

3. Examining university models in regional development

1. Introduction <sub heading>

The impetus for universities to be more active participants in the development of their regions has raised questions about how this additional demand can be met through their institutional strategies, structures, and educational or research programmes¹. In response, a number of conceptual models of universities as institutional actors in regional development have gained currency in the academic literature.

This chapter will outline the defining features (and limitations) of three of these models – *entrepreneurial*, *engaged*, and *system-based* – that are common to previous typologies of universities². These three models are notable for shaping the discourse around universities in regional policy practice on an international level, that transcend the specific higher education contexts of individual countries. The chapter identifies some of the transnational organisations, networks, and other mechanisms through which they have been widely spread and popularised as policy ideas.

2. The entrepreneurial university <sub heading>

The concept of an *entrepreneurial university* has been developed in higher education studies to help understand the ways in which institutions adapt to changes in their environment. For instance, some commentators have viewed entrepreneurial universities as those that pursue a more diverse set of income streams, in response to declining levels of public funding for higher education relative to growing student numbers³.

Other interpretations have focused on managerial, organisational and cultural transformations that accompany the growing expectation that universities should fulfil a 'third mission', one that is focused on their contribution to the knowledge-based economy⁴. This perspective has a clear resonance with the increasing role ascribed to universities in regional economic development. In particular, the entrepreneurial university model foregrounds steps taken by higher education institutions to

commercialise their knowledge through such channels as the licensing of intellectual property, academic or student spin-out companies, and partnerships with industry.

These behaviours have been widely encouraged in the U.S. since the landmark Bayh-Dole Act of 1980 that made it easier for universities to patent the results of research funded by the federal government⁵. Equivalent policies (modified for varying higher education systems) have subsequently been adopted by governments in other advanced economies⁶.

One effect of this is that research universities throughout the world now have technology transfer strategies and specialist administrative staff to help manage the commercialisation process. Also commonplace are university-based start-up incubators and/or science and technology parks that support academic spin-outs and other knowledge-intensive enterprises. An entrepreneurial university can also be analysed as an environment that integrates values of innovation and knowledge creation into its educational practices, and actively encourages the entrepreneurship of students and graduates⁷.

As discussed in chapter 2, the commercialisation of academic knowledge can be the catalyst for the emergence of clusters in science or technology based industries. Academic spin-out firms have been a key mechanism through which these clusters can start to grow around strong research universities⁸. High numbers of spin-outs can have a cumulative effect when they support the formation of specialist labour markets and second-generation spin-off firms⁹.

University (or graduate) spin-outs also often maintain strong links back to their parent institution, and are therefore able to benefit from ongoing research collaborations and knowledge spillovers¹⁰. This can be especially important in building innovation ecosystems in less-developed regions. Spin-out firms will typically have higher than average capacities to absorb new knowledge from universities and help transfer this to other companies¹¹.

The dominant narratives of regional economic growth with entrepreneurial universities at their centre are, however, mainly predicated on the experience of select institutions in stronger regional economies. Most notably, these include U.S. cases that were early pioneers in developing higher education links to industry. For example, companies with strong research or alumni ties to Stanford University

(including tenants on its Stanford Research Park) were integral to the post-war emergence and subsequent growth of high-technology industry in Silicon Valley¹². This institution (along with the University of California Berkeley in the San Francisco Bay area) continues to nurture the innovation ecosystem that has formed in this region, through its support for academic and graduate enterprise and attraction of researchers and students from around the world¹³.

On the East Coast, Massachusetts Institute of Technology (MIT) also has a strong tradition of encouraging entrepreneurialism amongst its faculty and students. Recently, this approach to local development has been translated into a set of best practices and exported to cities and countries globally, through the MIT Regional Entrepreneurship Acceleration Programme (REAP)ⁱ.

These two examples of research-intensive entrepreneurial universities informed the development of the so-called 'triple helix' framework¹⁴. Here, universities are given equal standing to businesses and government as one of the three core types of actor in knowledge-based economies.

As well as gaining traction as an academic concept, the triple helix framework has entered the global lexicon of economic development policy as an expedient way of talking about the complex and collaborative nature of innovation processes that are based on systemic relationships between different forms of organisation within a given territory¹⁵. Its appeal across a range of national and regional contexts can be seen in the growth of the Triple Helix Association which, since 1996, has held regular international conferences for scholars and practitioners in cities across Europe, North and South America, Asia, and Africaⁱⁱ.

This international popularisation of the triple helix framework has seen the entrepreneurial university and related concepts used in application to a wider range of geographical settings and development challenges. In other contexts, it has been argued that universities can utilise an entrepreneurial approach to more effectively manage their relationships to a broader range of external stakeholders, including local civic and community actors¹⁶.

ⁱ See <https://reap.mit.edu/> [Accessed 20/07/20].

ⁱⁱ See <https://www.triplehelixassociation.org/> [Accessed 20/07/20].

As a model underpinning regional development policy, however, the defining feature of entrepreneurial universities remains the priority they attach to the commercialisation of academic research. A key criticism of this is that it presents a narrow view of the varied means through which HEIs can contribute to their regional economies (as discussed in chapter 2).

At the level of their individual employees, surveys of academics have demonstrated that other means of interaction with the outside world - for example related to public/community engagement or collaborative research - are far more widely practiced in the academy than those related to commercialisation¹⁷. Empirical evidence also indicates that only a small proportion of universities have technology transfer programmes that are successful, to the extent that they generate a meaningful financial return for the institution¹⁸.

A focus on the generation of new industries through academic commercialisation may not therefore be a policy approach that is appropriately targeted at less-developed regions. For these contexts, in particular, other models of the regional roles of universities are needed.

3. The engaged university <sub heading>

In relation to entrepreneurial models, the concept of an *engaged university* can be defined by the involvement of HEIs in a broader range of activities with external actors¹⁹. This model encompasses commercialisation and technology transfer roles, but also contributions to local and regional development through workforce training, providing consultancy to businesses, advising governments in the formulation of public policy, and economic or social engagement with community groups²⁰. This recognises that the roles universities play in their regions do not have to be directly *generative* of new commercial activity based on knowledge capital, but can be *developmental* of wider capacities in areas such as human capital, inter-organisational networks, and local governance²¹.

This engaged university model also lends itself to a more holistic view of potential HEI contributions to local and regional development. Here, the extensive engagement by academics in fields such as medical and life sciences, renewable

and/or low carbon energy, digital technologies and the arts, can contribute to addressing societal challenges locally as well as creating new market opportunities for businesses in the region²².

This local engagement can be taken further when universities use their home cities as 'living laboratories' to trial experimental interventions in such areas as urban sustainability or public health²³. As an institution and community of academics and students, a university is also firmly embedded within the cultural ecosystems of its region and one that support both not-for-profit arts organisations and businesses in the creative industries²⁴.

A key argument underlying the engaged university model is that the increasing recognition of the economic and social value that HEIs can bring to their regions is driving expectations that their teaching and research should be responsive to the needs of local industries, labour markets, and governmental or civil society actors²⁵. This resonates with recent appeals for the 'civic' mission - that was central to the foundation of USA and UK universities in the nineteenth and early twentieth century - to be revitalised as a guiding principle for contemporary higher education²⁶. As well as this Anglo-American *civic university*, other normative expressions of a socially-engaged university model have been proposed in different geographical settings. For example, the *responsible university* in the Nordic countries²⁷, and the *developmental university* in the Global South²⁸.

At the same time, the engaged university is a concept with enough universal resonance to be applicable internationally²⁹. This has been put into practice with the growth of the *Talloires Network* of over 400 HEIs in 78 countries who work together to strengthen their civic roles and social responsibilitiesⁱⁱⁱ. The OECD has also been active in promoting a holistic vision of 'globally competitive' but 'locally-engaged' universities through a series of Reviews of Higher Education in Regional and City Development³⁰. Across three rounds between 2005 and 2012, these reviews were conducted in over 30 regions from across OECD member countries^{iv}.

ⁱⁱⁱ See <https://talloiresnetwork.tufts.edu/> [Accessed 20/07/20].

^{iv} See <https://www.oecd.org/education/imhe/highereducationinregionalandcitydevelopment.htm> [Accessed 20/07/20]

Another key argument associated with this approach is that, instead of being marginalised as a separate and discretionary ‘third mission’, regional engagement needs to be embedded in the core research and teaching activities of universities. This is illustrated in the models of an ‘un-civic’ university and ‘civic’ university (see figures 3.1 and 3.2).

Goddard et al. (2016) depict the ‘un-civic university’ as one in which the two core missions of teaching and research are most pivotal, though treated as unconnected activities by university leadership. ‘Third mission’ activities are seen as peripheral, particularly if there are no funding targets associated with them. This means that in the un-civic university there is a hard boundary separating what is seen as core and non-core activity, with support mechanisms directed only towards the former. In the ‘civic’ university all three missions are seen as equally important and mutually reinforcing. Rather than a hard boundary between the core and periphery there is a soft and permeable boundary between the university and society in general, with activities across each domain valued and supported by the institution.

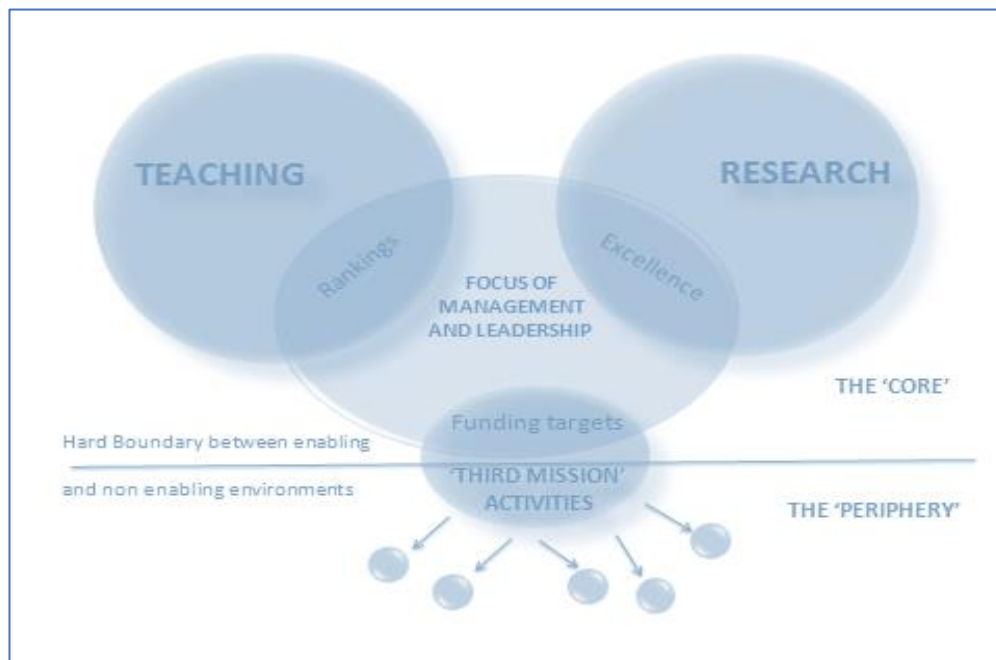


Figure 3.1: The 'Un- Civic' University (Source: Goddard et al. 2016³¹).

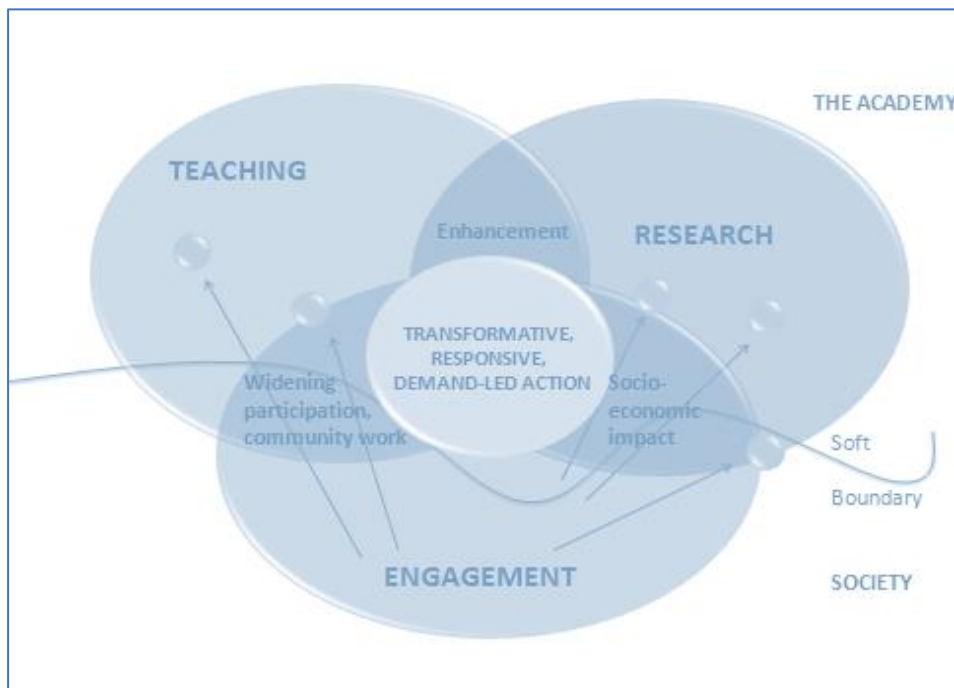


Figure 3.2: The 'Civic' University (Source: Goddard et al. 2016³²).

As with debates around the entrepreneurial university model, a crucial question that follows is how this engagement can be institutionalised within the management and

organisational structures of universities³³. Following from this, a major challenge facing engaged university models is explaining how regional development needs can be prioritised by institutions that operate in higher education and public research environments and that are primarily shaped by government policies and funding programmes at a national scale³⁴.

Further tensions exist between the adoption of a regional engagement mission and the increasing pressure on many institutions to be explicitly global facing in their competition for international students and positioning in world university rankings³⁵. Hence, a persistent criticism of engaged university models is that they only partially and selectively reflect the actual drivers (e.g. marketisation, research excellence) that are dominant in higher education systems³⁶.

4. The system-based university <sub heading>

One context in which sub-national drivers can be seen to have encouraged university engagement is regional innovation policy. The development of these policies in the last 20 years has been informed by the non-linear and interactive understanding of knowledge production, dissemination, and commercialisation underlying regional (and national) innovation system frameworks³⁷. As we discussed in the chapter 2, the distinctive research capabilities that universities possess mean that they are often recognised as an integral element of regional innovation systems.

This model of a *system-based university* is therefore one that is defined by the HEI's embeddedness within this territorial environment, and its network relationships with other local innovation actors in the private and public sectors. In this sense, it shares ground with the model of an *entrepreneurial university* within the triple helix approach.

The centrality of universities to the innovation strategies of many regions means they are also in positions to exercise what-has-been-called 'system-level agency' – that is the ability to influence the evolving structures and priorities of the regional innovation system beyond their own organisational boundaries³⁸. The system-based university also overlaps with the developmental role of universities in regional governance and policy processes that is emphasised by *engaged university* models.

These functions of a system-based university can be illustrated with reference to the regional policy of the European Union, that supports research, technological development and innovation (RTDI) activities. Since the mid-1990s, the rationale for RTDI programmes in the Structural Funds has gradually shifted away from a linear model of investment in the 'supply-side' research infrastructure, and towards policy interventions that are based on cultivating regional innovation systems³⁹. In particular, these system-based approaches aim to increase the innovation capacities of less-favoured regions by stimulating demand for research and development amongst local businesses and strengthening their network links to sources of public and academic research capability⁴⁰.

In the most recent Cohesion Policy period (2014-2020), these goals were carried forward into the requirement for regions (or member states) across the EU to develop Research and Innovation Strategies for Smart Specialisation (RIS3). The key step in preparing these strategies was the collective participation of local stakeholders in a bottom-up 'entrepreneurial discovery process' (EDP) to identify opportunities for innovation-led growth or transformation in the regional economy that can be realised by concentrating funding for RTDI activities in specific domains⁴¹. Beyond the European Union, smart specialisation has also been advanced as a path towards innovation-driven growth for regions in Australia, Korea and Turkey by the OECD⁴².

With an EDP at its heart, smart specialisation is fundamentally a demand-side focused approach to regional innovation policy. In practice, however, universities have played a number of important roles within the development and implementation of RIS3⁴³. These include contributions to the supply of knowledge in regional innovation systems through their research activities, specialist training courses, and engagements with local industry that are linked to the regional smart specialisation priorities.

Universities have also been core participants in the EDP in many regions. This intervention will have been especially important in those European regions where the conditionality of undertaking a comprehensive RIS3 process will have challenged the capacity for evidence-based policy and collaborative governance practices of the sub-national government responsible for administering the Structural Funds⁴⁴.

For universities to perform this expanded developmental function within the EDP, it is necessary for them to be embedded within a regional innovation ecosystem of organisational interconnections⁴⁵. Previous research has highlighted that the key dynamic at the heart of a RIS3, particularly in peripheral regions, can take the form of a cooperative strategic partnership between a HEI and local/regional authority with mutual understanding of the drivers and barriers on both sides⁴⁶.

In many less-developed regions, however, the misalignment between areas of academic research strength and regional economic needs, and the low absorptive capacity of the local business base (see chapter 2), will be significant barriers to universities contributing fully to the smart specialisation process⁴⁷. To fulfil this role, therefore, it may require system-based universities to adapt their research activities to meet innovation priorities within their wider regional economy. This type of collective institutional change is, however, often difficult for university leaders to achieve, due to internal factors within universities including a decentralised organisational structure and weak incentives for academics to focus on new engagement activities with business in the region⁴⁸.

5. Conclusions <sub heading>

This chapter has discussed three models of universities - *entrepreneurial*, *engaged*, and *system-based* - as institutional actors in regional development processes. As well as being developed as academic concepts, these models have shaped the more practice-oriented thinking of international organisations or networks, including the MIT REAP programme, Triple Helix Association, Talloires Network, OECD, and European Commission.

The chapter has also, however, highlighted the limitations of these models in terms of their application to less-developed regional contexts, to higher education systems that do not incentivise regional engagement activities, and to organisational structures or cultures in universities that impede institution-wide adaptation to new strategic priorities.

These models therefore do not fully reflect the impact of diverse regional settings, policy environments (for higher education and territorial development), or

management and organisational structures across different types of HEI. This raises questions about their relevance outside of the universities, higher education systems, and regional contexts where they were developed. As a result, there is a risk that their widespread adoption will lead to the design of policies that are not fit for purpose. The next chapter will therefore explore an alternative framework that aims to help regional policymakers and university leaders take these varied factors into account.

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