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Higher Education and Regions:
Globally Competitive, Locally Engaged

Chapter 3

Barriers to Regional Engagement of Higher Education

This chapter examines the extent to which the external influences at the global, national and regional levels can inhibit regional engagement of higher education institutions and suggests adjustments to current policy and practice which could help to overcome these barriers. Barriers to regional engagement are addressed in a thematic manner starting with the sometimes conflicting effects of national higher education, science and technology and labour market policies. Particular attention is paid to how regional engagement is funded. The capacity of local and regional agents to engage with higher education institutions and the influence of regional governance and leadership is considered next. Finally, the chapter closes with reference to leadership at the level of the individual higher education institution.

Higher education, science and technology and labour market policy

The geography of higher education policy

In most OECD countries higher education policy does not include an explicit regional dimension. Ministries of Education characteristically act as champions of the role of higher education and research in meeting national aspirations in terms of scientific excellence and advanced education of high quality for its own sake. One of the most notable exceptions is Korea where the New University for Regional Innovation (NURI) project has been funded by the central government to strengthen the capability of higher education institutions outside Seoul metropolitan area. (See Box 3.1.)

Box 3.1. **The New University for Regional Innovation (NURI) in Korea**

The New University for Regional Innovation (NURI) project has been funded by the central government to enhance regional innovation and to ensure balanced national development outside the Seoul metropolitan area. The Ministry of Education and Human Resource Development is providing USD 13 billion in grants to selected higher education institutions during the 5-year period (2004-2008). The NURI project has 109 participating higher education institutions which are implementing more than 130 programmes aligned to the characteristics of the regional economy. As part of the NURI project Regional Innovation Systems have been established across the country.

The objectives of the NURI project is to help local higher education institutions:

- to attract and retain talent in the regions;
- to improve educational conditions and develop workforce education and development programmes to help students to acquire occupational skills that are critical for job security;
- to build productive partnership with local authorities, research institutions, and business and industry and to provide skilled workers and advanced technologies to the industrial clusters in the regions;
- to play a leadership role in developing and maintaining effective regional innovation systems (RIS).

The seemingly more mundane task of applied research and development and meeting skill needs in the local labour market may be left to lower tiers in the education system such as tertiary/community colleges. In some countries the boundaries between the levels of higher education have become blurred. Examples include the designation of polytechnics in the United Kingdom as universities, the designation of selected colleges in the Netherlands as universities of professional education (now universities of applied sciences) and the current pressure in Finland to re-label polytechnics as "universities of applied science".

Characteristically the newer institutions do not have a well established tradition in research or the infrastructure to support it and have to work hard with limited resources to build a national let alone an international profile which has traditionally been associated with university status.

An important point to note in relation to regional engagement is that longer established higher education institutions have developed and grown in locations that broadly follow the national settlement hierarchy. These locations are quintessentially larger cities with the most prestigious institutions sited in or around the capital city. In contrast the newer institutions, often with a specific remit to serve particular territories, tend to be more geographically dispersed.[1]

These are gross generalisations about very fluid national systems of higher education and many OECD countries have a complex mix of "elite" science universities, teaching based institutions and universities or polytechnics focusing on particular disciplines, *e.g.* in science and technology. As noted earlier, there has been continuous political pressure in most OECD countries to fill in the map of higher education by the creation of new higher education institutions in areas not previously "served" locally by higher education.[2] However, these policies have generally been pursued in parallel with concentration of research resources in elite institutions in the main cities. While growing the system remains high on the agenda in countries like Mexico and Brazil, in many developed countries the tide has turned due to demographic changes and/or pursuit of critical mass: there are now pressures to reduce the number of higher education institutions through mergers and other types of enhanced co-operation between institutions (*e.g.* Denmark, Finland, Korea).

In addition, social inclusion in higher education is a variable priority across the OECD countries but has emerged as a significant issue in some countries. There is variability of participation in different geographic areas (HEFCE, 2006. See also Chapter 5).

To what extent has the process of rolling out of higher education across national territories been part of conscious national policies to use higher

education as an instrument in regional development? The answer depends on the definition of development and the extent to which this has been a task laid upon higher education institutions by their funders in central government. It is widely accepted that the challenge of raising competitiveness via research led innovation is now at the heart of regional policy. However, it is clear that supporting excellent research in all regions has not been an objective of higher education policy. Even when engagement with business and the community has been recognised and laid upon higher education institutions as a "duty" as in all the Nordic countries, it has been very much a "third task", not explicitly linked to the core functions of research and teaching. Nor, in most instances, is this task specifically funded or linked to regional development.

Science and technology policy

There are growing pressures within national research policies to link public investment in this area to maximise its economic impact. Consequently, there is an increasing convergence between research policy and other policies designed to support business innovation.

Of the countries participating in the current OECD study, Finland probably has the most sophisticated national innovation policy composed of three pillars of business, universities and government. Even so, the Finnish national innovation system, overseen by the Ministries of Industry and Education, does not have a regional dimension. It has been left to the Ministry of the Interior with infinitely smaller resources to intervene in this domain. It has done this through the establishment of a regional network of Centres of Expertise characteristically linked to science parks and universities and polytechnics in different parts of the country (OECD, 2005a). (See also Box 5.2 in Chapter 5.)

Notwithstanding the growing recognition of the importance of organisational and social barriers to innovation most top-down science and innovation policies continue to have a high-technology and manufacturing industry focus and neglect the contribution of the arts, humanities and social sciences to new ways of working and servicing the creative industries. These dimensions arise through the interaction between producers and users of research which most readily take place at a regional level. Recent decades have witnessed the birth of the centres of expertise which have sprung up throughout the world with the focus on the same fashionable high-technology fields such as biotechnology, nanotechnology and ICT. It is, however, becoming apparent that much of innovation is neither science-based nor radical, but incremental in nature and taking place in SMEs.

National innovation policy driven by ministries of science and technology also do not pay regard to the role of teaching and learning in knowledge

transfer "on legs" from the research base. Work-based learning schemes which usually involve regional links between employers and higher education institutions are designed to enhance graduate employability and not as specific tools to improve regional business competitiveness. A notable exception in this regard is the UK's Knowledge Transfer Partnership scheme under which postgraduates undertake projects in companies which are local. (See Chapter 6.)

Labour market policies

Most OECD countries have active national labour market policies by the ministries of labour or their equivalent. The focus of these policies is chiefly on intermediate and lower level skills and the unemployed, not those associated with higher education. At this level it is assumed that the market (*i.e.* demands from students and employers) will work effectively without intervention. National employer-led associations for particular professions (*e.g.* lawyers, architects, civil engineers) often play a key role in regulating supply and maintaining quality. Only in areas where the state remains a major provider of public services, most notably health, does the government undertake a planning role. While the market for intermediate and lower level skills may be **local** and therefore require a strong spatial dimension, it is assumed that the market for high level skills is national and international. There is therefore not a case for intervention at the intermediate or **regional** level.

For these reasons there appears to be little engagement by research-intensive universities in the development of human capital at the regional level, particularly as it relates to the skills required by knowledge-intensive businesses growing on the back of links with the research base. In contrast, newer and vocationally oriented institutions are usually committed to upgrading skills in the established industrial base.

Health policy

Outside of the core areas of higher education, innovation and labour market policy, a number of other domains of government bear on the capacity and responsibility of higher education institutions to engage in regional development. The previous chapter noted how the provenance of regional innovation policy was widening to embrace a range of contingent factors relating to the health and well being of local populations, cultural vitality and environmental sustainability. Each of these areas is characteristically the responsibility of separate departments of national government; these departments have a varying commitment to a regional dimension to their policies and to engagement with higher education regionally as well as nationally.

The area where higher education has been most directly interwoven with national policy and where there is a strong regional dimension is health. University hospitals linked to medical schools play a key role in health research and development and contribute to the training of doctors and nurses as well as the health of the local population. Indeed, university medical schools and hospitals best epitomise all the facets of the multi-scalar and multi-modal higher education institution outlined in the last chapter (Figure 2.3). As the scientific base underpinning medicine advances and new technologies based on these advances are developed in the private sector major consequences for the organisation and delivery of health case can arise. As the relationship between government, higher education institutions and the private sector in the health domain has developed over the last fifty years, a strong territorial dimension has emerged. It is therefore not surprising that university medical schools and hospitals now find themselves at the heart of the higher education/regional engagement agenda. Significantly this agenda does not only embrace the promotion of biotechnology and business but also business process re-engineering necessary to embed new technologies in health service delivery. Medical Science is also an area where the region can quite literally be the "laboratory" (Chapter 7.)

Notwithstanding its success story, health policy is seldom viewed as part of the higher education/regional development nexus. This is particularly worrying in the light of policy changes in the health domain being introduced by OECD countries in response to the need to control the spiralling demands on the public purse arising in the health domain from technological advance and an ageing population. For example, the consequences of replacing untraded dependencies between medical schools and university hospitals – a model which is prevalent in much of Europe – by market mechanisms could undermine the symbiotic relationship which underpins many successful regional partnerships. (See *e.g.* Smith and Whitchurch, 2002.)

Cultural policy

The cultural domain is another area where the role of higher education institutions in contributing to city and regional development is not widely acknowledged in national policy. Higher education institutions are often owners of or custodians of cultural assets displayed in their own museums and galleries. Their music, arts and drama departments directly and indirectly contribute to the vibrancy of their cities through performance and related activities. In some counties support for the arts and heritage does have a regional dimension which embraces higher education, but this is an exception rather than a general rule. Increasingly higher education institutions are finding it difficult to support such activities out of their core teaching and research budgets and are seeking support from regional sources to maintain

expensive facilities and activities (OECD, 2001b). At the same time, the fast growth of the creative industries is shifting the focus to new enterprise formation by graduates of creative arts, design and media (see Chapter 7).

Environmental policy

The last area where national policy has impacts on regional engagement by higher education institutions is the area of environmental sustainability. Unlike medicine and the arts, policy in this area is very new. Yet there is a realisation that the research base of higher education, especially when linked to the region as a laboratory, can play an important role in the development of energy technologies and their implementation. Through their education programmes and alumni higher education institutions can also play a key role in opinion forming on sustainability issues.

As a major land user and trip generator in their local communities, higher education institutions can contribute to more sustainable ways of working. However, there is only limited evidence that this regional contribution is widely understood in national ministries responsible for sustainability policy and practice or within the higher education institutions themselves. (See Chapter 7.)

Funding regional engagement

OECD Thematic Review of Tertiary Education (2008, forthcoming) suggests that there are two guiding principles to allocation of higher education funding: first, designing the funding approach to meet the policy goals and, second, allocating public funds in relations to the relevance to society.

Attitudes of higher education institutions towards regional engagement are sensitive to the way they are funded. In centralised systems, core funding of public higher education institutions is generally based on criteria that do not reward regional engagement. In the absence of incentives, higher education institutions, particularly research-intensive universities are more inclined to prioritise their national and international role. While emphasis on regional engagement seems more likely when the funding of higher education is regionalised or responsibilities transferred to regional government with related taxation power, the decentralisation of higher education funding is by no means a guarantee that higher education institutions will move towards this direction if this activity is not otherwise incentivised and outcomes monitored. In Spain, the decentralisation first took place in the "old" regions including Catalonia and the Basque country but has been extended to all regions where higher education is now taking steps to engage in regional R&D and services to business community. In Germany, financial and administrative responsibility for higher education rests with the 16 Länder rather than the federal government but there are few requirements for the Länder to engage with the region.

Regional engagement of higher education institutions is better grounded when factors beyond funding are acting jointly. In the United States, the localised nature of the funding base derived from sources such as state taxation, tuition fees and regional alumni have been reinforced by the land grant tradition and the existence of many state universities. As a result, many institutions are strongly integrated in the community economy. Their missions emphasise not only the intellectual or academic dimension, but also the commitment of the institution to the state or region.

Research funding

All of the areas of national policy that have been reviewed and that encompass higher education, *i.e.* science and technology, labour markets, health, culture and the environment have public funding streams associated with them. How can these resources be mobilised to support regional engagement by higher education institutions?

In the case of support for research in higher education institutions, funding regimes are often geographically neutral or work against goals of balanced regional development. In unitary countries with a centralised higher education system the capital city and some big metropolitan areas generally have the largest universities and a considerable share of HEI research. Many countries are concentrating their research capacity to create world-class centres of excellence. For example in the United Kingdom the system for determining research funding on the basis of peer review of academic research output results in over one-third of the resources for research in higher education institutions being allocated to four institutions in London and the South East of England. Indeed, the UK government research policy to fund the best wherever it occurs, is part of the government's policy to maintain a leading position in the global league table of universities – geographical concentration is simply an incidental consequence of this policy. While this concentration of funds applies to many unitary countries in Europe, there are also exceptions. In countries like Sweden and the Netherlands a more balanced distribution of university research funding has been reached. In Spain, decentralisation has widened the distribution of resources but the dominance of the capital region remains.

Allocation systems for research that favour central regions may impose a particular limitation on less advanced regions. In many countries smaller/newer higher education institutions in less developed regions simply lack the infrastructure to contribute to the development of a new economic base or renew old and declining ones. In peripheral regions while higher education institutions are well placed to shape the regional agenda in the absence of other research institutions (public laboratories, business with strong R&D departments), the low absorption capacity of local and regional firms further limits the development of research for local needs.

Higher education institutions receive also income from other sources such as business and communities. In the last decade, the decrease or slow increase in public R&D funding has encouraged higher education institutions to look to external sources to maintain or expand activities. The proportion of higher education R&D financed by industry has grown in every G7 country over the period 1981 and 2001 (OECD, 2003a). A certain trade-off has taken place between external and internal funding. It is nevertheless often difficult to expand the regional share of external funding. Usually industry contracts involve larger firms which operate on a national basis. Such relations are often developed with higher education institutions with a particular specialisation, regardless of regions (Goddard *et al.*, 1994). This seems the case in the United States where the share of university research funded by industry has grown in the most entrepreneurial universities exceeding the growth rate of the university total budget for research and development, but where the extent to which research is contracted by regional firms is less important (with some exceptions such as Pennstate university).

The nature of project funding also places constraints on greater engagement. In Finland where external funding of universities witnessed a rapid growth in the 1990s, the bodies providing funds – ministries, communities, private business, foundations and international organisations such as the European Union – only financed direct project costs *i.e.* marginal cost. When core funding is linked to teaching via graduate output numbers there is not enough leeway to invest in translational research facilities and knowledge transfer supporting regional and national innovation systems. In some instances, this gap has been partially filled by municipalities and city councils (OECD, 2005a).

There are a number of consequences that flow from the above. First, there is a simple direct impact on the local economy of large research-intensive universities competing successfully on the global stage for research contracts, well-paid staff and well-qualified students regardless of the extent of its dynamic engagement with local businesses and the community. Second, if the role of science-driven innovation in economic development particularly through the creation and attraction of new businesses is accepted, then those regions which lack a research intensive university would be at a disadvantage. Smaller higher education institutions without a substantial research capacity will not be able to develop a new economic base for their regions. Nevertheless, science-driven innovation is not the only route to economic development. Alternative endogenous development models based on the upgrading of the existing core competencies may be more appropriate for smaller regions and their higher education institutions.

A further characteristic of the financing of research is that it is generally underfunded. Full economic costing of research to enable the institution to reinvest in the research infrastructure is seldom undertaken. This is

particularly problematic in terms of the limited ability of institutions to create financial headroom to invest in capacity to translate research into goods and services that are ready to be marketed to investors.

Funding for teaching

OECD Thematic Review of Tertiary Education (2008, forthcoming) suggests that the basis for allocating core funding to the institutions, in particular to education, should, to some extent, be output oriented with that the performance-based funding mechanisms should be carefully implemented. The experience from a number of countries, *e.g.* Denmark, The Netherlands, Norway, and Sweden, suggests that tying funding to results can facilitate enhancement of institutional performance. Indicators used in performance-based funding system should reflect public policy objectives and relate to aspects to be enhanced in institutions. In practice, however, funding for teaching in most countries relates to agreed numbers of students or graduates, usually in specified discipline areas linked to student demand and/or national need (*e.g.* IT and Medicine). Limited regard is paid to where graduates are finally employed geographically.[3]

In terms of student recruitment, federal funding is available for example in the United States to recruit able students from disadvantaged backgrounds. In the United Kingdom, there is national encouragement for recruitment of students from disadvantaged backgrounds which may have an implicit local dimension to it (AimHigher[4]). This is, however, an incidental consequence of aspirations to raise participation in higher education in recognition of the fact that students from disadvantaged backgrounds often need greater academic support, since the school system has not prepared them as well as others. Australia and China have recently added a regional dimension to student recruitment policies. In Australia, allocations to institutions under Higher Education Equity Support Program (ESP, launched in 2005) are driven by enrolments, retention and success of students from low socio-economic status, with a weighting to the students from rural and isolated backgrounds. In China, a specific initiative (Decision on Deepening the Reform of Minority Education and Speeding-up Its Development) was launched in 2002. It gives incentives to Chinese institutions to provide special conditions for the access of ethnical minorities. Graduates who have entered higher education through the special arrangements are required to return to their areas of origin for entering the labour market. See *OECD Thematic Review of Tertiary Education* (OECD, 2008, forthcoming).

In general, however, there is limited evidence that recruitment incentives targeted at disadvantaged groups form part of national support for regional human capital development strategies which enable local students to progress into higher education and then into local employment. In some

countries barriers to progression between further and higher education arise from the lack of transferability of pre-entry qualifications and different funding and regulatory regimes under which the two levels operate.

Funding for third task

Many countries have tried to reinforce the higher education apparatus in relation to firms and regional economies as well as their willingness to engage in the region. Some have embarked on large regional projects associating a wide spectrum of stakeholders to lay the foundations of regional innovation systems such as the NURI project in Korea (Box 3.1) or the Regional Growth Programme VINNVÄXT in Sweden. However, in most cases, they have developed temporary incentives under the form of grants, call for projects or joint programmes to facilitate collaborative research at regional level but seldom through fiscal advantages. The third task is characteristically not directly funded by national governments and funds for regional engagement remain underdeveloped.

In the United Kingdom where the regional dimension of higher education is among the most accentuated within unitary countries, the Higher Education Innovation Fund (HEIF) and its predecessor, Higher Education Reachout to Business and the Community (HEROBAC)[5] which is supported by the Higher Education Funding Council in England (HEFCE) finances a number of business-friendly schemes for universities but it does not seem to provide more than some percents of the total resources of higher education institutions. HEIF is not explicitly a regional fund even though many of the initiatives supported under it are regional in character. Like funding for teaching, HEIF now has a formulaic component based on past performance. This inevitably rewards the already successful institutions and there is no attempt to weight the fund according to regional needs. In other words higher education institutions facing more adverse innovative environments receive no more than institutions in more dynamic regions.

National higher education and innovation policies have generally not provided the necessary resources to underpin regional engagement by higher education institutions. In this situation it is hardly surprising that higher education institutions in parts of the European Union have seized the opportunity provided by European Structural Funds to initiate a host of projects to support their contribution to regional development. The Self-Evaluation Reports of the 14 regions in the current OECD study document numerous EU-funded projects to support knowledge transfer and skills development in less favoured regions. However, few of these projects have been embedded into mainstream research and teaching programmes, and are in danger of foundering as these funds wind down.[6]

Measuring outcomes of the third task and regional engagement

Mainstreaming funding for third strand activities is not without its problems. While the output from investment in research can be measured in terms of publications and from teaching in terms of numbers of students graduating, the appropriate metrics in the regional domain are far from clear. Many countries, for example the Netherlands, Australia and the Nordic countries are in the process of identifying adequate indicators to underpin funding allocation. This has proved a challenging task.[7]

A problem with most indicators is that they are essentially retrospective rewarding past performance rather than development work that may lead to future income or services in the public interest and the outputs of which are not reflected in the bottom line of university accounts. Indeed, the benefits of the regional public service role of higher education institutions are likely to accrue in the performance indicators of explicitly regional public agencies such as local authorities, where they take the form of measures such as job generation. This is not a benchmark against which higher education institutions would expect to be judged.

Outside of higher education, publicly funded development agencies have been required to adopt stricter accountability regimes. For example, the Atlantic Innovation Fund administered on behalf of the Federal Government of Canada by its Atlantic Canada Opportunities Agency (ACOA) has developed a "Results-based Management Accountability Framework" to assess the regional impact of its assistance with collaborative research projects between business and higher education institution. (See Chapter 5, Box 5.7.)

Regional structures and governance

Higher education and territory

Although many regions across the OECD area are looking to business and higher education institutions to contribute to their economic, social, cultural and environmental development, the capacity of the regions to "reach into" higher education is often constrained by a wide range of factors. At the most general level, the public governance of territory operates within closed boundaries. Local and regional governments are responsible for administratively defined areas and these are usually linked to unambiguous political mandates. By contrast research-intensive universities cannot have a mandatory geographical sphere of influence; indeed such institutions operate at the local, regional, national and international scales. Some vocationally oriented higher education institutions have a specific regional mandate but it is increasingly less likely to be enforced by national, regional and local governments as the institutions compete for students and contracts wherever

these can be obtained. So the delimitation of its "region" is a challenge for many higher educations institutions.

Local government

OECD Thematic Review of Tertiary Education (2008, forthcoming) indicates that decentralisation policies can promote the collaboration between higher education institutions and regions. In some counties, devolution of powers in higher education has been carried out so that regional governments can actively contribute to the establishment of higher education institutions and better respond to the needs of the local community. In Japan, for example, this trend was strengthened by the parliamentary resolution on decentralisation in 1993. Some countries have set up coordination bodies to manage higher education planning at the regional level, *e.g.* In Mexico the State Commissions for Higher Education Planning (COEPES) are playing this role.

However, the evidence from the current OECD study on the implications of different national territorial governance systems in terms of the capacity of the higher education institutions to engage for their regions is not clear and requires further investigation.

In some countries, municipalities pool resources across several units and/or establish joint development agencies that have a capacity to work with the higher education institutions in the combined area. At the next level of aggregation (or disaggregation of the national governance system) some countries have regional authorities with a specific mandate to support higher education in their region. This is the case in the Spanish autonomous regions, the Provinces of Canada, and the States of Australia.

In highly centralised countries like the UK the national government has devolved powers to the countries of Scotland and Wales including some aspects of higher education. Within England, regional development agencies in each of the 9 regions have been established by the central government. These agencies have some autonomy and are increasingly seeking to mobilise higher education in support of economic development even though it remains a central function.

In many countries local government is fragmented and has limited powers to engage in economic development let alone to support higher education. Rolling programmes of reform are, however, underway, notably in the Nordic countries with strong local government traditions where individual municipalities are being merged. In other circumstances local authorities are coming together to support special purpose economic development organisations from the bottom-up which are beginning to work with local higher education institutions.

In attempting to engage with some level of government between the national and local and even when there is a specific regional administrative

structure in place, higher education institutions often face challenges of intra-regional competition for their attention. Relating to the specific municipality in which they are located is one thing – serving a multitude of locations across the broader region with several centres of population is another. Multi-campus solutions raise questions of dilution of resource and partnerships between several higher education institutions across a region can be very demanding in terms of senior management time and energy as well as staff and student mobility.

The private sector

The third stakeholder with an interest in mobilising higher education in support of regional development is the private sector. Identifying who speaks for the private sector in relation to what higher education has to offer can be challenging, especially in regions without a strong private sector R&D base. In strong and dynamic regions there are often well developed private sector networks that are plugged into higher education and articulated through Chambers of Commerce. But in weaker regions the small and medium-sized enterprise (SME) sector is often inchoate and there are not well developed industrial clusters. In such regions branches of national and international companies can lack the autonomy to engage with higher education for the development of new products and services and provide placements for students and jobs for graduates. In addition, higher education institutions and firms, particularly SMEs, experience significant gaps in their collaborative relations (see Chapter 5).

In summary, the environment for higher education to engage in regional development across the OECD countries is highly variable. Where the governance and industrial structure is poorly developed and where there is no strong regional leadership, it is often necessary for higher education institutions to not simply respond to regional needs but to set the development agenda. Whether the higher education institutions are able to do this depends on their own governance, leadership and management.

Governance, leadership and management of higher education

Transversal, cross-cutting mechanisms

Regional engagement is a challenge for higher education institutions, particularly for longer established institutions organised around academic disciplines and along a supply-driven agenda. The framework set out in Chapter 2 highlights the transversal mechanisms for managing teaching and research and their integration with one another. Most higher education institutions recognise the importance of teaching quality and research excellence and link these qualities to the cross-cutting roles of vice rectors (as

distinct from the disciplinary roles of deans and heads of department). However, the integration of teaching and research within the disciplines to deliver regional impact is seldom recognised.

Third task activities may be the responsibility of a member of the senior management team but quite often this is passed on to parts of the central administration, *e.g.* to those responsible for legal aspects of technology transfer. Support for knowledge transfer via teaching and learning will reside somewhere else in the administration. In both domains specialised intermediate units such as science parks or centres of continuing education with their own staff can play a pivotal role – either bridging between the region and the academic heartland or keeping the messy world of business and the community at bay. Which of these alternative modes of operation is adopted depends very much on leadership from the top of the institution.

Higher education institutions in regional decision making: the role of academic leaders

The role of higher education institutions in regional development is closely linked to their role in regional decision making. In many OECD countries, higher education leaders or other representatives are playing a more visible role in regional economic policy making. There is enhanced participation of academic staff in regional bodies and increased networking with regional governance institutions, such as regional agencies, regional development organisations, city and municipal development offices, planning commissions and local science councils. In some public programmes and countries, the participation of higher education institutions is mandatory on the boards or in partnerships that manage economic development agencies. In most cases, the identification of regional needs by higher education institutions takes place through supervisory and advisory boards which involve regional stakeholders and particular business representatives. However, many institutions remain passive and prioritise their national and international role. In certain cases academic leaders advise against closer regional engagement in fear of provincial and narrow image. Some communities and cities may also be reluctant to draw on the expertise of higher education institutions in policy formulation.

Whatever approach the higher education institution adopts, the all embracing nature of regional engagement implies that it is a task for the head of the higher education institution. He/she can integrate the function and disciplinary areas and represent the corporate view of the institution externally. In many cities and regions rectors and vice chancellors are key members of local elites, participating in many forums. At the same time, individual academics or other staff members may be active as business or social entrepreneurs in projects supported by the city and region. But in many

instances there is little connection between the high level engagement of the senior management and the actions of individual academics. Indeed, the customs and practices of the institution may act as a barrier to more systematic engagement across the institution.

Institutional barriers within higher education institutions

There are numerous institutional barriers. First and foremost is the lack of incentives to individuals. Few institutions recognise regional engagement as one of the grounds for academic promotion; this is characteristically based around research excellence as reflected in peer reviewed publications with an occasional nod towards innovative teaching or academic management.

Second, resources to support the development of ideas (proof of concept) into products or services are often not available let alone translational research facilities to build prototypes or test drugs. Third, intellectual property can also be a major source of conflict between the academic and his/her institution even where the national legislative environment is favourable.

Fourth, continuing professional development for small businesses and the community does not easily fit into conventional full time teaching programmes and can require evening and weekend teaching, eating into time for research and scholarship. Finally, also problem-solving R&D for local SMEs (who may have difficulty in formulating their needs) can be very time consuming and diversionary from what are regarded as core activities.

Governance and management

How far are these barriers to institutional mobilisation, in support of regional development, a function of traditional forms of institutional governance and how far are they a matter of the underfunding of the third task? The evidence from the OECD countries suggests that it is a combination of both factors.

Enhancing the development of more entrepreneurial universities is thus an objective of the new higher education policies in many countries (Clark, 1998).[8] Some OECD member states, for example the Netherlands, Austria, the United Kingdom and Denmark, which have embraced New Public Management approach, have replaced collegial forms of governance and management (*i.e.* elected rectors, deans and heads of departments) by a system of stronger and more overt managerial roles by appointed vice chancellors or rectors and the heads of the faculty. However while it is recognised that more leeway need to be granted to higher education managers, reducing the burden of regulation does not necessarily proceed at a fast pace. Governments which have legislated to reform institutional

governance and management are often not in a position to cede full autonomy to institutions until the changes are bedded down.

Over the last twenty years the policy objective of the Dutch authorities has been to decrease rules and regulations governing higher education institutions. The plan for a new law on higher education and research shows a further stage in this development to loosen control over specific programmes. However the autonomy has not increased in all fields. New policy issues have sometimes brought about new regulation. In addition, the power to decide on research priorities resides in national organisations.

In Denmark, higher education institutions have been granted more autonomy to handle their business while the ministry and its agencies steer the system vertically through setting explicit targets, performance contracts and monitoring the results. The Danish reform has thus introduced a wider scope for decentralised decision making and reduction of detailed regulation, but maintained a strong element of central steering and monitoring. The wish to ensure that the universities are capable of administering the extended degree of autonomy has resulted in re-regulation.[9]

Since 2004, Japanese national universities were transformed into National University Corporations with the authority to own land and buildings and hire staff. Faculty are no longer civil servants which has facilitated more flexible forms of employment and salaries. The change has also facilitated channelling funds to university-industry cooperation rather than individual companies. Over the last five years, university-industry collaborations have become more widely diffused into small start-up firms. It is expected that the smaller firms will gradually reduce the dependence on in-house R&D conducted within larger corporations. About 70% of firms which have R&D activities are involved in some forms of R&D collaborations with universities. The reform has also favoured mobility and permitted to offer part-time positions for university professors at research institutes to lead research there.

In some OECD countries, higher education institutions have limited autonomy (in contrast to the autonomy of the academic staff) in terms of their mission, academic profile, programme offer and management of human resources and infrastructure. The ability to exercise control over the higher education estate can be a key asset in city and regional development and as a significant financial resource it is often retained by the central government.

Where governance of universities has not been changed to a greater degree, the national government has often looked to new institutions, notably polytechnics, to address the regional development task. Such institutions characteristically are strongly managed. The external mechanisms which

mobilise the institutions to support the region are well tuned using a variety of performance measures. However, these institutions characteristically lack a strong research base capable of transforming a regional economy as distinct from improving the existing industrial base. In these instances, delivering the higher education capacity that has both global reach and local engagement requires strong inter-institutional collaboration – a further challenge for the leadership. (See Chapter 8.)

Reference to the entrepreneurial approach is not to imply that this is the appropriate model to ensure all higher education institutions are able to actively engage in regional development. An institution with greater freedom of action may well pursue the achievement of international status rather than local utility. The challenge for academic leaders is to manage the tensions arising from the different rationalities embedded within higher education and engagement with business and the community. The role of the leadership is to produce a synthesis through which the institution not only responds to regional needs but also becomes a motor for regional development and which has its mainspring in a strongly independent academic heartland.

These tensions and their resolution are summarised in matrix form in Table 3.1 (Vestergaard, 2006). First, in terms of the role of government and other external agencies, there is a higher education rationality which focuses on academic independence and a business rationality which focuses on closer links between science, business and society. The synthesis is one where there is interaction but in which an academic heartland for long term creativity in basic science is preserved. Second, in terms of the division of tasks between the higher education institutions and the world outside, the higher education rationality leaves the translation of research and teaching into products, services and public policies to others while in the science and business driven logic there is no distinction between what is undertaken in higher education and elsewhere. The synthesis involves inter-digitation both physically (*e.g.* on campus) and functionally (*e.g.* student enterprise) but with a careful regulation of the boundaries. Third, in terms of activities undertaken, the higher education rationality requires the academy to stand aloof while the business logic turns the higher education institutions into an "innovation factory" driven by the needs of business, society and government. The synthesis involves the higher education institution acting as a cradle for new knowledge which it translates into application in partnership with users. Finally, in terms of roles and responsibilities, the higher education institution is both a guardian of truth and a facilitator of innovation. In practice, however, higher education institutions have a portfolio of activities and staff operating under all three rationalities.

Table 3.1. **External engagement of higher education institutions**

	Higher education rationality	Science and business rationality	Synthesis
Role of government	At a distance	Close interaction	Close interaction but carefully managed
Division of tasks	R&T: higher education institutions C: Other actors	R&T: higher education institutions C: higher education institutions	R&T: researchers C: students and private sector partners (on campus)
Activities undertaken	Guardian of truth	Innovation factory, key agent in the innovation supply chain	Innovation cradle
Roles and responsibilities	Independent academics	Responsive academics	Guardians of truth and innovation facilitators

R: Research; T: Teaching; C: Commercialisation; Adapted from Vestergaard, 2006.

Conclusions

It is appropriate to conclude the review of barriers to regional engagement by returning to higher education policy and considering the tools that governments could use to steer higher education institutions in ways that can enhance their contribution to regional development. In this regard it is clear that higher education has not been exempt from a general rolling back of the role of the state in delivering public services. Of the countries participating in the current OECD study this has been most pronounced in Australia, the Netherlands and the United Kingdom.

For higher education institutions the rolling back of the role of the state has meant a pressure for stronger management and the adoption of performance targets in return for greater institutional autonomy from government. Equally important has been the emergence of publicly supported single-purpose delivery organisations with their own performance targets laid down by government. Many of these organisations operating in fields as diverse as labour markets, economic development, cultural and health provision have territorial structures and responsibilities and seek contributions from higher education institutions towards delivery of their own targets. These emerging structures have created many local and regional networks and partnerships in which higher education institutions are expected to participate. These partnerships have been lubricated by short-term project funding designed to deliver regionally specific outputs from higher education. The consequence has been a reduction of the capacity and willingness of central governments to directly steer the development of regional higher education systems "in the public interest". While government may seek to hold the ring between these different agencies, as far as higher education is concerned it is often unclear who is the ringmaster at successive levels of territorial governance (national/regional/local).

Not all countries have moved in this direction of marketisation of public services, new public management and networked governance and/or applied it to steering the role of higher education institutions in civil society. France and Germany have maintained a strong civil service and elaborate body of administrative laws whilst Spain and many Latin American countries emerging from the influence of military regimes have sought to democratise institutions like higher education institutions and emphasise their social obligations rather than their position in the market place.

This chapter has highlighted the challenge of regional engagement by higher education institutions arising from within national policy, the regions themselves and at the institutional level. It is clearly a difficult agenda for actors at all levels and there is no single key that could unlock all of the doors and create at a turn a well-tuned regional development and higher education system. Rather policy and practice is being and has to be forged by a process of trial and error, of learning by doing.

Notes

1. In this respect the United Kingdom with Oxford and Cambridge and the United States with Harvard and MIT are exceptions.

2. Examples include: *a)* the establishment of new universities in northern and eastern Finland during the 1950s-1970s and the establishment of Finnish polytechnics in the 1990s which doubled the higher education sector; *b)* a network of upgraded colleges to university status in Sweden; *c)* the current plans for new universities in the largely rural areas of England, like Cumbria, Cornwall and Suffolk, and the recent establishment of the University of Lincoln. In Australia new institutions have recently been designated in areas of high residential amenity witnessing rapid population growth through inward migration such as the University of the Sunshine Coast in Queensland.

3. Countries which have implemented performance-based allocation mechanisms use a wide range of indicators. Indicators associated with study completion include student graduation/completion rates, number of credits accumulated by students, average study duration, ration of graduates to beginners, or number of degrees awarded. Other indicators focus on the labour market outcomes of students: employment rates of graduates, extent to which employment is in a field related to the area of studies or student performance in professional examinations. Some countries use stakeholders' views (*e.g.* employers, students, government, social partners) of programmes' effectiveness, including assessments of the quality of graduates and about the extent to which a range of needs are being met and a degree of student satisfaction.

4. Aimhigher is a national programme in England which aims to enhance the widening participation in higher education. It is run by the Higher Education Funding Council for England (HEFCE) with support from the Department for Education and Skills.

5. The recent change of name indicates a shift from a broader to narrower definition of the third task.

6. Exceptions in the current OECD review include some of the masters' degree programmes which have been established with the help of the European funding and have now been mainstreamed in the higher education institutions. This is the case e.g. in the Faculty of Information Sciences of the University of Jyväskylä in Central Finland which launched a number of master's programmes in the 1990s to combat the recession and to build up the knowledge-based economy.
7. In England, HEFCE has established a Higher Education and Business and Community Interaction Survey (HEBCIS) covering a large number of indicators but in the end the Council decided to use gross institutional income measures to determine allocations under its HEIF scheme.
8. According to Burton Clark, "entrepreneurial" universities are seen to be able to determine their own destinies within a Government regulated system. "Expanded developmental periphery, strengthened management core and independent academic heartland" belong to the key characteristics of such institutions.
9. The Peer Review of Jutland-Funen in Denmark notes that "while the new governance system has been put in place enhancing the development of more entrepreneurial universities… the government at the same time continued to practise strong control over them. Matters such as the launch of the new study programmes, course assessment, setting up activities abroad, ownership of buildings and human resource development are controlled by the ministry".

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