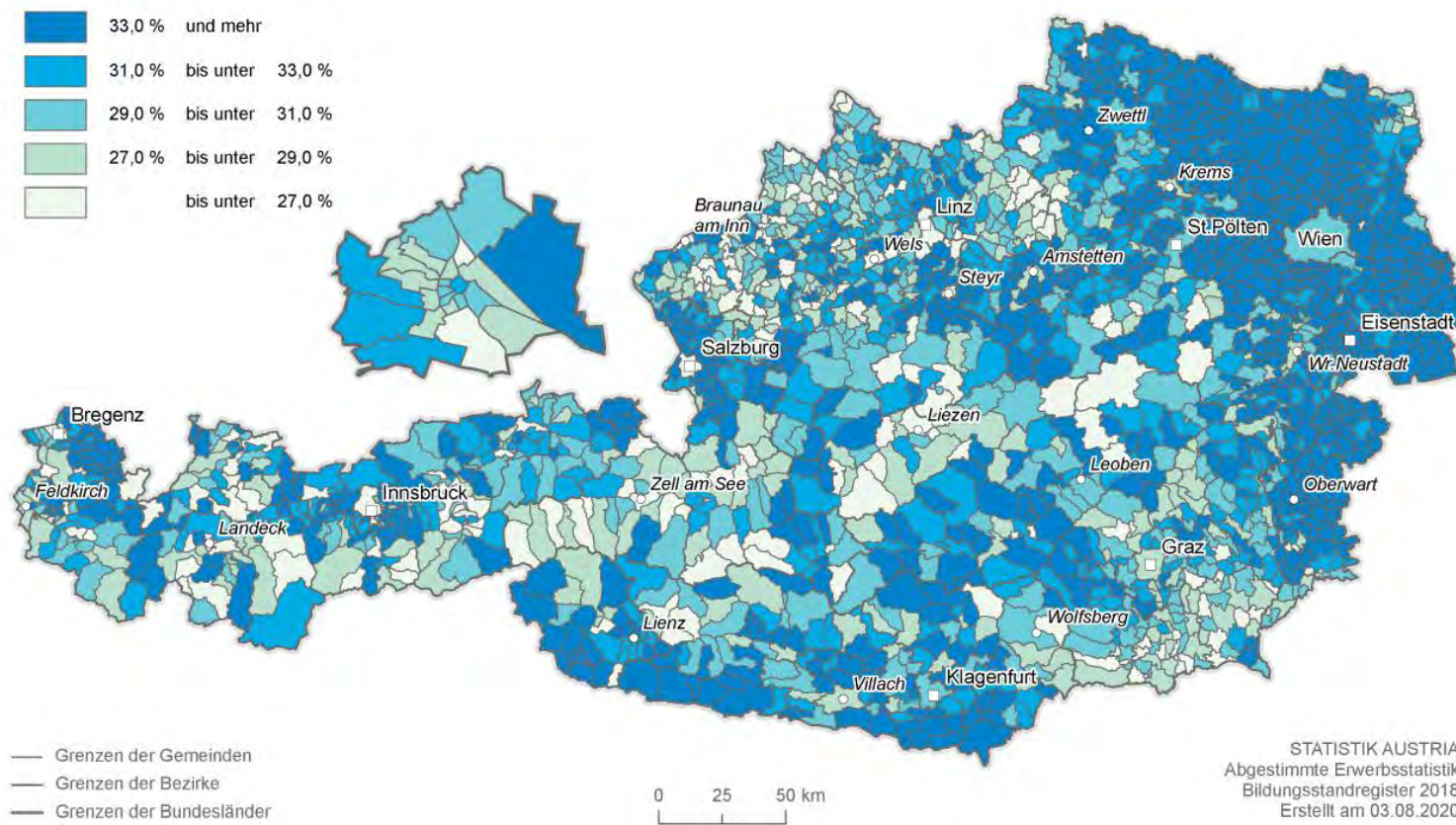


# Traditional role: effects of universities on the participation in higher education

## Höchste abgeschlossene Ausbildung 2018: Mittlere und höhere Schule inklusiv Kolleg nach Gemeinden



Anteil der Bevölkerung mit Abschluss einer mittleren oder höheren Schule  
an der Bevölkerung im Alter von 25 - 64 Jahren



## Traditional role: effects of universities on the participation in higher education

- Study offer in the city / region / federal province of origin have a **significant influences** on the choice for the study programme  
(Kultursministerkonferenz 2020, Radinger-Peer 2013)
- The **more comprehensive the offer of study programmes** in the federal province of origin the higher the probability that the students stay.
- Within Austria most students (around 50%) begin their studies in Vienna, followed by Styria (15%) and Upper Austria (10%) (Statistik Austria, Hochschulstatistik 2020)

# Traditional role: effects of universities on the participation in higher education

Regionale Herkunft (Bundesland)	Insgesamt	Studienort						
		Klagenfurt	Linz	Salzburg	Graz	Leoben	Innsbruck	Wien
Insgesamt	18.346	561	1.675	1.078	3.234	206	1.692	9.900
Burgenland	572	-	9	-	66	3	-	494
Kärnten	1.362	500	17	20	535	13	19	258
Niederösterreich	3.240	2	209	31	62	34	13	2.889
Oberösterreich	2.857	2	1.313	352	288	22	59	821
Salzburg	1.012	8	42	586	109	6	83	178
Steiermark	2.458	35	19	24	2.049	93	9	229
Tirol	1.433	6	4	32	66	6	1.199	120
Vorarlberg	553	3	12	10	26	8	288	206
Wien	4.764	2	44	10	24	18	10	4.656
Wohnsitz Ausland	94	3	6	13	9	2	12	49
Keine Angabe	1	-	-	-	-	1	-	-

Tab.1: First semester students at public universities in the winter term 2019/2020 (Statistik Austria, Hochschulstatistik)

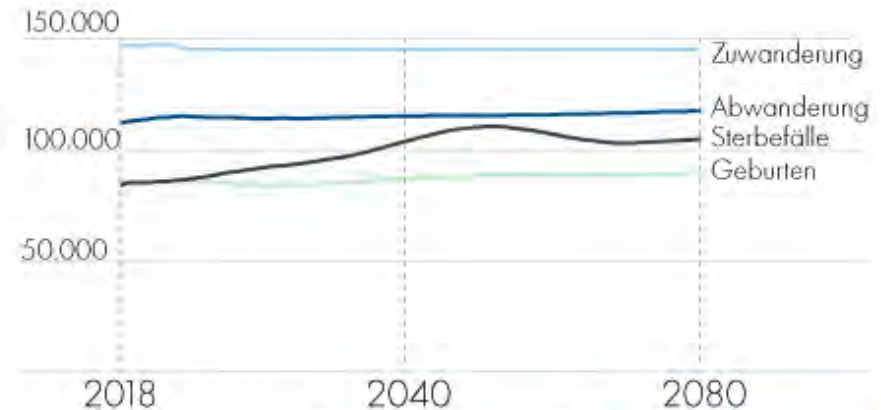
# Bevölkerungsprognose für Österreich bis 2080



## Bevölkerungswachstum im Vergleich zu 2018



Quelle und Grafik: STATISTIK AUSTRIA, Bevölkerungsprognose, - Erstellt am 22.11.2019.





## Traditional role: provision of the region with university graduates

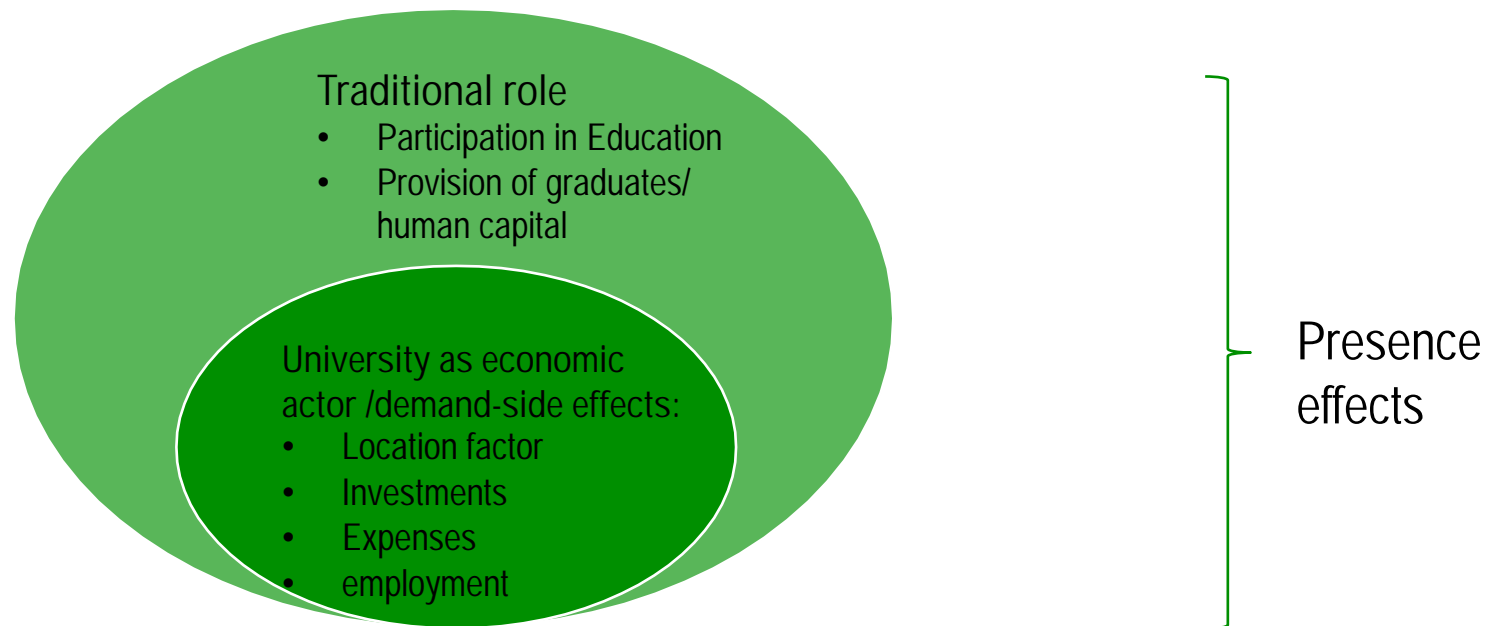
- Graduates are perceived as the most important channel to „transfer“ **academic knowledge** into the regional economy / administration / public authorities
- Graduates have an influence on the regional **potential for innovation** as well as the **absorptive capacity for academic innovation and knowledge**
- Generally the willingness to move is rather high after graduation (Gareis, 2017; Busch 2007), it is lower for those graduates who have completed their study programme in their federal country of origin



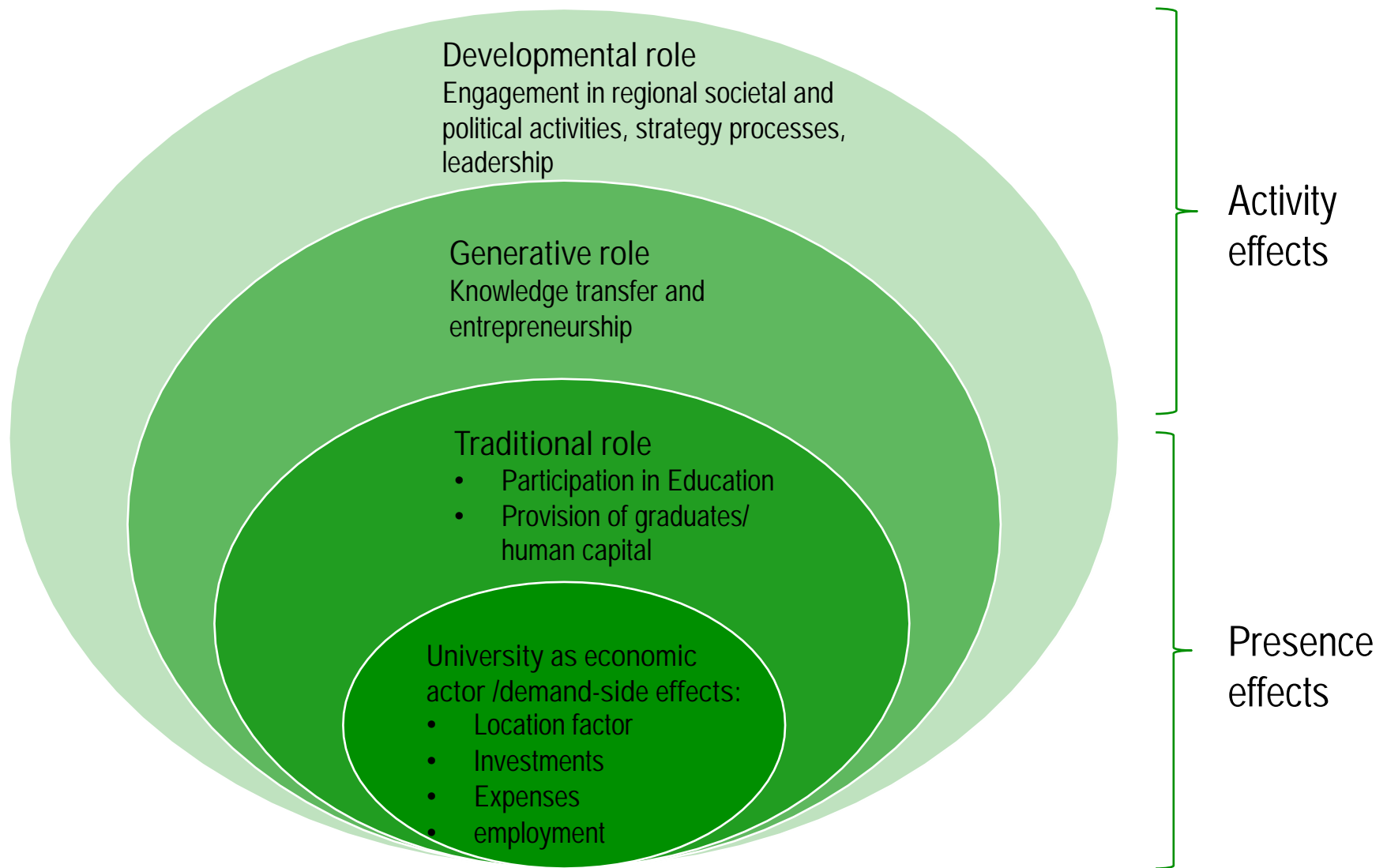
## Traditional role: provision of the region with university graduates

- The most important factors influencing the migration behavior of graduates are:
  1. Adequate workplace (income, career options)
  2. Image of the workplace (e.g. attractive employers)
  3. Reasonable distance to the place of living (Radinger-Peer 2013; Hamm 2013, IHS Kärnten 2015)
- Overall graduates of universities are more mobile than graduates from Universities of Applied Sciences (FH) and graduates from technical studies are more mobile than those from humanistic and social studies.
- A **critical point** is the **correct and comprehensive information** about job opportunities in the region / federal province of origin (Radinger-Peer 2013, Hamm 2013)





(Adapted from Hamm and Koschatzky, 2020)





## Activity effects of universities on their siting region

- The generative role (Gunasekara 2006) refers primarily to the provision of knowledge by the university in response to business or institutional demands (triple helix model, entrepreneurial university)
- The developmental role, in contrast, implies that universities contribute to the long-term socio-economic development of a region by adapting their research and teaching activities more closely to regional needs (Boucher and Conway, 2003). Moreover, universities play an important role in enhancing the regional institutional and social capacity, as well as fostering the creation of new intra- and interregional relationships ("boundary spanning capacity" (Pflitsch and Radinger-Peer 2018) (e.g. engaged university model, sustainable university model)

## Activity effects of universities on their siting region

...generative role

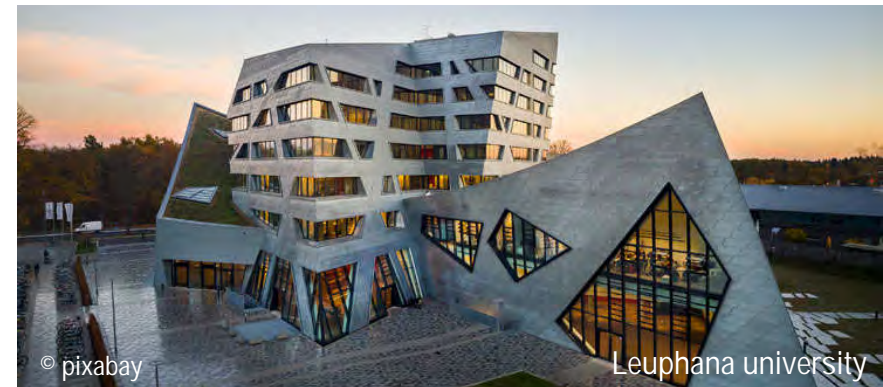
Triple Helix

Entrepreneurial  
university

...developmental role

Sustainable university

Engaged university



## Activity effects of universities on their siting region

### ...generative role

#### Entrepreneurial university

#### Triple Helix university

<i>Definition</i>	University applies an economic mission and focuses on the commercialization of knowledge via patents, licenses and spin-off foundations	University – industry – government relations are generated endogenously with overlapping institutional spheres where hybrid organizations emerge at the interface
<i>Organisational change</i>	<ul style="list-style-type: none"> <li>• transfer units at the interface of the university and the regional environment</li> <li>• Internal incentive structures</li> <li>• “entrepreneurial scientists”</li> <li>• Change from a general mission towards an economic mission</li> <li>• Commercialization activities are taken into account in the evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Foundation of hybrid organizations such as knowledge transfer offices, university incubator facilities;</li> <li>• New firm foundations/spin offs;</li> <li>• Transdisciplinary thinking and working methods</li> </ul>

(Source: Radinger-Peer, 2019a)

## Activity effects of universities on their siting region

### ...developmental role

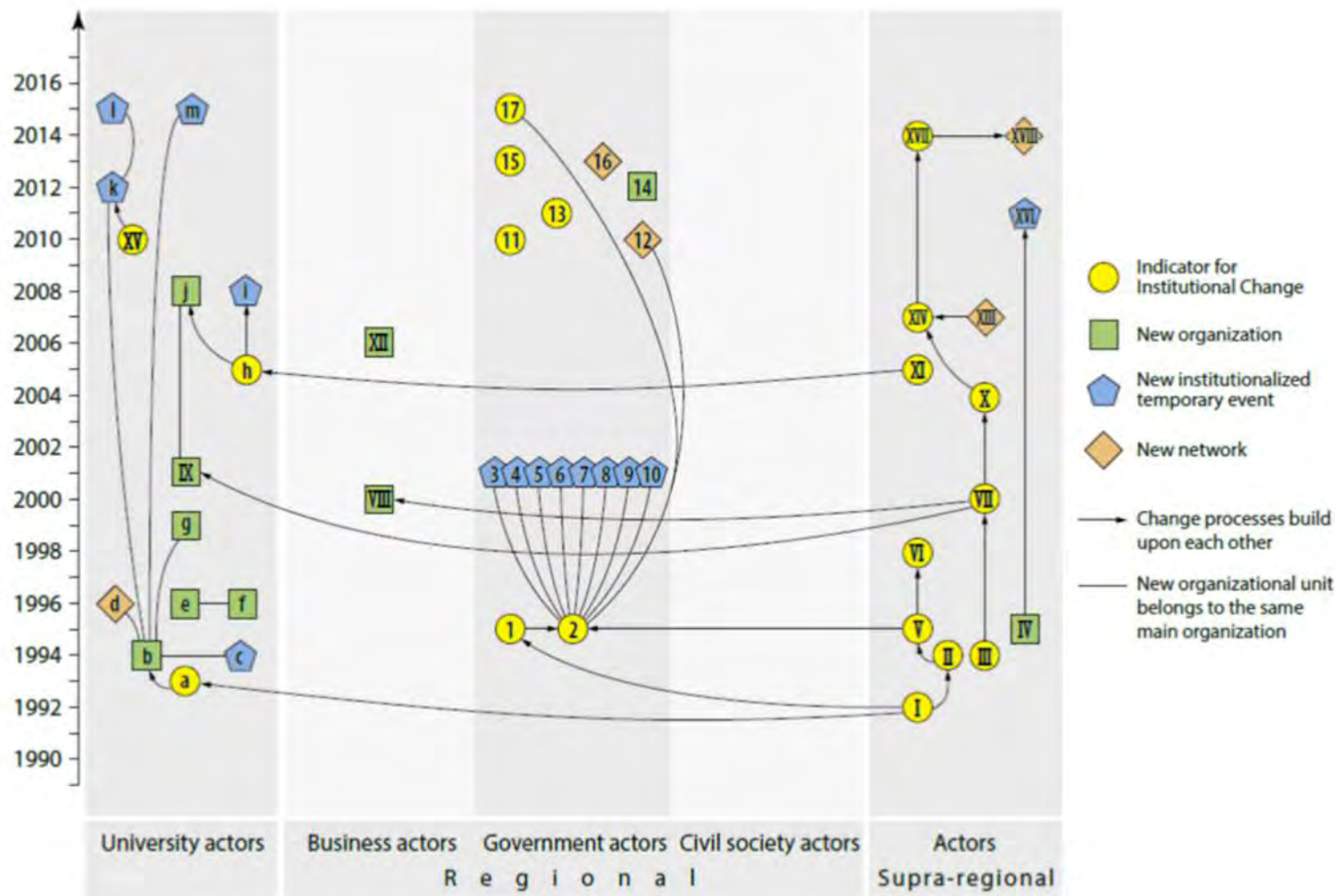
#### Engaged university

#### Sustainable university

<i>Definition</i>	The regional focus is integrated in all activities of the universities, that is research, teaching and other knowledge exchange activities	Sustainability is incorporated as key principle into management practices as well as teaching, research and outreach activities
<i>Organisational change</i>	<ul style="list-style-type: none"> <li>• Integration of the regional focus into the mission and strategy of the university</li> <li>• Integration of the regional focus/perspective into teaching and research</li> <li>• Participation in strategic regional networks</li> <li>• Boundary spanning between different regional actors</li> <li>• Change of the self-perception of the university</li> <li>• Transdisciplinarity</li> <li>• Institutional entrepreneurs as role models for regional engagement activities</li> </ul>	<ul style="list-style-type: none"> <li>• Change of management and operational practices towards more sustainable practices or conduction of certifications (e.g. EMAS)</li> <li>• Sustainability is taken into account as core principle in teaching and research</li> <li>• Participation in regional transformation/development processes towards sustainability</li> </ul>

(Source: Radinger-Peer, 2019a)

Example on how the Johannes Kepler University Linz exerted a developmental role to support the regional sustainability developments in its siting region (Source: Pflitsch and Radinger-Peer 2018)



## Activity effects of universities on their siting region

- Most often a mixture of the presented types of regional engagement occurs
- Nonetheless which role is followed universities can exert different forms of agency and further regional path development (Grillitsch and Sotarauta. 2019; Nieth and Radinger-Peer, forthcoming)

## Activity effects of universities on their siting region

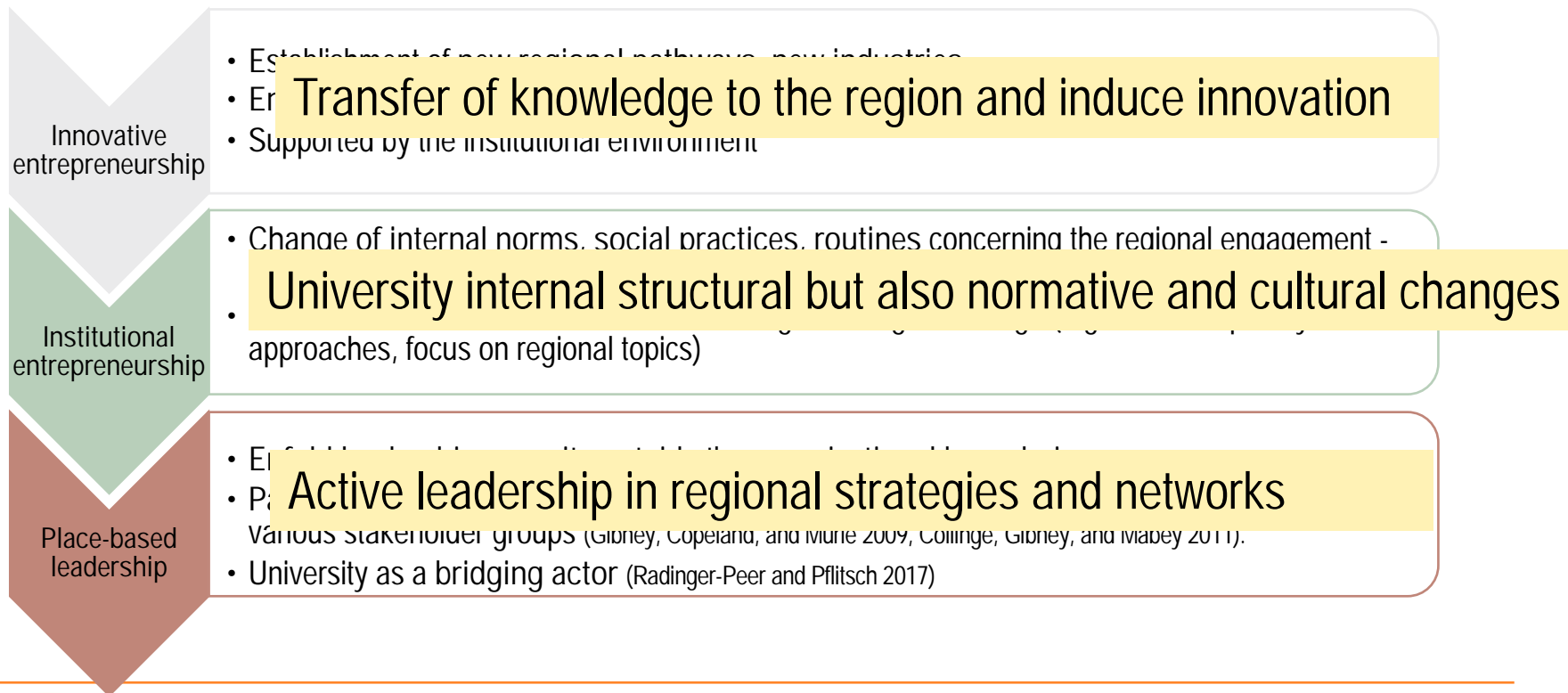
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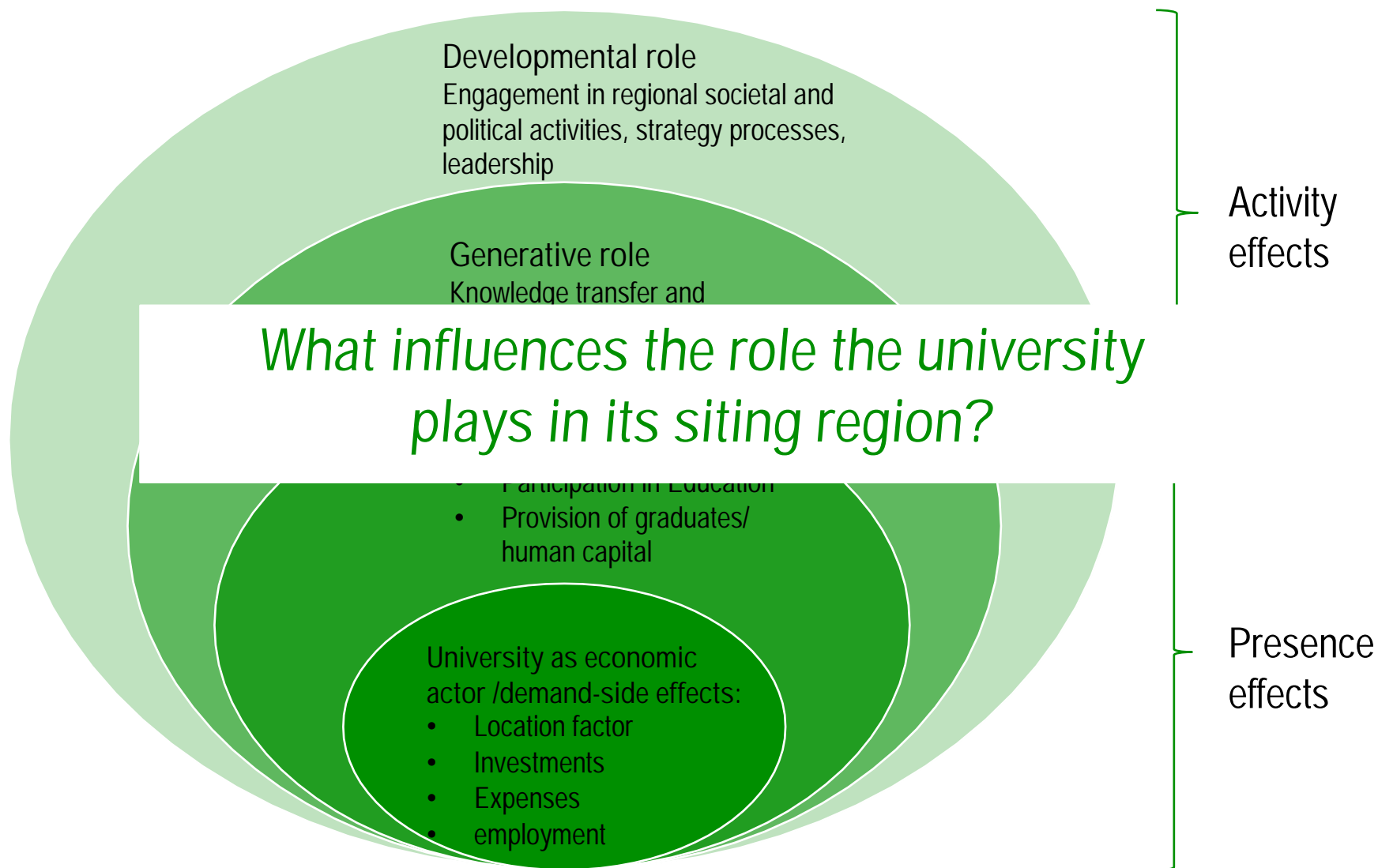


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## Determinants influencing the regional role of universities

- Each university – region setting is **unique**
- **Spatial /geographical proximity** alone does not guarantee a prosperous interplay of university and region => other types of proximity are needed as well!
- The regional role is **not self evident** but influenced by the regional environment
  - ✓ Regional influencing factors
  - ✓ Organizational influencing factors
  - ✓ Institutional framework

## Determinants influencing the regional role of universities

### Regional influencing factors

- Characteristics of the **regional economy** (industries, size, R&D affinity, cluster => **cognitive proximity**; the employment of graduates in regional businesses increases this type of proximity)
- Invitation and participation of the university in regional **networks** (knowledge exchange, strategy processes) => establishment of **organizational proximity** between universities and public and private actors)
- Political support for the development /establishment of university infrastructure and location development
- Number of other HEIs in the region



# Determinants influencing the regional role of universities

## Organisational influencing factors

- **Type** of university (research-oriented, teaching-oriented, technical, full etc) => technical universities have a higher probability to establish as an entrepreneurial university
- **History and reasons for foundation** (after World War II university foundations are more regional oriented / attitude towards applied research than older universities)
- **Profile**, mission statement and self-perception (influenced by university management and leadership)



# Determinants influencing the regional role of universities

## Institutional framework

- refers to the Higher Education System (national, international, global)
- governmental **regulatory framework** ("Leistungsvereinbarungen") => influence on the strategic orientation and agenda setting of universities
- Focus of **financing and funding** programs
- Norms within a certain academic profession (what is allowed / legitimated / appropriate)



## Challenges for universities in rural siting region

- Profiling and image
- Focus of the universities (departments, study programs etc) vs demands of the labour market/industry
- Attraction of students and staff (=> affect the legitimacy)
- Demand for internationality (vs regionality?)
- Demand for academic excellence (vs societal engagement?)
- (Rural) image of the region
- Etc.



## Evidence from two case study regions

### Technical University of Kaiserslautern

- Founded in 1969 as part of the double university Trier-Kaiserslautern
- Main reason for founding: a) shortage of vocational teachers and b) “development aid” for the structurally weak region Western Palatine
- No. of students: 14.500 (around 5.000 via distance learning)
- Focus: technical university, 12 departments including social and economic sciences (departments)



## Main challenges of the Technical University of Kaiserslautern

- Attraction of students:
  - German wide decline of student numbers at the beginning of the 1990s
  - Competition with other Technical Universities
  - Offer of study programs attracted only partial interest of female students
  - Lack of an image as student city (income students from the “washing machine radius”)
- Regional labour market was not able to absorb the graduates from the different study programs
- Permanent political expectations to spur the regional economic development



## Strategies of the Technical University of Kaiserslautern

- With regard to incoming students:
  - Foundation of the distance learning center (DISC) in 1992 => 20% of the overall students are international students (17 international Graduate programs)
  - Strengthening of the social and economic related study programs (which attract especial attention from female students)
  - Establishment of a network of partner-universities among which students can change/switch easily or receive a joint or double degree
  - Image => via excellence orientation as well as cooperation with the city government to make the city more attractive for students.



## Strategies of the Technical University of Kaiserslautern

- Profiling and Excellence orientation: attraction and foundation of numerous highly renowned (often applied) institutes from the 1980s onwards => close relationship to regional industry, increase of R&D cooperation

two Fraunhofer Institutes, a Max Planck Institute, the German Research Center for Artificial Intelligence (DFKI), the Institute for Surface and Thin Film Analysis (IFOS), and the Institute for Composite Materials (IVW)

## Strategies of the Technical University of Kaiserslautern

- Profiling and Excellence orientation: attraction and foundation of numerous highly renowned (often applied) institutes from the 1980s onwards => close relationship to regional industry, increase of R&D cooperation
- Research output and teaching excellence lead to top positions in national and international rankings => affect the image and reputation
- Spin Off Creation and entrepreneurship become the main focus at the TUK => graduates found their own work place, especially in IT)
- Institutionalization of Knowledge and Technology Transfer at the university

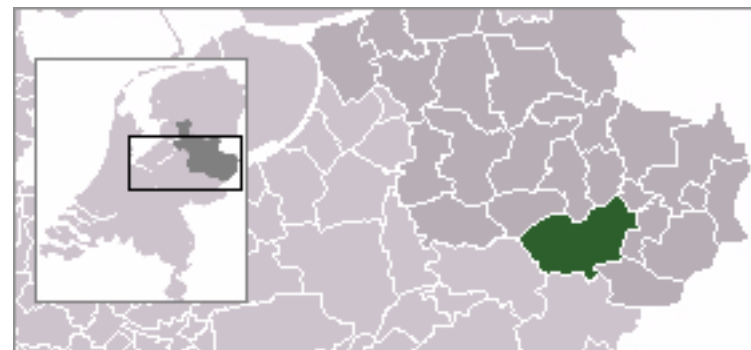
## Strategies of the Technical University of Kaiserslautern

- Networks and Alliances:
  - Participation in (metal, engineering, textile) cluster and initiation of the Software cluster
  - Initiation of networks (Science Alliance, Diemersteiner Kreis) between the University, University of Applied Sciences, local and regional public authorities as well as regional businesses
- Board of trustees of the university actively integrates local policymakers and businesses to discuss a joint regional agenda (regional labor market and stay of the graduates, location development, business settlement and attraction of companies => **university shows interest in challenges of regional policy/ regional businesses** (Radinger-Peer 2019b)



## University of Twente

- Founded in 1964 as one of three Dutch Technical universities
- Was expected to support the development of a modern technology based regional economy (after economic crises and de-industrialization)
- In 1985 the rector Van den Kroonenberg rebranded UT as “the entrepreneurial university”
- No. of students: 9.645 (2018)
- 6 Departments



Source: [www.utwente.nl](http://www.utwente.nl)

## Main challenges of the University of Twente

- Attraction of students:
  - Due to the location and the lack of efficient reachability (via airplane, train) it is a challenge to attract income students
  - Furthermore many graduates leave after their Bachelor or Master degree due to the perception, that there is a lack of jobs in the region and other cities are the places to be (Brain drain).
- Image of the region and of the university
- Lack of absorptive capacity of the regional economy for university knowledge transfer (lack of cognitive proximity)
- Lack of effective decision making structures for the whole region

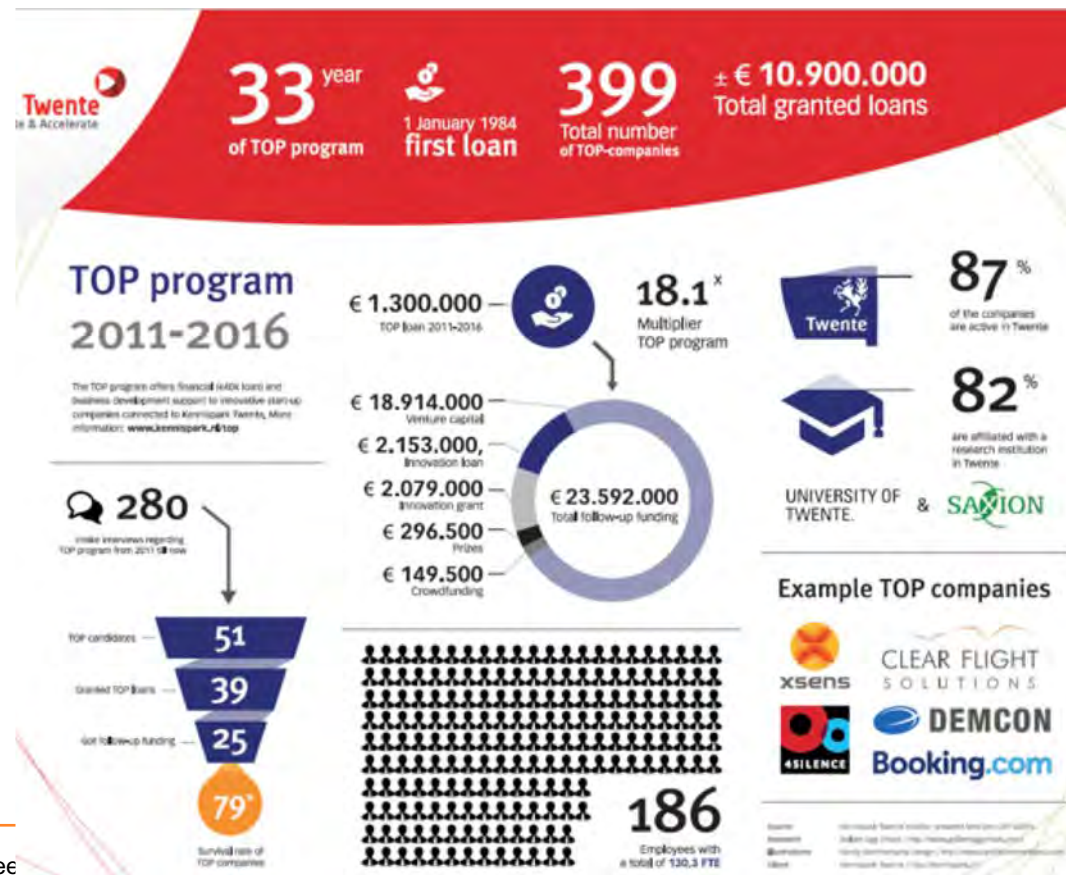
(Benneworth and Hospers 2007; Nieth and Radinger-Peer, forthcoming)



## Strategies of the University of Twente

- Excellence via cutting edge research in the fields of medical technology, telematics, nanotechnology and tissue engineering and the foundation of respective institutes ( e.g. MESA+, MIRA, ITC -)
- Creation of the TOP program (temporary entrepreneur scheme) and the foundation of the Business and Science Park show a strong commitment to entrepreneurial activity in the region and spin-off creations.

Dr. Verena Radinger-Pee



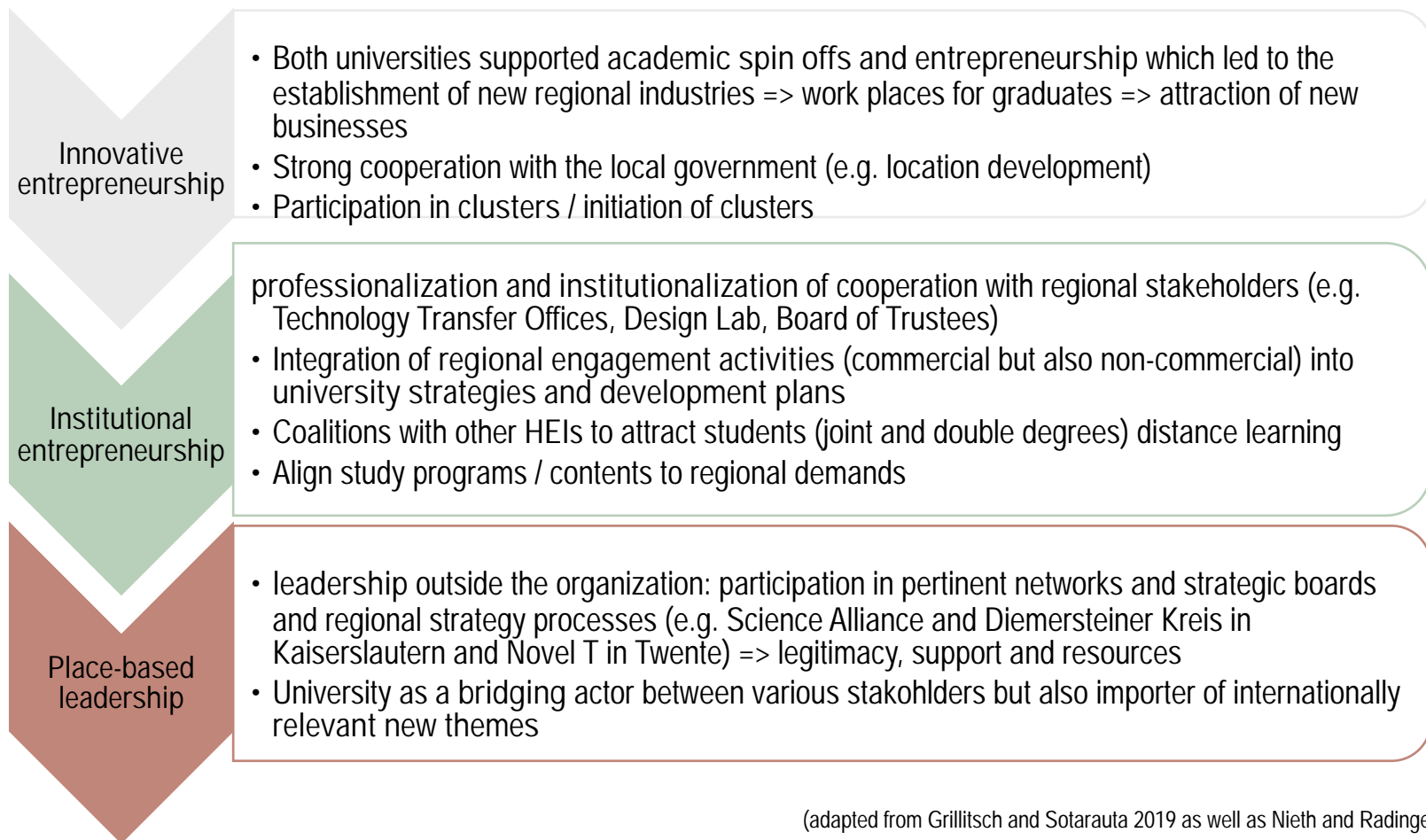


## Strategies of the University of Twente

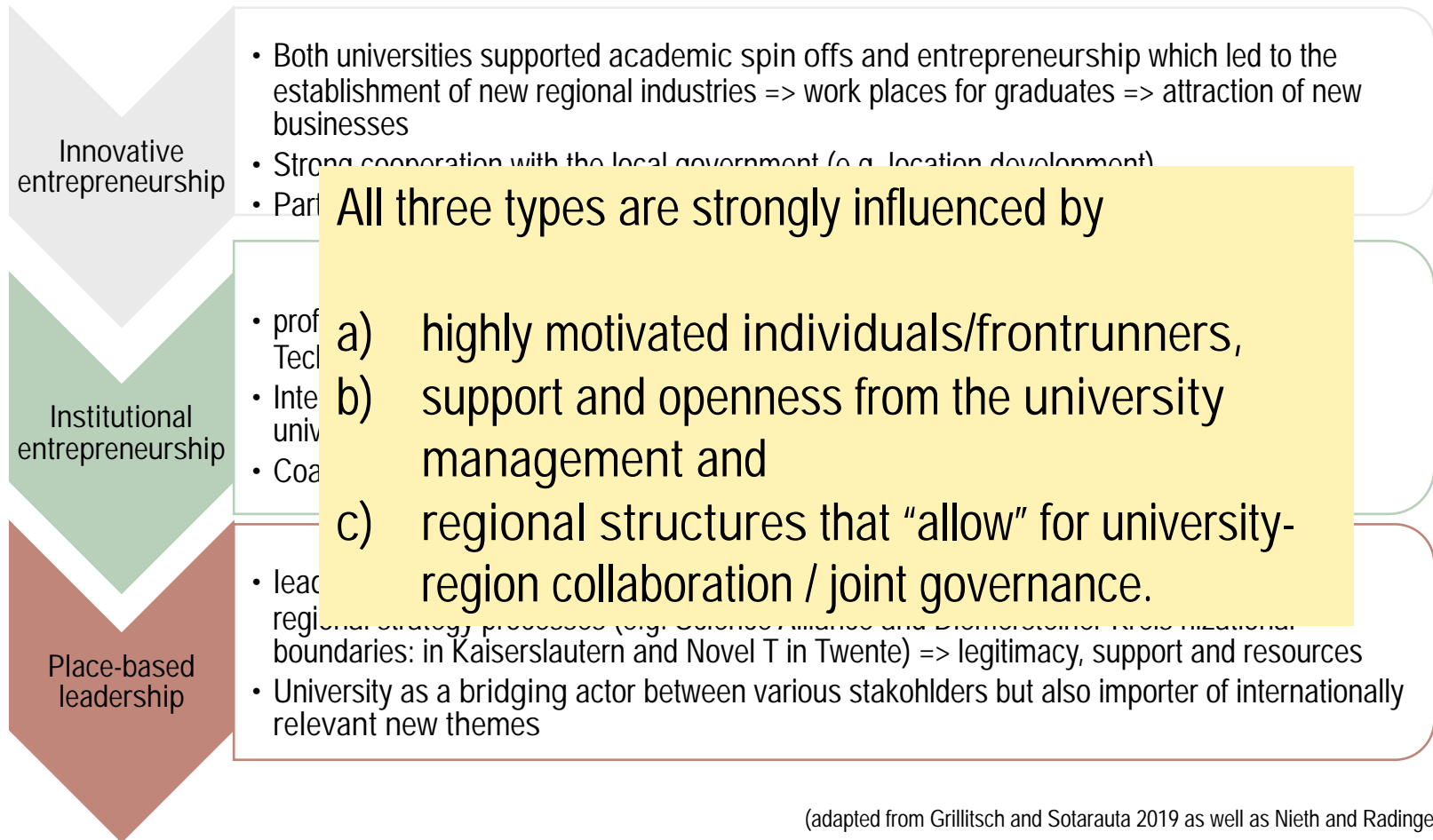
- Due to the lack of absorptive capacity of the regional industries, the university established new industries (especially in ICT) (Novel T as incubator and foundation of numerous spin-offs)
- Active participation in regional strategic processes (e.g. partner in the Twente Board)
- Together with regional businesses and the local government new strategies to inform graduates (in Twente and abroad) about job and career opportunities in the region are envisaged and implemented.



## Summary of the strategies of the two case study universities



## Summary of the strategies of the two case study universities



(adapted from Grillitsch and Sotarauta 2019 as well as Nieth and Radinger-Peer forthcoming)

## Conclusion

- The establishment of the regional role is a **deliberation process**
- the region is only one of **multiple levels** the university is active at and the regional focus is only one of **multiple perspectives** the university has
- regionally embedded and active within a multi-scalar international environment



## Conclusion

- the **success of the university** (e.g. attraction of students, image building, location development) is also dependent on the **cooperation with** and **support of** respective regional stakeholders/partners
- The higher the **proximity** (cognitive, organizational, institutional) between the university and its region/the regional private and public stakeholders, **the higher the probability for a “win-win” situation.**
- The two universities have **actively shaped the proximity** to their location region via multiple roles and different forms of agency.

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Thank you!

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