Universities, innovation and urban and regional development: challenges, tensions and opportunities in Europe

John Goddard
Emeritus Professor of Regional Development Studies
Formerly Deputy Vice Chancellor

Outline

- The potential role of universities in urban & regional development
  "the promise"

- Some of the mechanisms that can be used
  "the possible"

- Barriers and challenges
  "the practice"

- A proposed approach – the 'Civic University'
  "the pitch"

Context

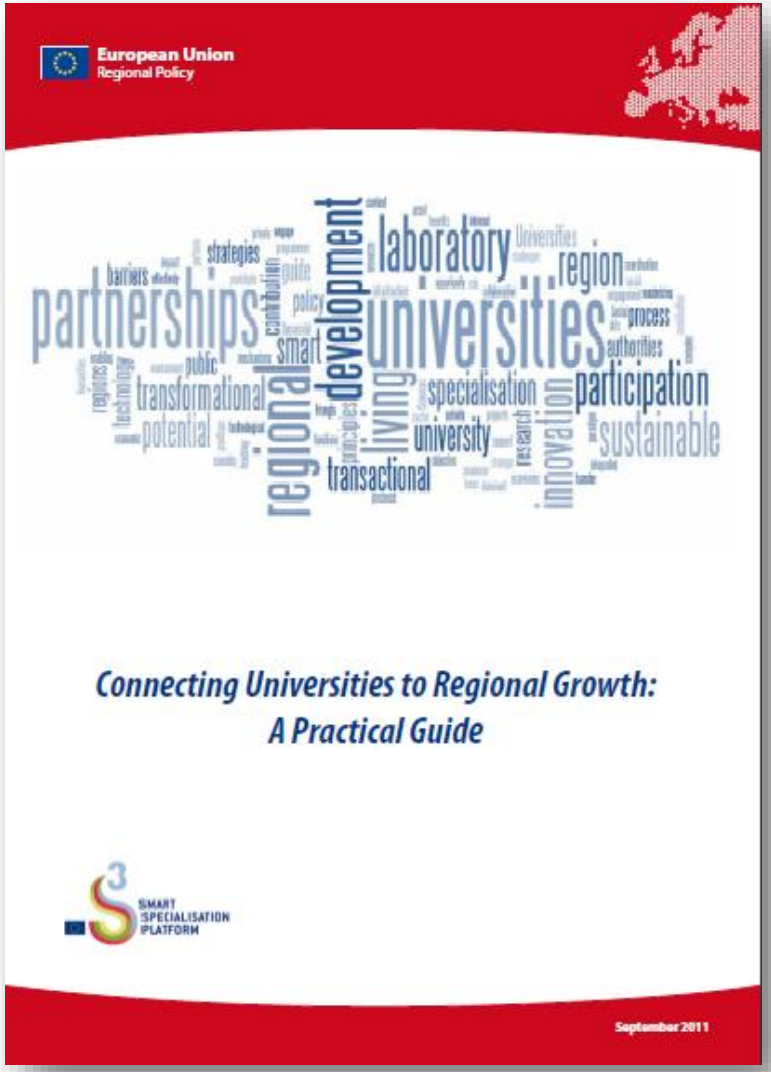
- Debate about the role and purpose of higher education in contemporary society in response to the question: *What are universities for?*

- At least two distinct research and related policy communities

(1) Universities as institutions within their own internal logic

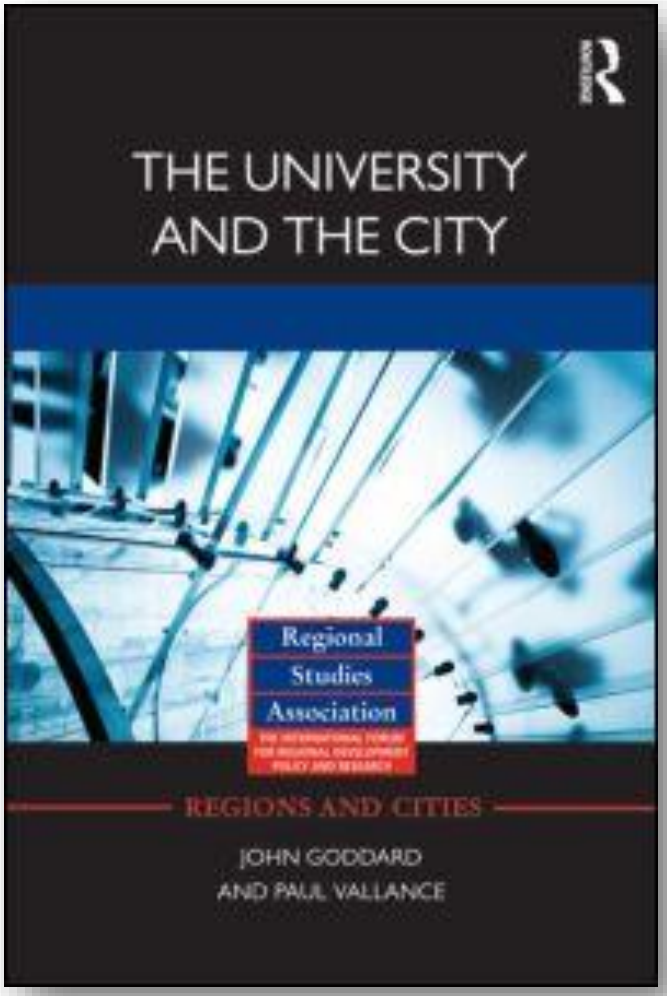
(2) Societal expectations of universities – e.g. health, culture, business support, city and regional development

Source materials (unless otherwise acknowledged)



http://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf

(Or just Google '*connecting universities to regional growth*'!)



Published 25th January 2013

This book is based on original research into the experience of the UK and selected English provincial cities, with a focus on the role of universities in addressing the challenges of environmental sustainability, health and cultural development.

The case studies are set in the context of reviews of the international evidence on the links between universities and the urban economy, their role in 'place making' and in the local community.

Forthcoming: Elgar 2015

An edited volume of case studies of 8 eight institutions in four European countries (Newcastle, University College London, Amsterdam, Groningen, Aalto, Tampere, Trinity College Dublin, Dublin Institute of Technology)

The focus is on the 'what' and 'how' of civic engagement, particularly the vision and mission, leadership, management and governance, organisation, financial and human resource policies and practises required to mobilise the academic community to meet the needs of the wider society locally, nationally and globally.

THE POTENTIAL ROLE OF UNIVERSITIES IN REGIONAL DEVELOPMENT

Contributing to innovation and economic development

- Multi-faceted functions of the university as an educational and cultural institution not just a knowledge producer (Charles 2008)
- Joining up direct commodification of knowledge via spin outs etc. with human capital upgrades in the urban labour market and social capital that builds trust and co-operative norms in local economic governance networks
- The developmental as well as generative role of universities (Gunasekara 2006)
- University influence on the city based political, institutional and network factors that shape innovation processes beyond input of knowledge capital (Benneworth et. al 2009)

Seen by European policy makers as KEY actors in supporting growth and jobs

- '*In assessing the role of HEIs in the region it is useful to identify the steps needed to create a 'connected region' in which the institutions are key players. Through this connection process institutions become key partners for regional authorities in formulating and implementing their smart specialisation strategies'*

- *'They can contribute to a region's assessment of its knowledge assets, capabilities and competencies, including those embedded in the institution's own departments as well as local businesses, with a view to identifying the most promising areas of specialisation for the region, but also the weaknesses that hamper innovation'*

Source : 'An agenda for modernisation of Europe's higher education system' European Commission COM (2011) (567)

The HE Knowledge Exchange System in the US

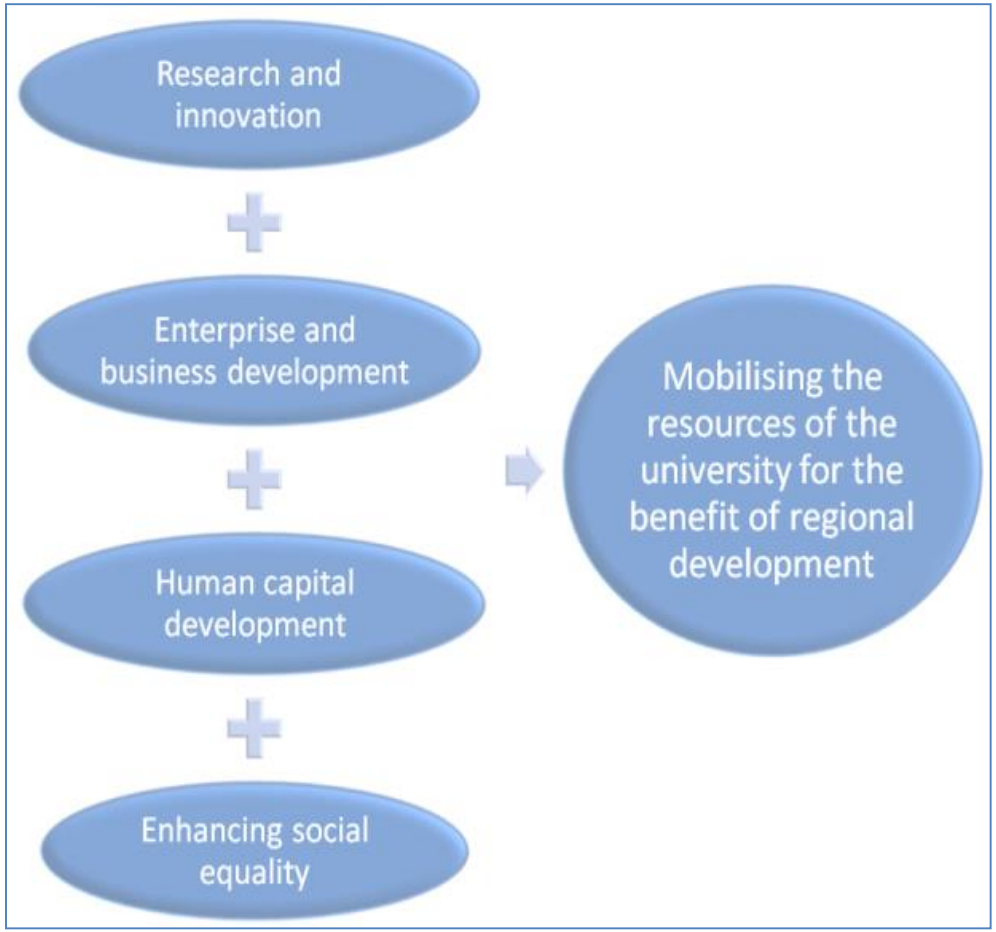
- *"There has been a distinct change of approach away from the assumption that KE is a uni-directional flow of knowledge from the university towards the user and from a highly transactional approach towards a collaborative approach in which the user is seen as a partner rather than simply a customer"*
- *"Most if not all universities (in the study) recognise the role of the university in supporting state wide economic* ***and*** *community development: support for small firm start ups and growth, business advisory services, entrepreneurship education, extension and continuing education that attempts to reach far and wide in the state; and public engagement activities that are typically but not exclusively located around the university" (* Centre for Business Research, University of Cambridge)

SOME OF THE MECHANISMS THAT CAN BE USED

The mechanisms by which universities can and do contribute to development and growth

4 Key Areas;

- Enhancing innovation through their research activities
- Promoting enterprise, business development and growth
- Contributing to the development of human capital and skills
- Improving social equality through regeneration and cultural development

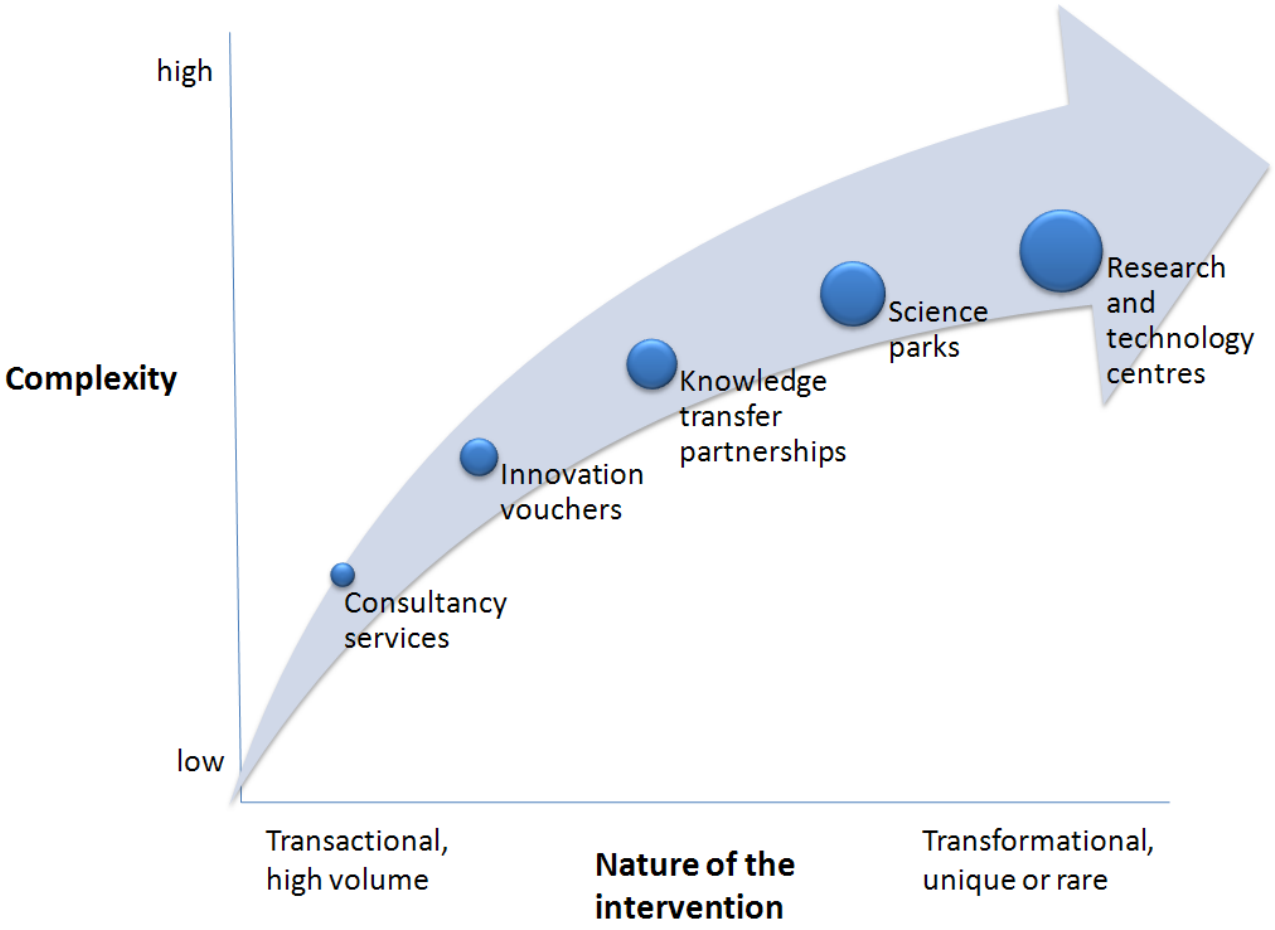


Transactional Services vs. Transformational Activities

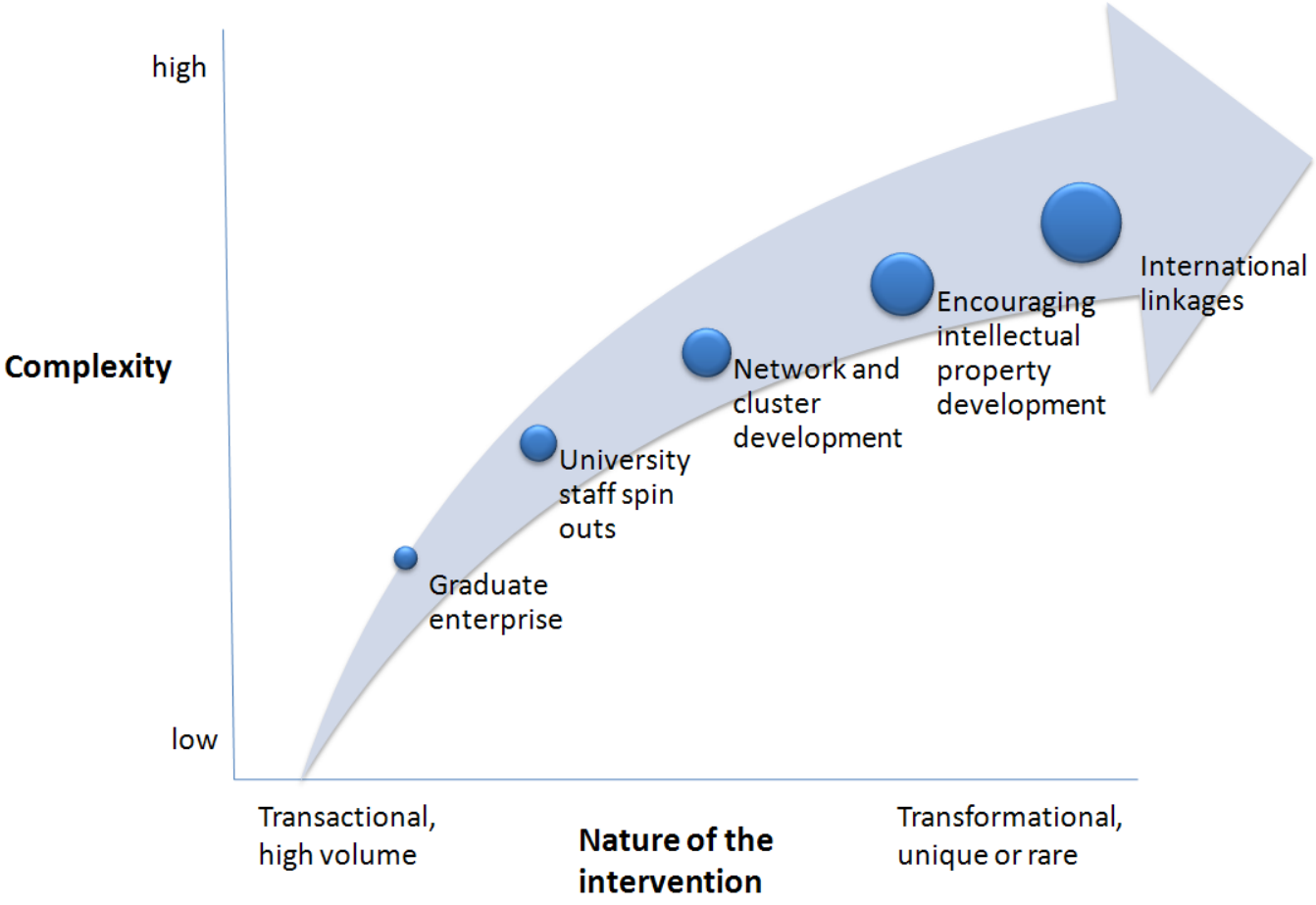
When exploring mechanisms for intervention we need to make a distinction between the impact of '***normal***' university activity (financed as part of the core business of teaching and research) and '***purposive***' interventions (initially funded from a source outside higher education and then ideally 'mainstreamed'.)

	'Transactional' services	Transformational activities
Type of need / demand	stated need or demand	latent or unstated needs
Type of approach	*output* driven approach	*outcome* driven approach
Type of objectives	clear objectives	less explicit objectives
Link to time	usually time bound	less clear timelines

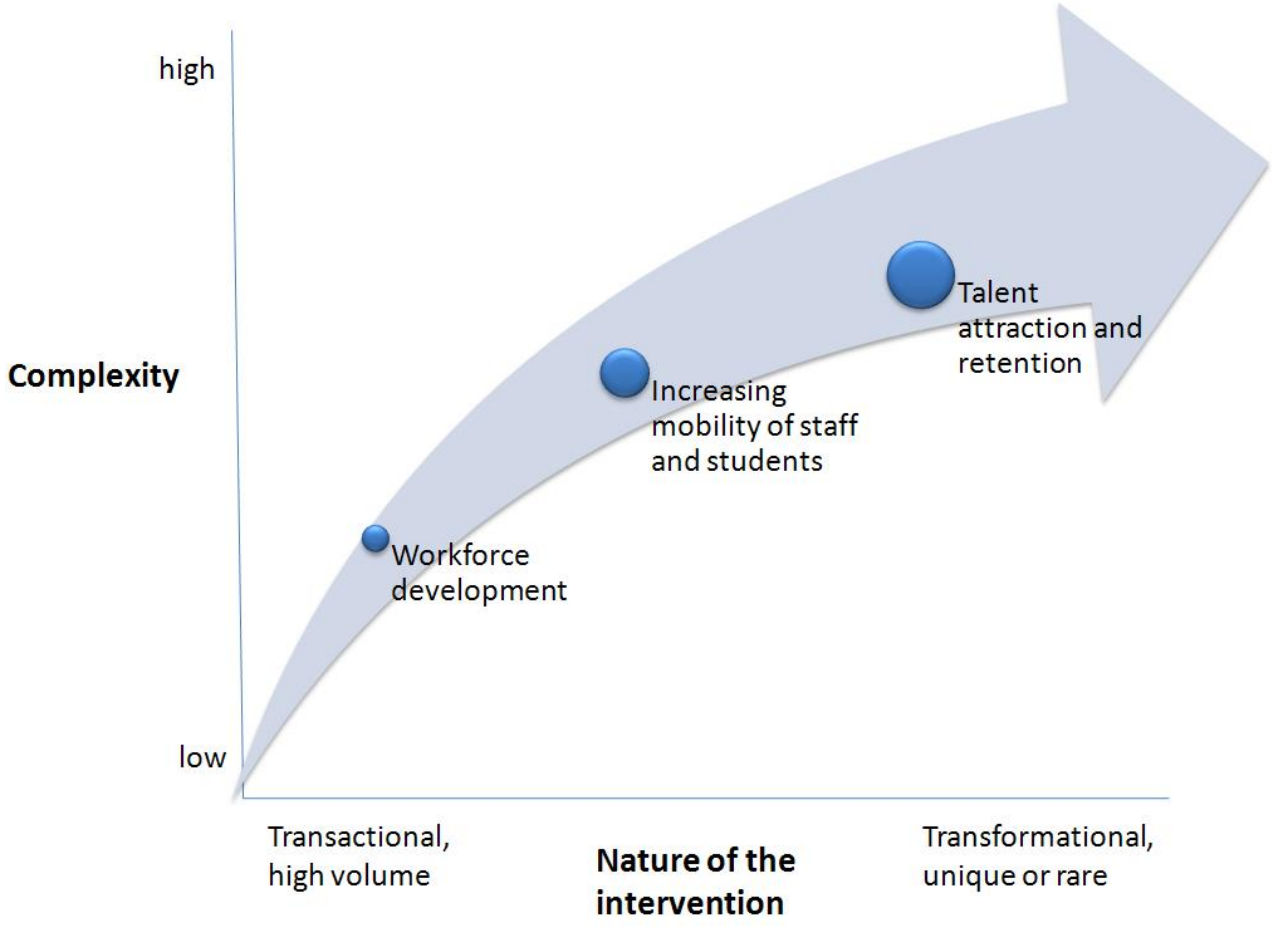
Research and Innovation



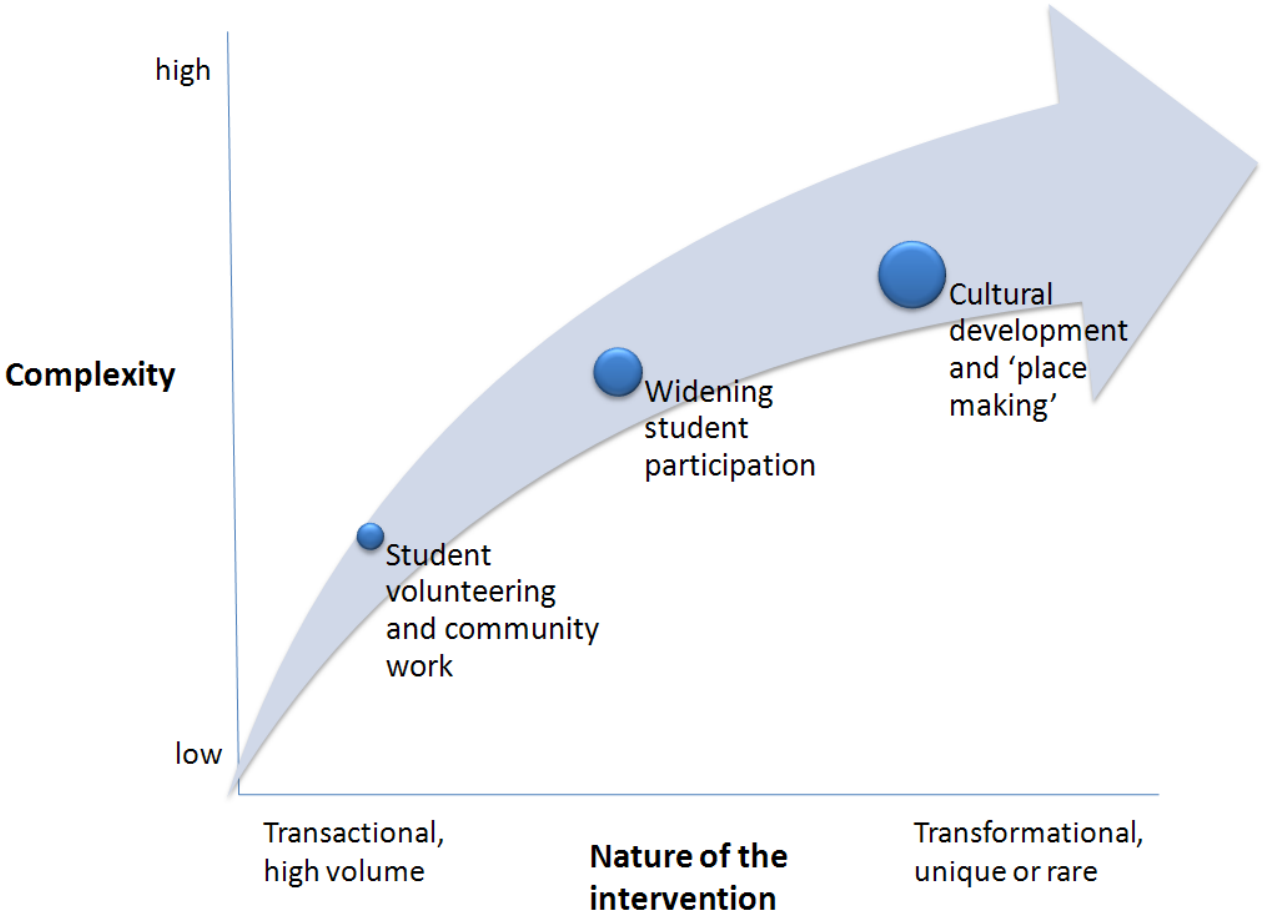
Enterprise and Business Development



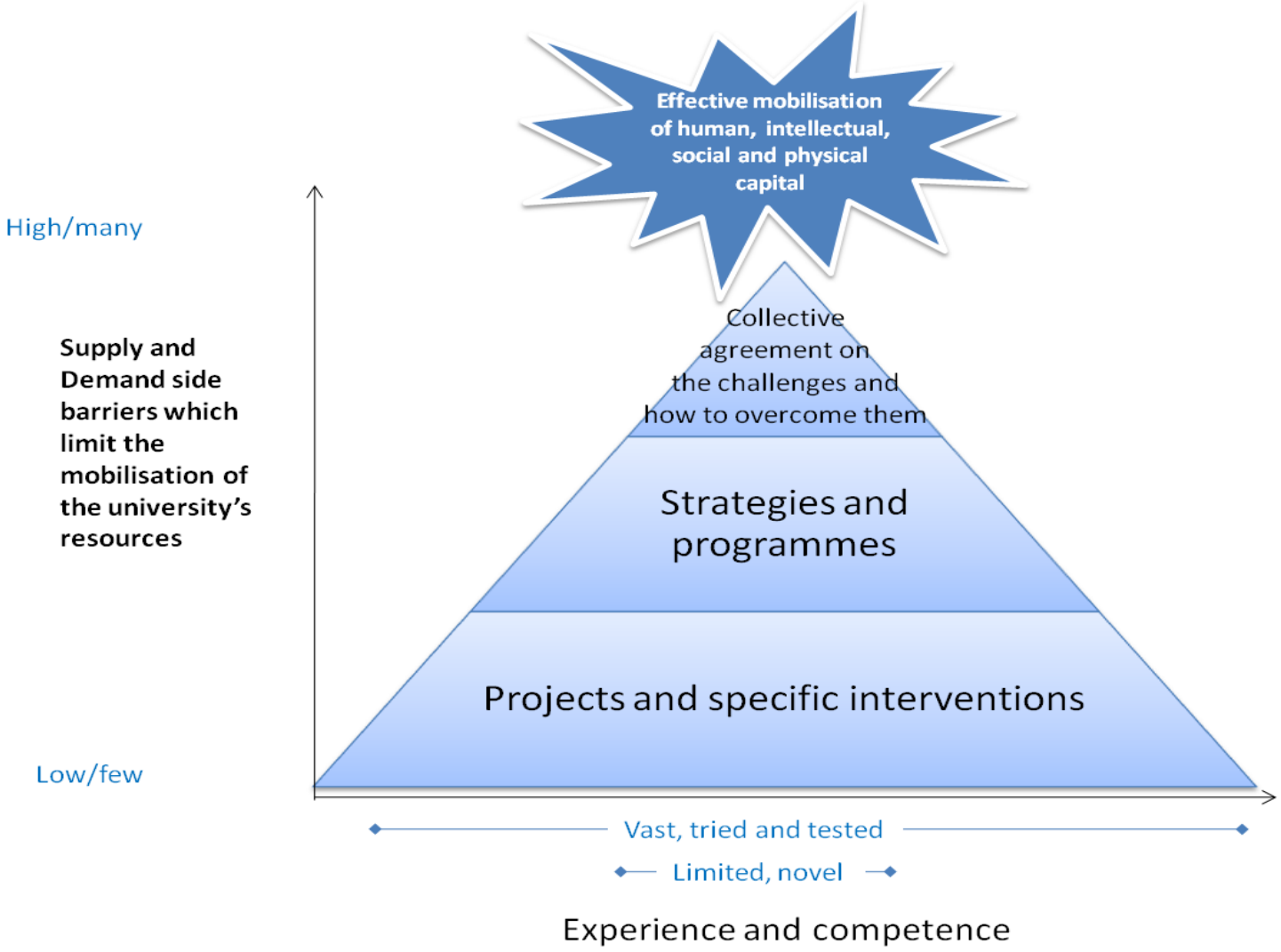
Human Capital Development



Enhancing Social Equality



Increasing complexity = increased barriers and challenges to success



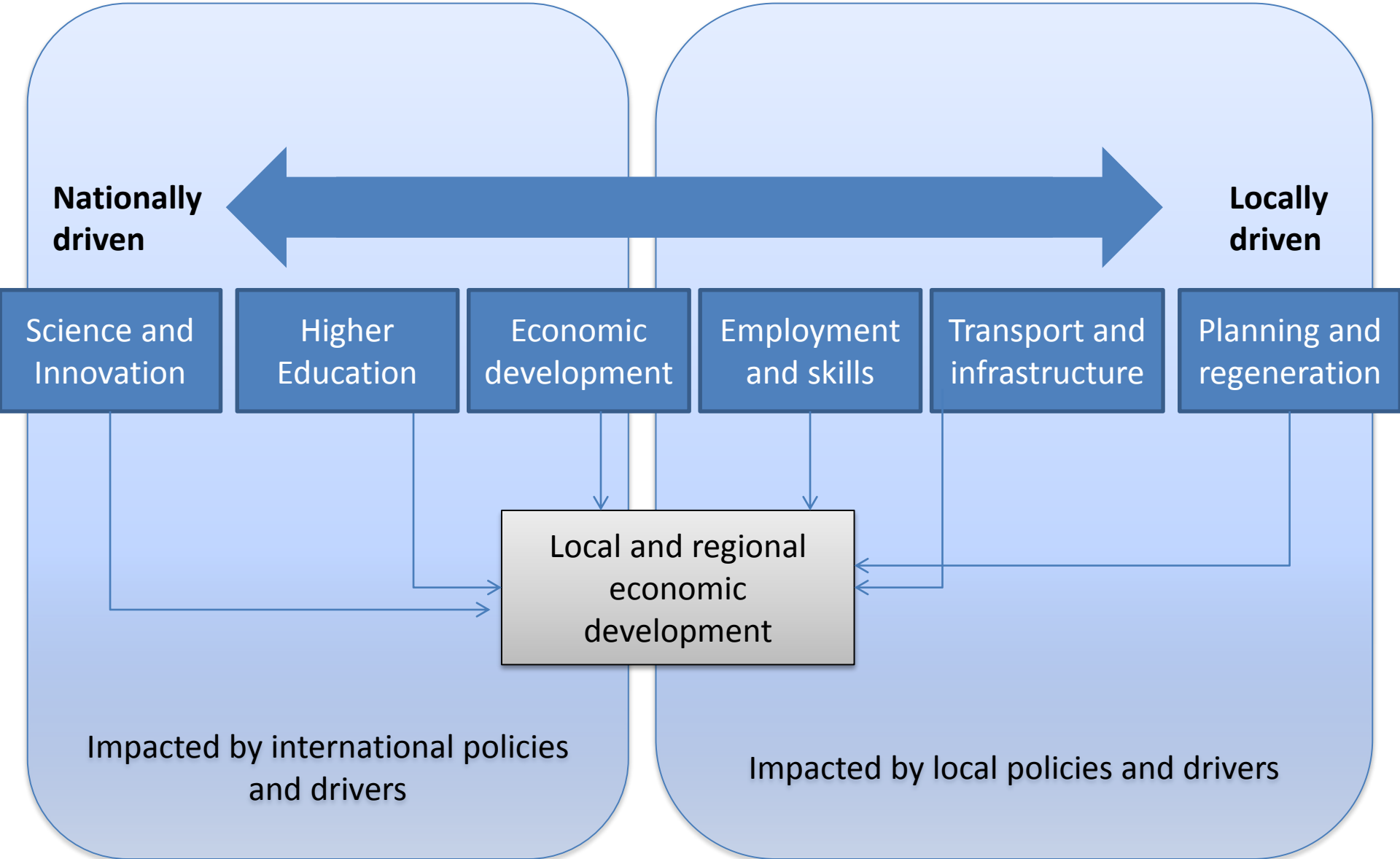
Universities are a critical ‘asset’ of the country and region; even more so in less favoured regions ….but

- Universities have often been absent from or had a minimal role in national or regional innovation strategies
- Technology push or linear model has dominated - potential contribution of the Arts, Humanities and Social Sciences to societal innovation and the quadruple helix of universities, business, government and civil society has been ignored
- The **principles** underlying why universities can be important agents in economic development have not been well understood by regional public authorities
- While a range of **mechanisms** have been used with varying success, they have generally not been coordinated strategically to produce the maximum impact.
- The range of **barriers** and challenges, both internal to the universities and in the wider enabling environment, have been under problematised by policy makers and largely under addressed by universities

Barriers in the silos of national policy

- Lack of a territorial dimension to HE policy
- HE meeting national/international research and education aspirations
- Uncoordinated HE, S&T and territorial policy at national level
- HEIs reinforcing hierarchies of regions (e.g. link between city status and citations)
- Neglect of the role of teaching and learning in knowledge transfer and human capital development
- Barriers between institutions in the same city/region and between different levels in HE (e.g. vocational and non vocational HEIs)

What is the interaction between national and regional policy making?



Global excellence vs. regional needs/opportunities: the European Challenge

- Award through open competition of Framework Programme/Horizon 2020 grants to ***individual*** teams with the expectation of peer reviewed academic ***output***
- ***Allocation*** of European Structural Funds to ***institutions*** with the expectation of the ***outcome*** of enhanced regional growth
- Societal challenge themes such as sustainable development in Horizon 2020 (which have local as well as global dimensions) and the region as a 'living lab' could be a means of linking high level scientific objectives and regional needs/opportunities (i.e. connecting top down and bottom up) through user inspired basic research
- Can Smart Specialisation focus of European regional funds encourage a synergy between these divergent approaches?

What is Smart Specialisation ?

= evidence-based: all assets

=not top-down decision, but dynamic/**entrepreneurial discovery process** inv. key stakeholders

= global perspective on potential competitive advantage & potential for cooperation

= source-in knowledge, & general purpose and enabling technologies rather than re-inventing the wheel

= priority setting in times of scarce resources

= getting better / excel with something specific

= focus investments on regional comparative advantage

= accumulation of critical mass

= not necessarily focus on a single sector, but cross-fertilisations

Smart specialisation: Points of Departure for universities

- Moving a way from a ‘one size fits all’ approach to regional innovation based around a science and technology ‘push’ model
- Only a few regions can create ‘high tech’ clusters based on the exploitation of science excellence in such areas as biotechnology
- Avoiding equating research excellence with the ability of a regional economy to generate innovation
- Taking account of specific strengths (and weaknesses) of the region in terms of: industrial and business profile; **ALL** knowledge institutions; innovation potential (and challenges); national and international linkages
- Recognising the importance of non-university factors supporting (or inhibiting) entrepreneurship and industrial development (business finance, human capital, supportive public governance)

The challenge for universities and regions

- The link to actual or potential industrial capabilities requires a more selective(smarter) match with the research capabilities of all HEIs in the region
- These industrial capabilities may not correspond with principal areas of scientific strength in the leading universities
- BUT this is not necessarily a case for matching research fields to the *current* industrial profile - this could lead to 'lock in' and 'path dependence'
- Establishing how a diverse research base (that cannot be emulated by the private sector) can contribute to 'slack' in the regional innovation system in order to underpin innovation (e.g .knowledge spillovers , facilitating related variety amongst sectors, supporting the uptake of platform technologies)
- Finding a place in the national innovation ecosystem where **some** universities and **some** regions focus on **different** stages in the innovation process (e.g late stage knowledge application as distinct from early stage generation of new knowledge)

Conclusion of the EU conference on mobilising universities for Smart Specialisation

- *Universities (plural) must " act as strategic institutions pulling together all their know-how to create bigger economic and social impacts. Smart specialisation calls on universities to do more".*

Commissioner Geoghegan-Quinn

- *"The key to universities (plural) becoming strategic institutions is to take a holistic view of their activities, rather than treating them in isolation. By integrating research, teaching and external engagement, the knowledge created can have a much greater impact"*
- *"University management as well as academic staff need to become pro-active and move beyond mono-disciplinary and mono functional actions. However, EU and national incentive structures also need to change because they are overly biased towards research output and can hinder universities in playing this strategic role"*

Robert Jan Smits, Director General for Research and Innovation

- *http://s3platform.jrc.ec.europa.eu/universities*

European Commission

JRC SCIENTIFIC AND POLICY REPORTS

Universities and Smart Specialisation

S3 Policy Brief Series
No. 03/2013

Louise Kempton, John Goddard,
John Edwards, Fatime Barbara Hegyi
and Susana Elena-Pérez

2013

Joint Research Centre

Policy Guide on Universities and Smart Specialisation

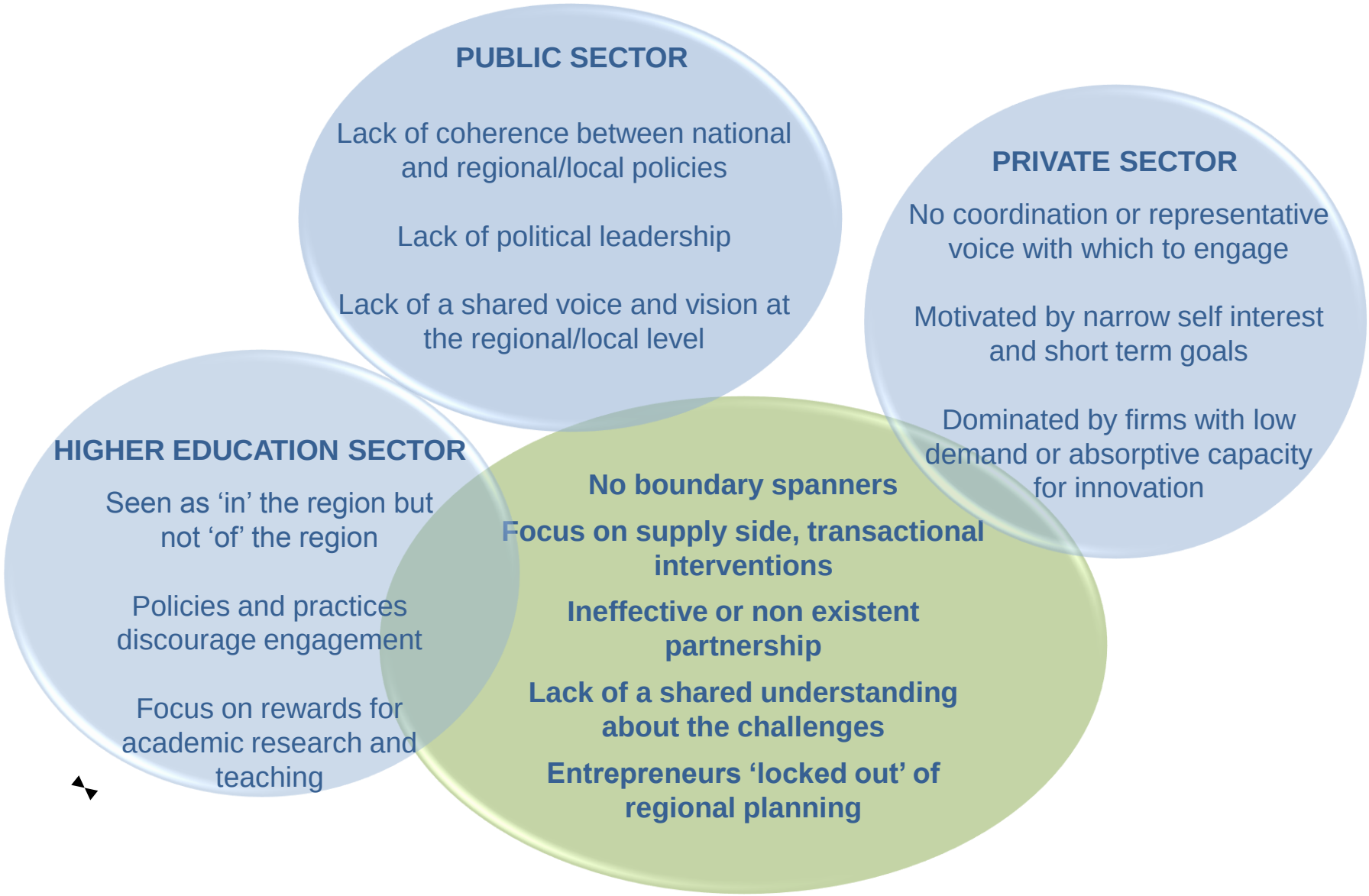
- *Analysis of regional dynamics to identify priorities for investment*
- *Engagement with civil society to assess the demand for innovations*
- *Coordinating an 'entrepreneurial process of discovery'*
- *Participation in governance and decision making structures*
- *Alignment of teaching curricula or research portfolio with the region's S3 priorities*
- *Industry student placements, technology transfer to hi-tech startups, testing of prototypes*
- *Nurturing creativity and social innovation*
- *Attracting and retaining talent, internationalisation and regional marketing*

http://s3platform.jrc.ec.europa.eu/links

Barriers in regional structures and governance

- HE not domain of local government
- Fragmented local governments
- Limited regional level powers/authority
- Intra regional competition and urban/rural tensions
- Absence of strong private sector R&D base
- Fragmented SME populations – lack or critical mass, absorptive capacity

The disconnected region



Barriers in university governance, leadership and management

- Research intensive universities as ‘loosely coupled’ organisations
- Unrelated drivers for Teaching, Research and External Engagement
- Partnership working confined to senior management and / or isolated entrepreneurial academics
- Intermediate organisations (e.g. science parks, centres for continuing education) detached from academic heartland
- Third role legislation in some member states but not part of core funding

Business models of the university

- The entrepreneurial university model with a strengthened steering core, enhanced development periphery, a diversified funding base and stimulated academic heartland (Burton Clark 1998)
- The academic capitalist model with faculty engaging directly in competitive market like behaviour as state subsidised entrepreneurs, blurring the distinction between public and private (Slaughter and Leslie 1993)
- The triple helix model of universities, business and government with semi-autonomous centres that interface with the external environment supported by specialist internal units (e.g technology transfer offices) and external intermediaries (e.g technology and innovation centres) (Etzkowitz et. al . 2000)
- Each of these models underplays the role of place based communities social innovation and civil society

The way we innovate is changing

Elberfelder Farbenfabriken vorm. Friedrich Bayer & Co

Bell Labs, Holmdel, NJ

User innovation

Innovation in services

Social innovation

CISCO

GEOTEL

Cerent

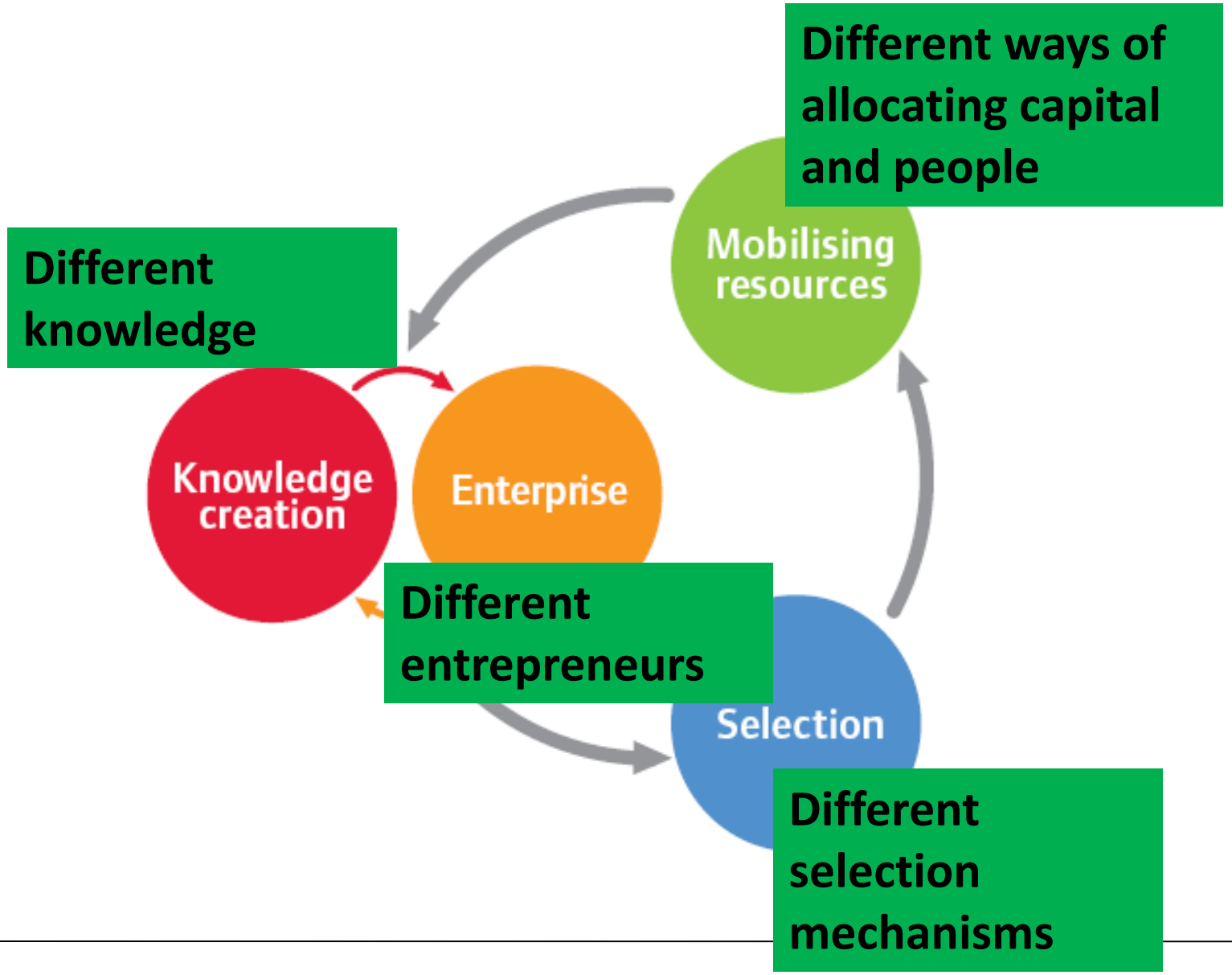
Aironet

MONTEREY

LIGHTspeed

Open innovation

Why is it different?



Relevant partners: some old, some new

1. Local authorities
2. Public service organisations (NHS, schools...)
3. Charities and social enterprises (role of social finance)
4. “Civic” universities
5. National bodies (ODI, TSB, Nesta)
6. And more

The quadruple helix

- “Quadruple Helix (QH), with its emphasis on broad cooperation in innovation, represents a shift towards systemic, open and user-centric innovation policy. An era of linear, top-down, expert driven development, production and services is giving way to different forms and levels of coproduction with consumers, customers and citizens.” (Arnkil, et al, 2010)
- “The shift towards social innovation also implies that the dynamics of ICT-innovation has changed. Innovation has shifted downstream and is becoming increasingly distributed; new stakeholder groups are joining the party, and combinatorial innovation is becoming an important source for rapid growth and commercial success. Continuous learning, exploration, co-creation, experimentation, collaborative demand articulation, and user contexts are becoming critical sources of knowledge for all actors in R&D & Innovation” (ISTAG 2010)

Academic barriers

- *"We treat our opportunities to do research not as a public trust but as a reward for success in past studies"*
- *"Rewards for research are deeply tied up with the production of academic hierarchy and the relative standing of institutions" BUT*
- *"Public support for universities is based on the effort to educate citizens in general, to share knowledge, to distribute it as widely as possible in accord with publically articulated purposes"*

Calhoun (2006): The University and the Public Good, Thesis 11

The University and the Knowledge Society

- "*The university is the institution in society most capable of linking the requirements of industry, technology and market forces with demands of citizenship. Given the enormous dependence of these forces on university based experts the university is in fact in a position of strength not weakness*"
- *"The great significance of the university is that it can be the most important site of connectivity in the knowledge society…(and)… a key institution for the formation of cultural and technological citizenship .. (and).. for reviving the public sphere"*

Gerard Delanty (2002)

Science With and For Society:Horizon 2020

Betting on 'technology acceptance' by way of good marketing only, is no longer a valid option

Diversity in Research and Innovation is a must for achieving greater creativity and promoting better results

Early and continuous iterative engagement of society in Research and Innovation is key to innovation adequacy and acceptability

Responsible Research and Innovation?

need not always be harmonious

RRI is a process where all societal actors (researchers, citizens, policy makers, business) work together during the whole R&I process in order to align R&I outcomes to the values, needs and expectations of European society

A guiding vision for RRI

- "In tomorrow's Europe, science institutions and scientists engage with society, while citizens and civil society organisations engage with science; thereby contributing to a European society which is smart, sustainable and inclusive"
- There is a need for a new narrative drawing on a broad-based innovation strategy encompassing both technological and non-technological innovation at all levels of European society, and with a stronger focus on the citizen and responsible and sustainable business - a **quadruple helix and place-based approach to science, research and innovation."**

- Horizon 2020 Advisory Group

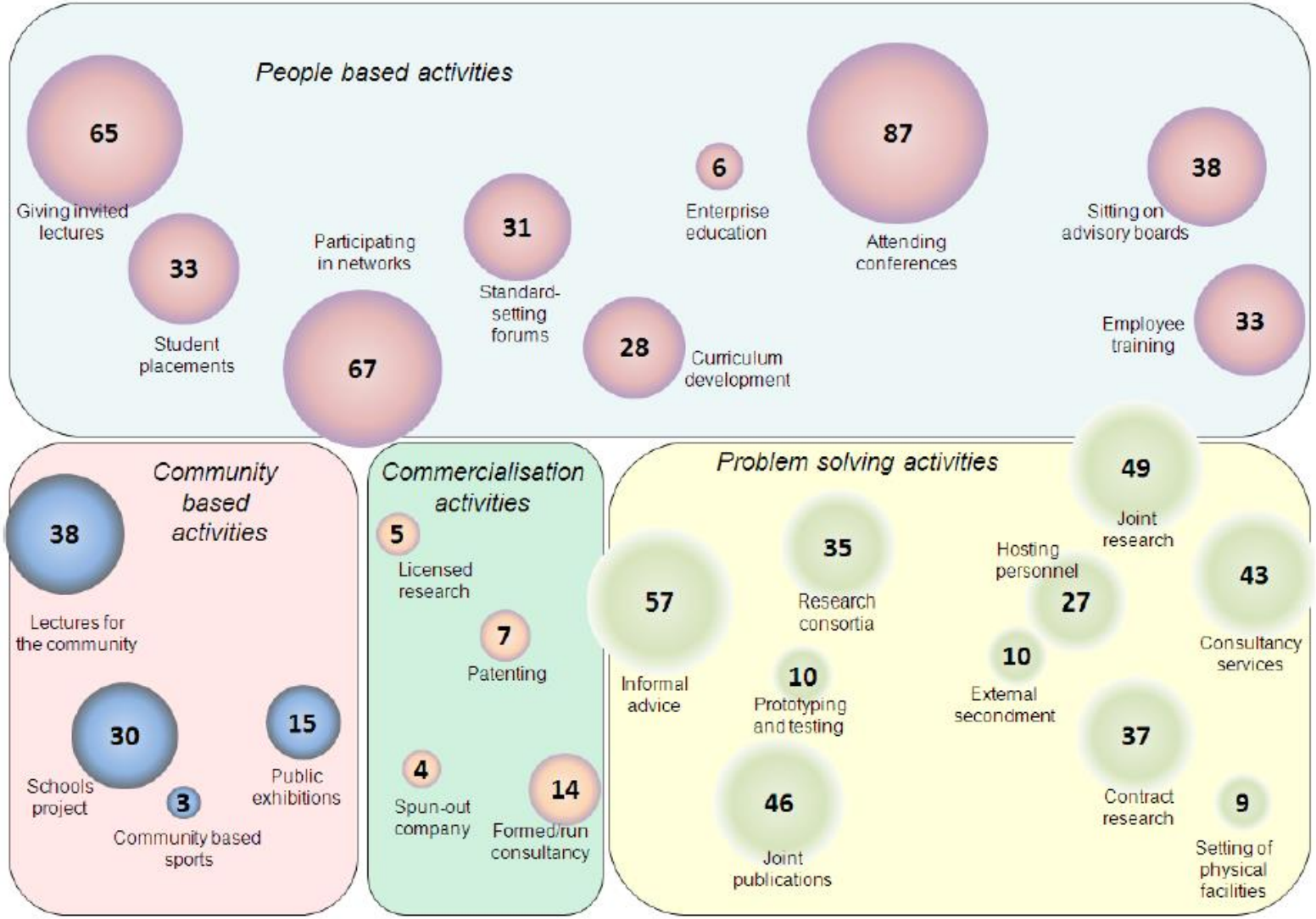
Rome Declaration 2014 (draft)

- *“We call on public and private Research and Innovation Performing Organisations to:*
- *Implement institutional changes that foster RRI by:*
- *Review their own procedures and practices in order to identify possible RRI barriers and opportunities at organisation level;*
- *Create experimental spaces to engage civil society actors in the research process as sources of knowledge and partners in innovation;*
- *Develop and implement strategies and guidelines for the acknowledgment and promotion of RRI;*
- *Adapt curricula and developing training to foster awareness, know-how, expertise and competence of RRI;*
- *Include RRI criteria in the evaluation and assessment of research staff “*

The Practise: How engaged is the academy?

UK Innovation Research Centre Survey of 22,000 UK academics -

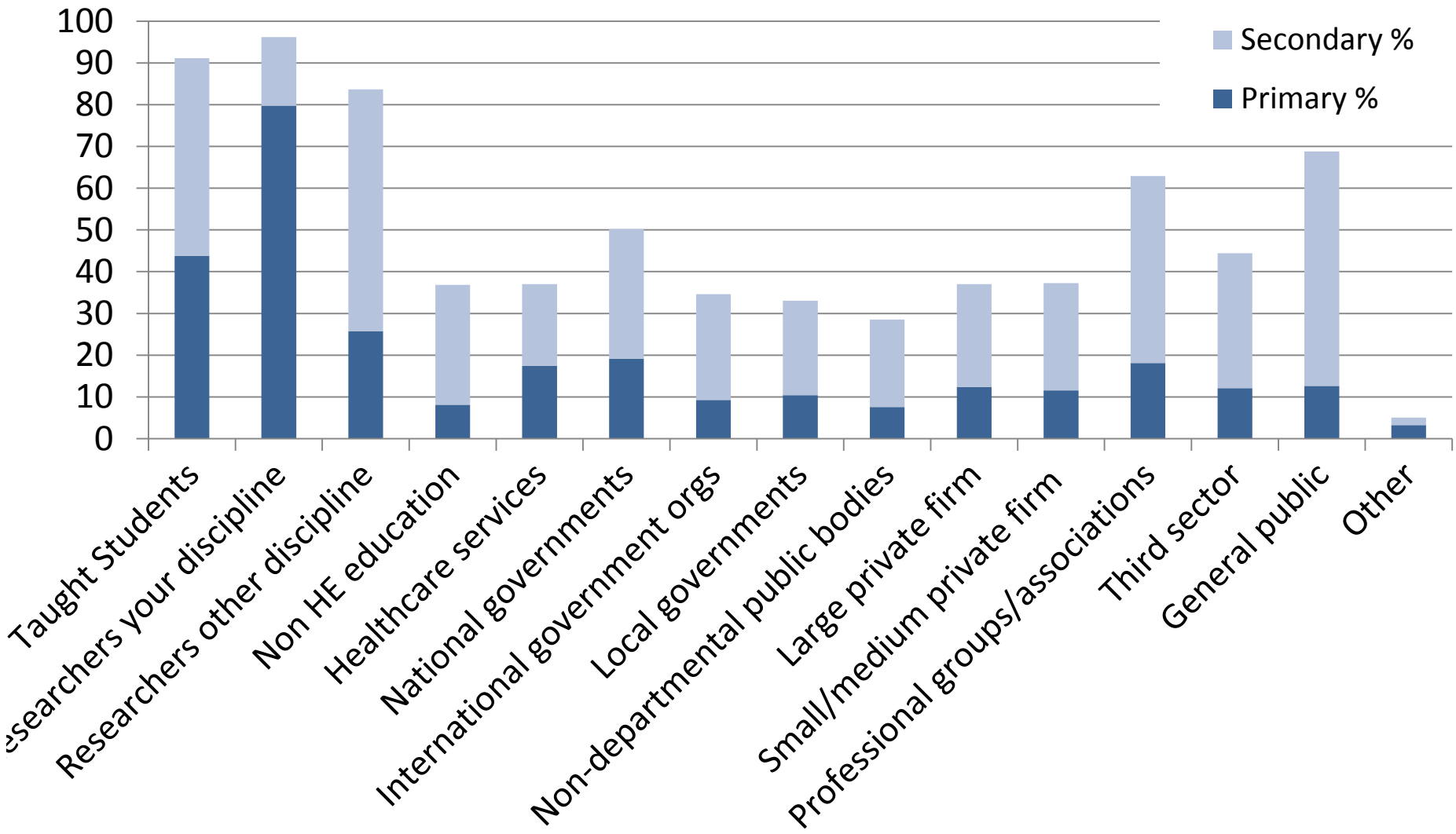
External interaction and commercialisation activity (% of respondents)



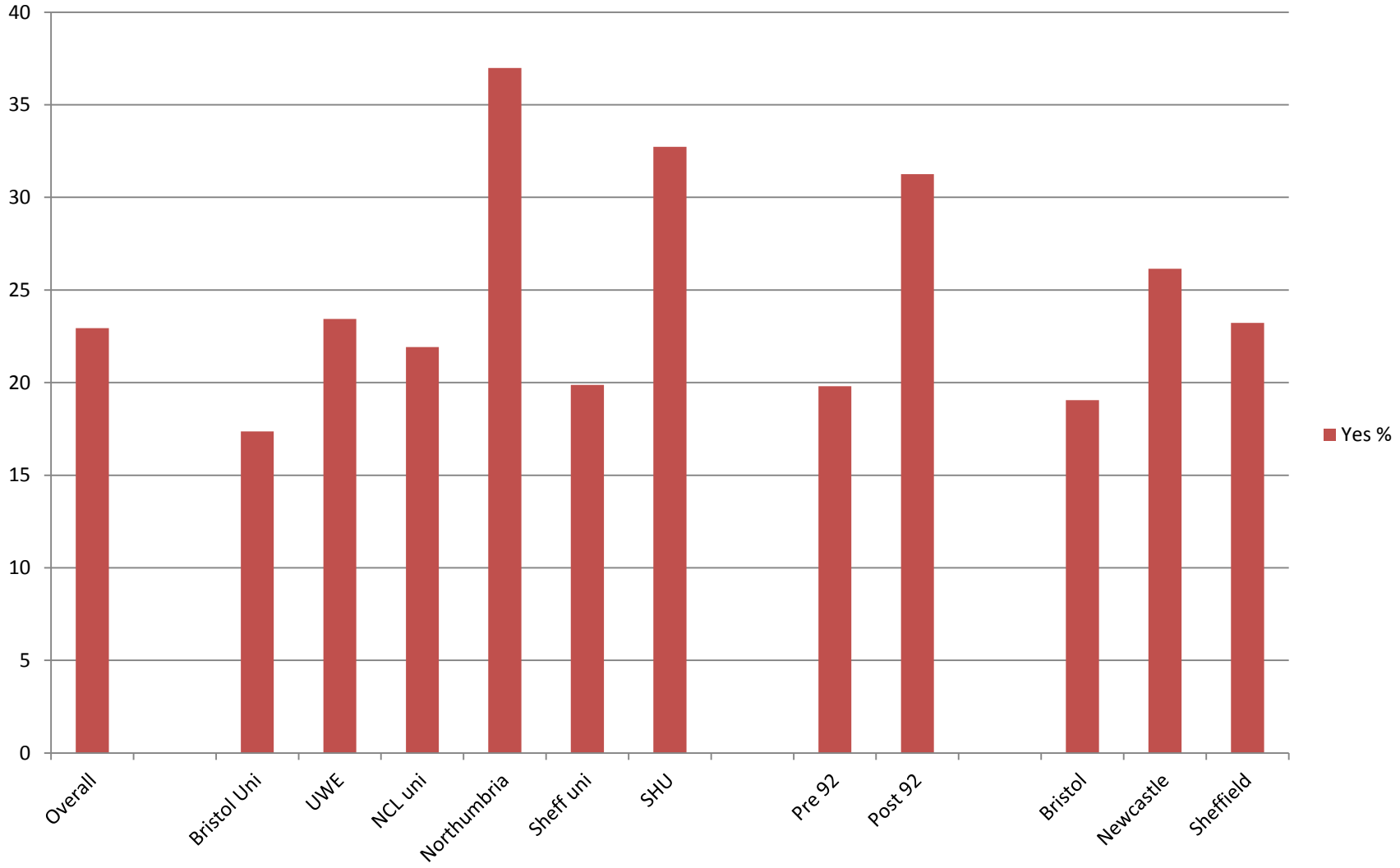
http://www.cbr.cam.ac.uk/pdf/AcademicSurveyReport.pdf

Which of the following groups or organisations do you think are either primary or secondary beneficiaries of your research?

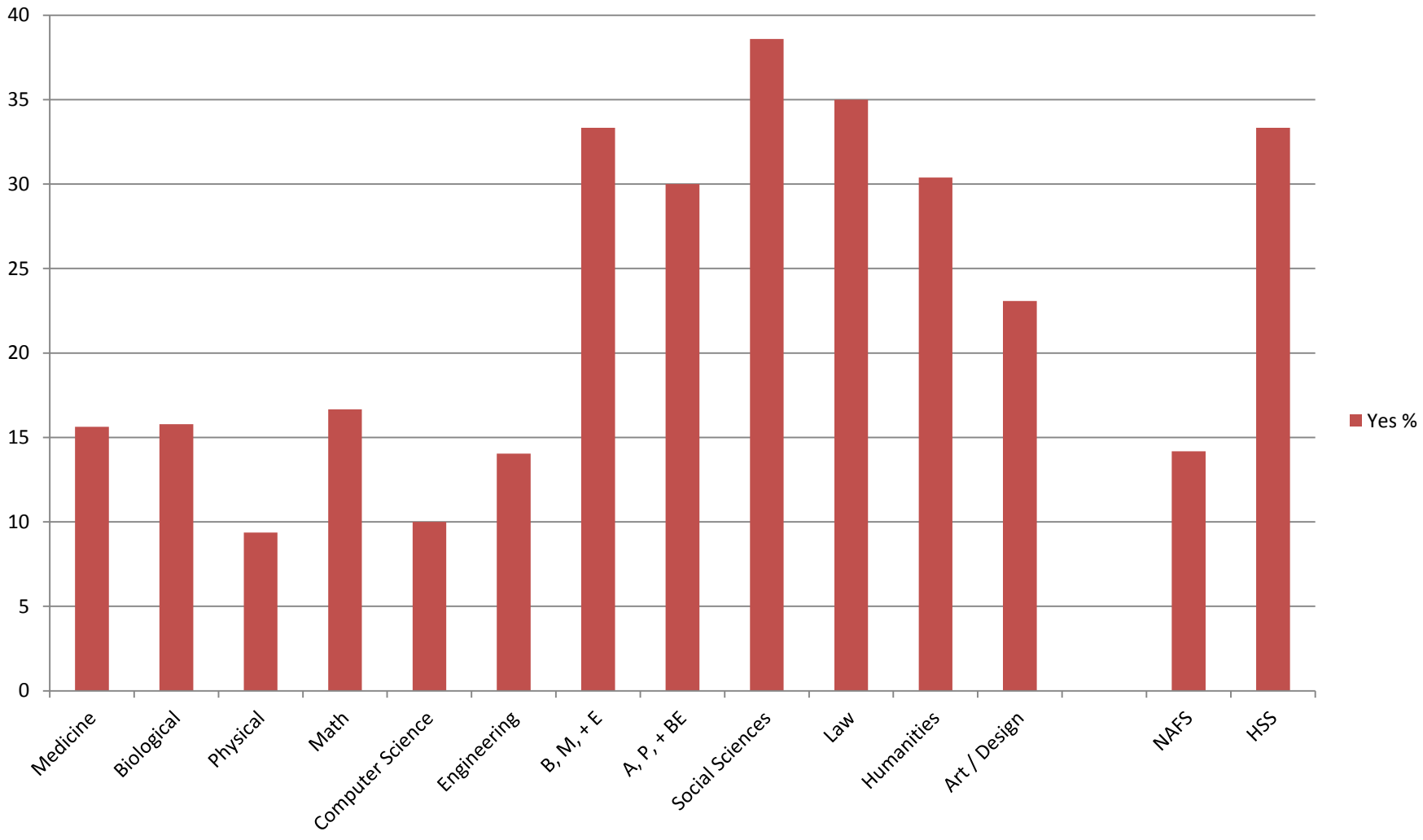
(online survey of 711 academics in 6 universities)



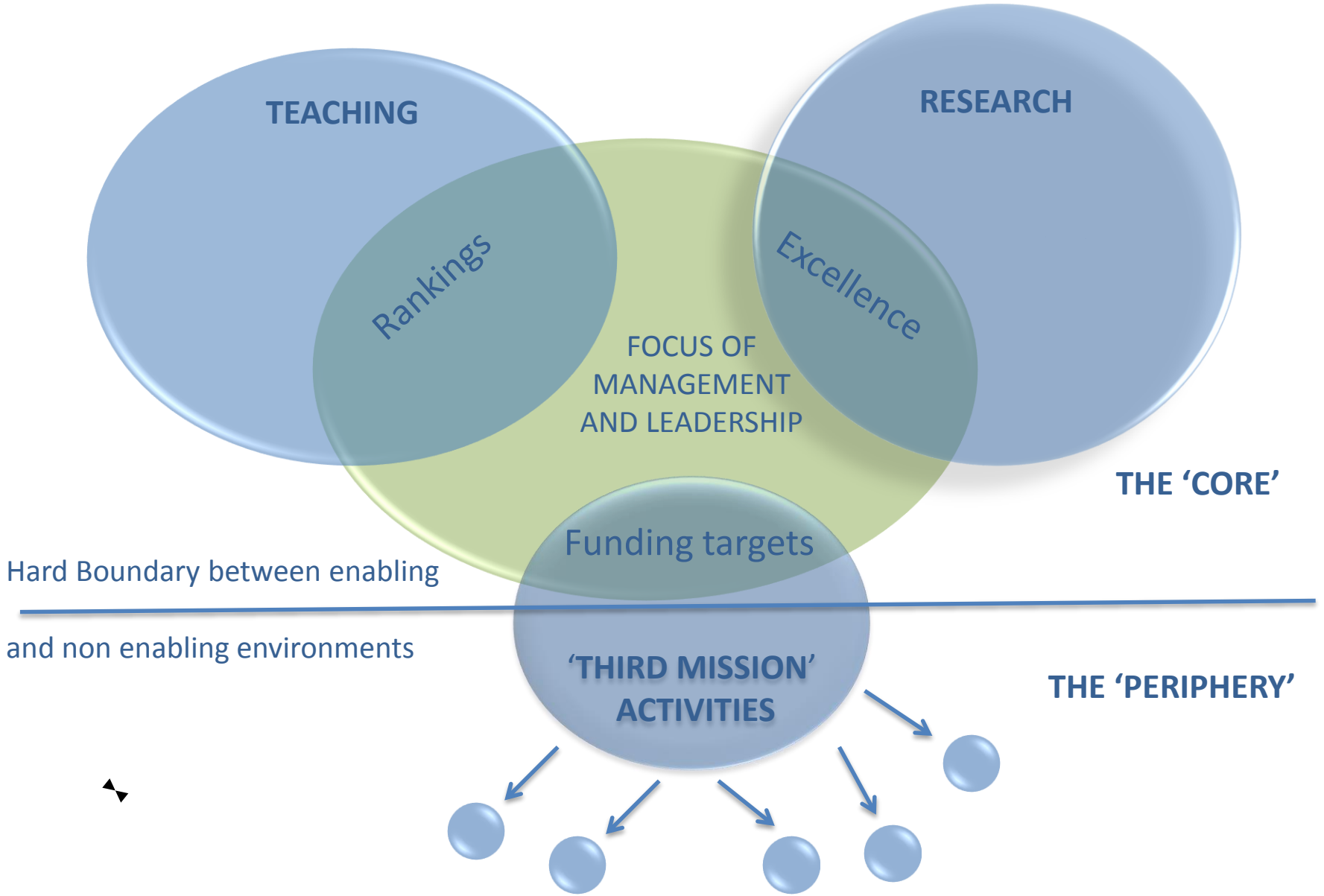
Is the intended impact of your research concentrated in any particular geographical place(s) or region(s)?



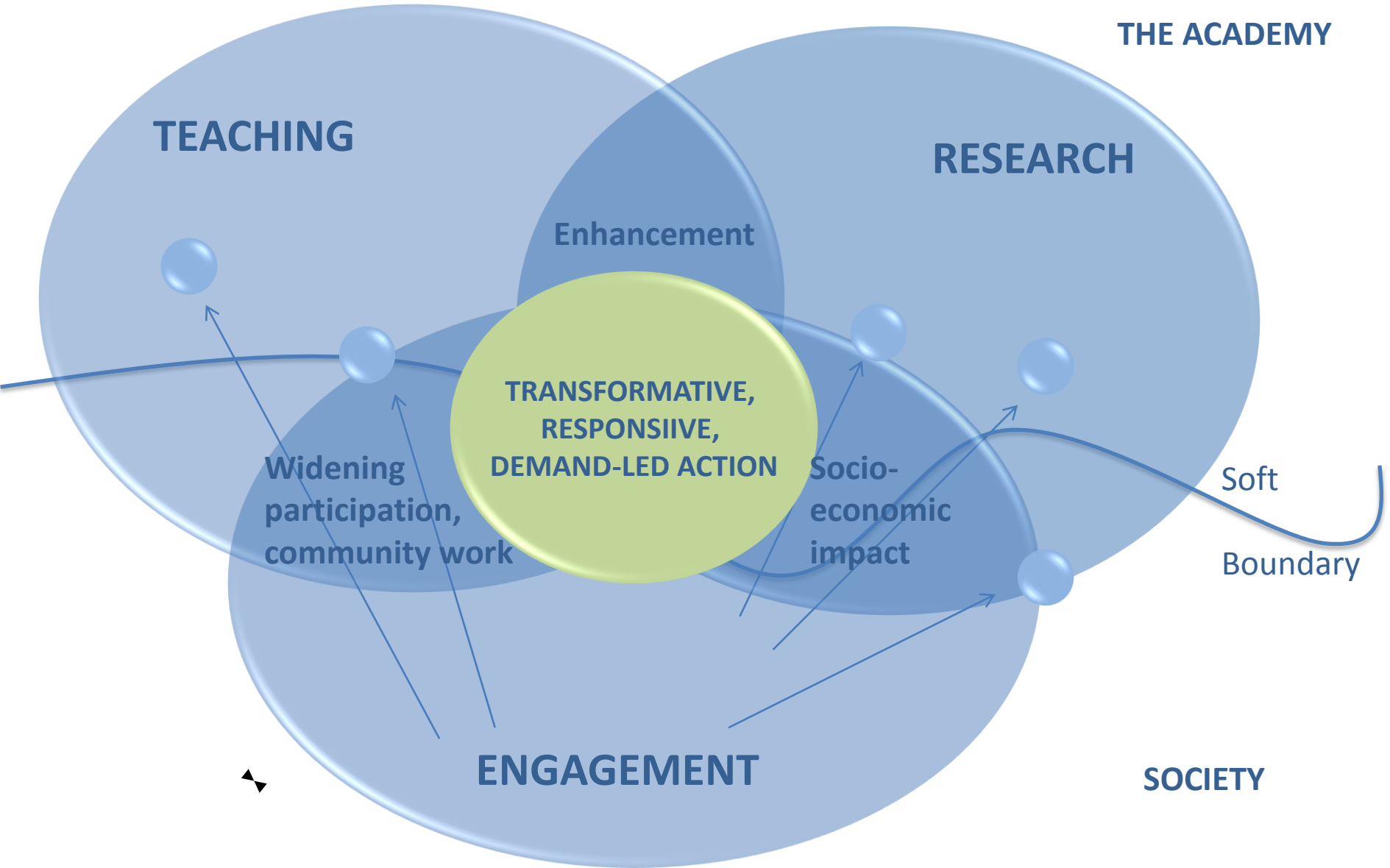
Is the intended impact of your research concentrated in any particular geographical place(s) or region(s)?



The ‘un-civic’ university



A new model :The Civic University



Seven Dimensions of the 'Civic University'

1. It is ***actively engaged*** with the wider world as well as the local community of the place in which it is located.

2. It takes a ***holistic approach*** to engagement, seeing it as institution wide activity and not confined to specific individuals or teams.

3. It has a strong ***sense of place*** – it recognises the extent to which is location helps to form its unique identity as an institution.

4. It has a ***sense of purpose*** – understanding not just what it is good **at**, but what it is good **for**.

5. It is ***willing to invest*** in order to have impact beyond the academy.

6. It is ***transparent and accountable*** to its stakeholders and the wider public.

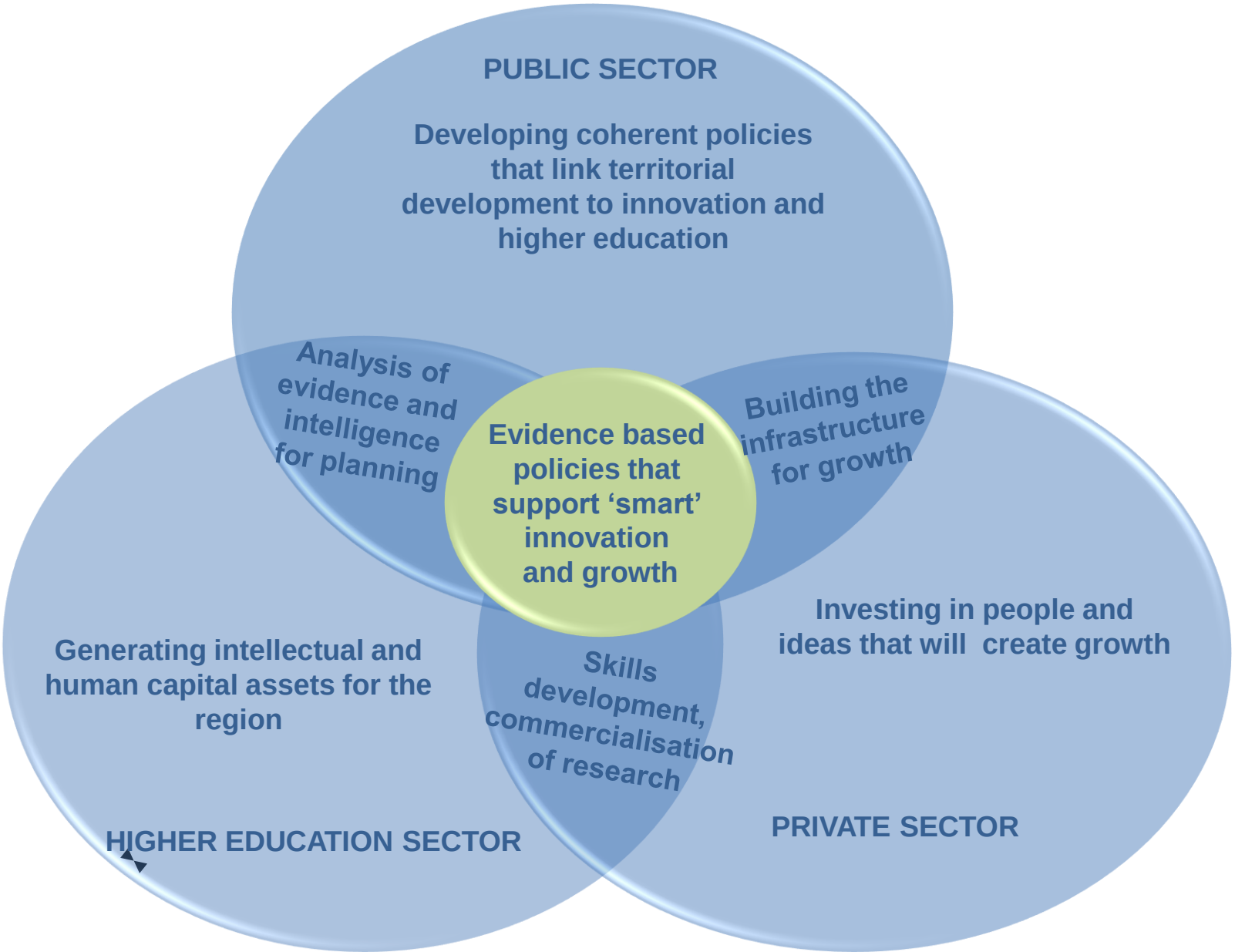
7. It uses ***innovative methodologies*** such as social media and team building in its engagement activities with the world at large.

The ‘Civic University’ Development Spectrum

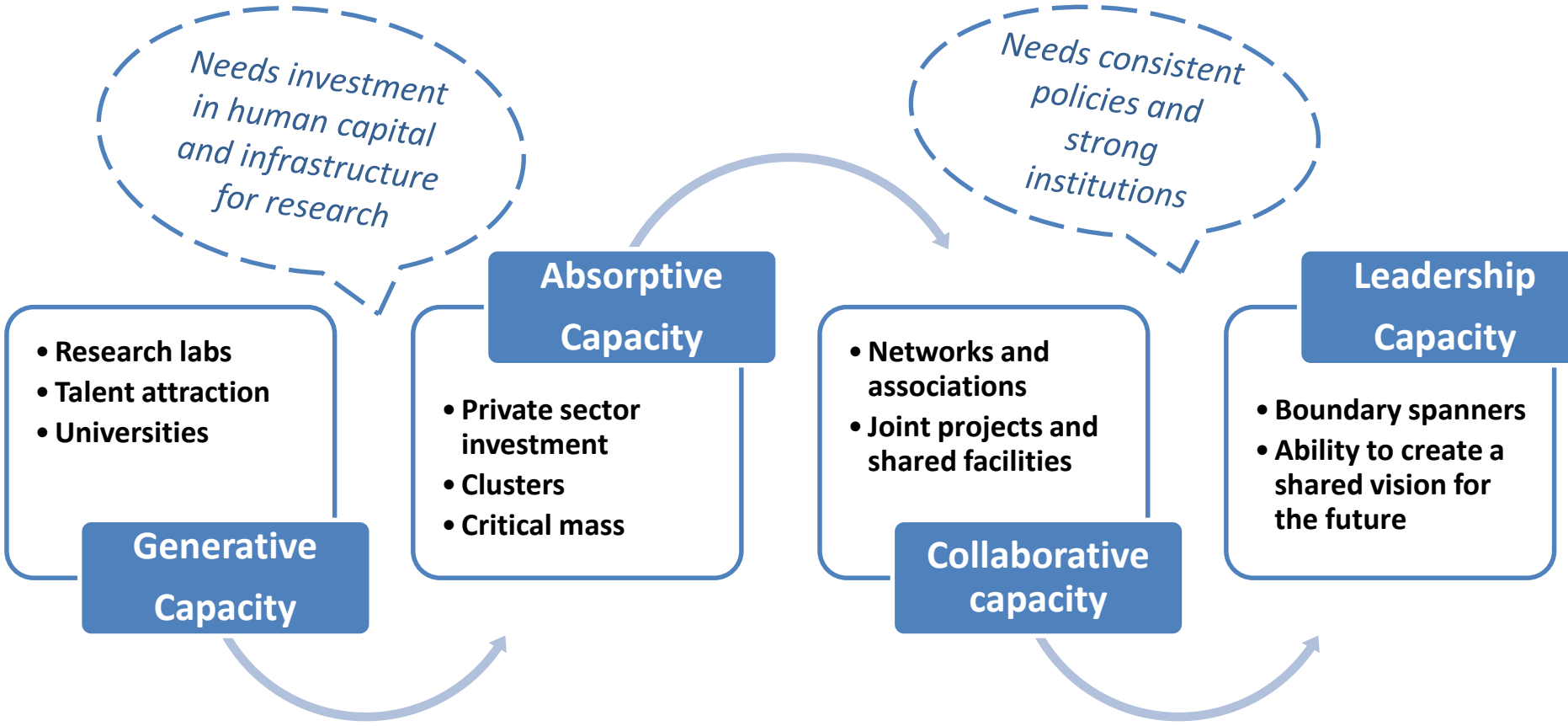
	Embryonic	Emerging	Evolving	Embedded
Dimension X				

The spectrum describes the ‘journey’ of the institution against each of the 7 dimensions of the civic university towards the idealised model. It accepts that a university may be at a different stage of development on the different dimensions. This is intended to provide guidance in building a deeper understanding of where the university is currently positioned and help in future planning, and is NOT intended to be used as an assessment or ranking tool.

The ‘connected’ region – strong partnerships based on shared understanding of the challenges and how to overcome them



Capacities needed for regions to move from ‘disconnected’ to ‘connected’



Multifaceted roles of universities in regional capacity building

Generative

Research related (but not limited) to regional priorities

Multi- and cross- disciplinary

Connectivity – knowledge nodes

Support regional analysis

Absorptive

Help build capacity to ensure local firms absorb knowledge

Provide demand through teaching and learning activities

Nurture social ties that drive RIS

Collaborative

Neutral regional brokers

Reach Out – need 'boundary spanners

Reach In – Co-production of knowledge

Leadership

Support regional vision and partnership

Propose joint activities

Place marketing

Conclusions :Drivers and challenges for the European Union and member states(1)

- Universities' role in wide range of policy areas – education, research, innovation, employment and regional development
- Each policy 'silo' dealing with single functions of the university : policy fragmentation reinforcing splintering between teaching and research and the marginalisation of engagement with the economy and society to a third and, by definition, inferior role
- The 'metrics' challenge – how to measure HE contribution to society beyond the academy and alternatives to institutional rankings based solely around academic prestige
- Dominant focus on S &T and the 'triple helix' of university- business –government (where the metrics are well established (patents, spin outs etc)) and neglect of the role of the arts, humanities and social science in addressing societal challenges in a 'quadruple helix' embracing civil society
- The institutional leadership and management challenge especially in longer established universities with loosely coupled organisational structures
- Many of these integration issues thrown into sharp relief in cities and regions where universities can play a key role as 'anchor' institutions

Drivers and challenges (2)

- Should resources be directed to a few universities to help them perform best in reputation rankings or should national policy ensure resources meet the need of the wider society?
- What are the tradeoffs between public and private good and between institutional ambition and system coherence?
- Marketisation of HE in the UK and increasing stratification in its HE system and little evidence that science excellence model creates significant exploitable knowledge for society.
- European elite universities disconnected from society and the places in which they are located
- Higher education funding models tensioned against evidence that innovation derives from interdisciplinary, collaborative solutions and interactions between networks of different actors requiring a diversity of HEIs
- The need for territorially based collaborative clusters of institutions working together to make the system as a whole world class