

The Response of Higher Education Institutions to Regional Needs

PAUL CHATTERTON & JOHN GODDARD

Introduction

Within advanced economies, there is a general concern that teaching and research within higher education institutions are not directed enough towards specific economic and social objectives. One of the fields where this demand for 'specificity' is clearest is regional development. Being located 'in' regions, universities and colleges are asked by a new set of regional actors and agencies to make an active contribution to the development 'of' these regions. These demands are driven, amongst other things, by processes of globalisation and regionalisation (or localisation) in economic development, whereby the regional (or local) environment is as relevant as the national macro economic situation in determining the ability of enterprises to compete in the national, supra-national and global economies. Within this environment, the regional availability of knowledge and skills is as important as the physical infrastructure. As a result, regionally-engaged higher education institutions can become a key asset and powerhouse for economic development.

Higher education institutions have always contributed to the social and cultural development of the places in which they are located. However, the emerging regional development agenda can be argued to require regional engagement to be formally recognised as a 'third role' for universities and colleges not only sitting alongside but fully integrated with mainstream teaching and research. Therefore the requirements for regional engagement embrace many facets of the 'responsive higher education institution' that are being generated by evolving priorities within the higher education system. These priorities all come under the following heading: meeting the various needs of a more diverse client population. Among these needs are relatively new demands such as flexible structures for lifelong learning created by changing skill demands; more locally based education as public maintenance support for students declines; greater links between research and teaching; and more engagement with the end users of research.

For many higher education institutions regional engagement is becoming the crucible within which an appropriate response to overall trends in higher education is being forged. Responding to the new demands requires new kinds of resources and new forms of management that enable higher education institutions to make a dynamic contribution to the development process in the round. The challenge is to link within the institution the teaching, research and community

service roles by internal mechanisms (e.g. funding, staff development, incentives and rewards, communications) and to engage the institution with all facets of the regional development process (e.g. skills enhancement, technological development and innovation, cultural awareness) in a region/higher education institution 'value added management' process in the 'learning region'.

Given the above considerations, the principle objective of the article is to provide an understanding of the ways in which higher education institutions are seeking to respond to regional needs. The secondary objective is to guide the formulation of policy by national and regional governments seeking to mobilise higher education institutions towards the achievement of regional development goals.

This article falls into three parts. The first expands upon the discussion of regional development and the territorial dimension to higher education policy. The second discusses the response of higher education institutions to the changing context in relation to teaching, research and community service. The final part provides the conclusions and recommendations. It explores some of the factors that inhibit and drive the adoption of a regional role by higher education institutions and makes some remarks concerning the contribution of universities and colleges, through critical debate, to the creation of a common understanding of priorities for regional development amongst regional stakeholders.

Higher Education Institutions and Territoriality

The capacity of a higher education institution to respond to regional needs is influenced by conditions that result from the interrelations between several geographic scales from the global to the local as well as from the historical legacy of each higher education institution and its region. Policy makers need to be aware of the demands exerted upon higher education institutions from each of these different spatial scales. These include: restructuring in the global economy; changing national contexts for higher education; the particular characteristics of the region in terms of the regional economic base; regional policy; the regional educational system; and the particularities of each institution. Below, this context will be discussed through a review of territoriality and higher education institutions.

Problematizing Territoriality

Territoriality is an extremely complex and problematic concept for higher education institutions. Universities, in particular, exist as autonomous institutions that are often characterised by low levels of local territorial embeddedness, regulation at the national level, and preoccupation with international and national academic and research communities. All higher education institutions embrace some notion of territoriality within their mission statements and institutional plans. These range from general notions of contributing to 'society' and international research to more precise commitments to local and regional communities. A report for the Association of European Universities stressed the growing urgency for higher education institutions to take engagement with external partners seriously:

In order to respond better to the needs of different groups within society, universities must engage in a meaningful dialogue with stakeholders ... universities which do not commit themselves to open and mutually beneficial collaboration with other economic, social and cultural partners will find themselves academically as well as economically marginalized (Davies, 1998).

Moreover, UNESCO's 'Framework for priority action for change and development of higher education' (1998) has stated that higher education institutions should:

Develop innovative schemes of collaboration between institutions of higher education and different sectors of society to ensure that higher education and research programmes effectively contribute to local, regional and national development.

In spite of these positive statements, the issue of how they should respond to regional needs is relatively uncharted territory for most higher education institutions, especially for the older and more comprehensive universities. Most strive towards teaching and research activities of national and international significance. This is confirmed by a recent survey of UK universities asking senior managers to comment on how they could best describe the territorial role of their institution. Only 2% described their university as 'a community-based institution serving the needs of the local area/region'. Nearly half described it as 'an institution seeking to contribute to the local area and also develop international strengths' and one-third described it as 'an international research institution seeking to provide support to the local community where it does not conflict with international research excellence' (DfEE, 1998).

Research within higher education institutions tends towards an (inter)national rather than a regional perspective. This reflects the priorities of governments and their research councils as the main funders of research. Clearly, research with a regional perspective can increase as the funding base of higher education institutions is diversified, but most universities are reluctant to increase regionally-based teaching or research. They see this as the role of the non-university higher education sector. Moreover, it is often the opinion of regional partners that the best way for higher education institutions to meet regional needs is by functioning as a national and international centre of teaching and research excellence. The institutional profile (such as subject mix, funding sources, balance between teaching and research, size, etc.) of a higher education institution is an important influence on its territorial focus. However, the connection between institutional profile and territoriality is extremely complex. For example, higher education institutions that are highly specialised as training or technical institutions may either be local or globally-orientated. Moreover, large comprehensive universities, whilst developing strong international and national teaching and research activities, also have the resource base to engage with the region.

Consideration of territoriality also raises the issue of institutional independence. Higher education institutions that operate within nationally regulated and funded regimes generally function as autonomous institutions and have control over the nature of teaching and research. However, the introduction of a

regional agenda within such national systems is likely to require a stronger regional planning framework which brings together a number of regional stakeholders to co-manage, coordinate, and regulate the management and funding of teaching and research. Such mechanisms may pose a challenge to institutional autonomy.

Higher education institutions, then, operate within multiple and overlapping territories and usually manage a portfolio of activities ranging from the global to the local. The advantage of the presence of one or more higher education institutions in a region is that expertise from these different scales can be a major asset to the community. The challenge is to simultaneously manage the various territorial portfolios so that they reinforce each other and to establish mechanisms through which the national and international connections of higher education institutions can be mobilised to benefit the region.

Although many higher education institutions are adopting a rhetoric of regionalism within their mission statements, the term 'region' can be equated by some academics with parochialism and be seen as the antithesis of metropolitanism and cosmopolitanism — terms that are heavily associated with the historical development of many old universities. Moreover, the term region can refer to many different scales. It can refer to the immediate hinterland, a large part of a country, a State in federal countries or wider pan-national areas. In particular, regions are emerging, or are being defined, which cross national boundaries and consist of elements from several national territories. There are pan-national regions such as the Baltic and Scandinavian/Nordic regions, the Pacific region incorporating Australia and South-east Asia, and the European Union.

It is also important to appreciate the multiplicity of ways in which an explicitly regional role for a higher education institution can be interpreted. For example, a self-conscious regional institution may be defined by associating itself legally or through its name with a particular territory; by operating within a regional recruitment area; by interacting with regional research partners and the regional industrial base; or by offering service and outreach facilities to the regional community. Higher education institutions, then, have many justifications for calling themselves 'regional' institutions according to the way in which the relationship with the region and its stakeholders is prioritised. It is clear, then, that the issue of territoriality for higher education institutions is not unproblematic. It is vital for all those who work in, or come into contact with, higher education institutions to appreciate these issues of territoriality and the ways in which they are addressed within higher education institutions compared to most other public and private institutions.

Reconceptualising Territorial Development and Governance

The changing role of higher education institutions in regional development must be seen within a broader context of globalisation and the changing nature of regional development and governance, notably the shift in emphasis from material to non-material assets (knowledge, skills, culture, institutions) and the resurgence of the region as an important arena for political and economic activity. This section briefly reviews this changing context and outlines new forms of territorial governance based upon the concept of the learning region.

Emerging Patterns in Regional Development — The Learning Region

For effective regional engagement it is vital that those steering the regional interests of higher education institutions develop an understanding of the enormous transformations that have occurred in the capitalist world economy since the mid-1970s. This can be viewed in terms of a shift in phases of capitalist development from a system based upon mass production, Keynesianism, macro economic management, and the Welfare State, to one characterised by widespread economic and political de-regulation and the emergence of more decentralised forms of economic organisation. These changes have had major implications for economic development strategies and territorial governance, especially in terms of the dynamics that have been brought to bear upon securing regional economic success from the twin processes of globalisation and localisation.

The post-War period until the mid-1970s represented a highly regulated economic and political regime in the West, known as Fordism, which was characterised by the mass production of standard goods, a strong state-led social welfare system and a strong division of labour tasks. However, it is posited that it has now given way to an emerging regulatory system of post-Fordism, characterised by a new, and more regional, geography of capitalist activity.

One approach to understanding this new economic environment can be found in the concept of the learning economy which emerges from studies of national systems of innovation (Lundvall, 1992; Lundvall & Johnson, 1994). Lundvall defines the learning economy as an economy where the success of individuals, firms, and regions, reflects the capability to learn (and forget old practices); where change is rapid and old skills become obsolete and new skills are in demand; where learning includes the building of competencies, not just increased access to information; where learning is going on in all parts of society, not just high-tech sectors; and where net job creation is in knowledge intensive sectors (high R&D, high proportion with a university degree, and job situation worsens for the unskilled). The learning region depends upon network knowledge that refers not only to the skills of individuals but also to the transfer of knowledge from one group to another to form learning systems — the institutional infrastructure of public and private partnerships. Because network knowledge is highly dependent on interpersonal relations, it can most readily be developed within a particular region.

Moreover, the link between the information society, Information Communication Technologies (ICTs), and learning regions is considered to be mutual and self-reinforcing. Regions with strong learning cultures that support the development and uptake of ICT applications may be able to develop competitive advantages and use the information society as a mechanism for growth, whilst the ICTs themselves are constructed through certain social networking processes and contexts to be found in particular regions (the Silicon Valley phenomenon). For less favoured regions the implications are clear: without some attempt to make better use of ICTs, the prospects of cohesion and convergence are poor.

A number of features can be discerned within this system, all of which have resonances for the management of higher education institutions. First, the economy itself is becoming more regionalised. There is a new geography of capitalist activity associated with the growing internationalisation of production and the mobility of global capital flows, as well as with the declining regulatory

capacity of the nation-state. This shift entails a resurgence of the region through the integration of production at a regional level and the decentralisation of large corporations into clusters of smaller business units and the greater role of smaller businesses as sub-contractors, suppliers and franchisees. Economic activity, then, is dominated by interim relationships, or what Sabel *et al.* (1989) termed 'collaborative manufacturing' that emerge at the regional level and allow both competition and collaboration to flourish. While nation-states remain the basic unit of economic and political organisation, they are losing their monopoly on policy making, representation, legitimacy and questions of identity.

Second, in the context of the lifelong learning agenda, learning and teaching activities have moved away from a linear model of transmission of knowledge based upon the classroom and are becoming more interactive and experiential, drawing upon, for example, project work and work-based learning, much of which is locationally specific. Within this changed context, learning and knowledge creation take on different characteristics. In particular, it is important to differentiate between codifiable knowledge, i.e. know-what (data, etc.) and tacit knowledge such as know-how (skills), know-who (networking) and know-why (experience). These latter forms of 'hybrid knowledge', then, become the most valuable type of knowledge depending upon interpersonal relationships, trust and cooperation and are most readily developed within the region. Moreover, according to Gibbons *et al.* (1994), there has been a shift from 'mode 1' knowledge creation, which is homogeneous, disciplinary and hierarchical and which characterises the autonomous and distinct academic disciplines, to 'mode 2' knowledge production that is heterogeneous, transient, transdisciplinary, socially accountable, and reflexive, and undertaken in a context of application.

Third, in the wake of the declining regulatory capacity of the nation-state, the institutions that regulate economic activity are being regionalised. At a regional level an array of intermediate organisations are emerging that create in any particular locality an 'institutional thickness' (Amin & Thrift, 1994) comprised of a membership of institutions that will typically include firms, chambers of commerce, government agencies, R&D laboratories, and training and educational institutions, including universities. This membership constitutes the basis for 'associative governance' (Hirst, 1994) that signifies a shift from state regulation to regional self-regulation. Moreover, these networks rely upon animators who generate dialogue between the various organisations. The success of this network of organisations is underpinned by a 'soft infrastructure' or what has been called 'social capital' (Putman, 1995) and 'untraded interdependencies' (Storper, 1995), that include aspects such as trust, norms, values, and tacit and personal knowledge. These are key elements of the socio-cultural milieu within which regional networks of inter-firm organisations are embedded (Cooke, 1998, p.9).

Higher Education Institutions in the Learning Region

So where do universities and colleges fit into this? Firstly, in the light of this regionalisation of the economy, higher education institutions are confronted with new client bases in terms of both teaching and research. Traditional relationships with large corporations and nationally-based firms and research organisations are being supplemented by a new regional client base comprised of clusters of firms and the emergence of regionally-based supply chains of small and medium sized

enterprises (SMEs). Such trends have important implications for the skills required of graduates and the way in which universities and colleges manage the interface between degree courses and the labour market. In particular, there is a greater demand for the provision of vocational and professional education from higher education institutions that reflects the needs of the regional economy. Universities and colleges have much to gain in adapting to these evolving realities of a more regional economy. In particular, regional networking can be thought of as an institutional survival or strengthening strategy, especially for universities. As Morgan comments: 'Learning, of course, is worth little if there are no opportunities to implement what has been learned' (1997, p. 501). In this sense, a strong and supportive regional economy will create a competitive university, and a strong university has more to offer a region. However, it should be emphasised that universities, whatever their missions, remain autonomous institutions with allegiances to multiple territories rather than specific regions. In this regard, their relationship with territory is more ambivalent than that of public authorities with a legally defined domain.

Secondly, the emergence of inter- and transdisciplinary research centres within universities which engage with external research partners and increasingly rely on external funding sources can be situated within the shift to a new mode of knowledge production (Gibbons *et al.*, 1994). Because interactive forms of learning are inherently bound in time and space, university teaching and research show tendencies towards localisation, or regionalisation. It is within this new regional context for learning and knowledge that connections can be forged between the teaching and research agendas of universities. In particular, the university acts as a conduit through which research of an international and national nature is transferred to specific localities through the teaching curriculum.

Thirdly, historically higher education institutions have played a key role in nation building and continue to underpin a wide range of national institutions through the participation of academic staff in numerous public bodies. However, as the institutions that regulate economic activity become more regionalised, universities and colleges, through their resource base of people, skills and knowledge, increasingly play a significant role in regional networking and institutional capacity building. Staff, either in formal or informal capacities, can act as regional animators through representation on outside bodies ranging from school governing boards and local authorities to local cultural organisations and development agencies. Higher education institutions also act as intermediaries in the regional economy by providing, for example, commentary and analysis for the media. As such, they make an indirect contribution to the social and cultural basis of effective democratic governance, and ultimately, economic success through the activities of autonomous academics. A key challenge is to enhance the role that universities and colleges play, through their staff and students, in the development of these networks of trust and civic engagement, and hence in the wider political and cultural leadership of their localities.

This new environment confronting universities and colleges from within higher education and from regions contains important implications for institutional management. In the past, higher education in most countries was primarily funded by national governments to meet national labour-market needs for skilled manpower and to provide a capacity to meet national research and

technological development needs. In terms of higher education management, this has generally meant a single paymaster; relatively secure long term funding; the education of a readily identifiable and predictable population of full-time students in the 18–24 year age range, destined to work in the corporate sector and public service; and the provision of a well-founded infrastructure to support the pursuit of individual academic research and scholarship. Such a regime imposed limited demands on institutional management and indeed supported the ethos of academic self management and collegiality. The new agenda in higher education requires universities and colleges to act corporately and to respond to the demands of a new and diverse set of clients and agencies representing them, many of whom are directly or indirectly concerned with regional development.

Figure 1 attempts to summarise the above discussion in diagrammatic form. It focuses upon the processes that link together all of the components within the higher education institution and the region into a learning system. Within the individual institution, the challenge is to link the teaching, research and community service roles by internal mechanisms (funding, staff development, incentives and rewards, communications, etc.) that make these activities more

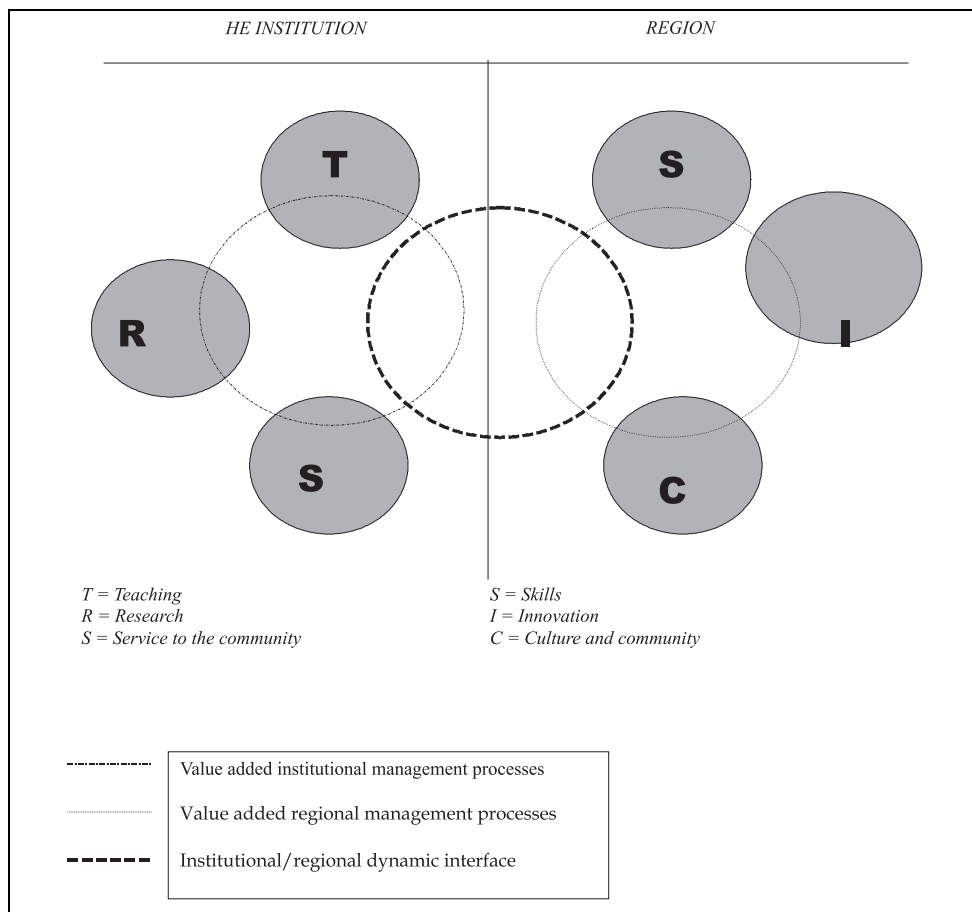


FIGURE 1: The Institution/Region Value-Added Management Process
 (Source: Goddard and Chatterton, 1999)

responsive to regional needs. These linkages represent 'value added management processes'. Within the region, the challenge is to engage higher education in many of the facets of the development process (such as skills enhancement, technological development and innovation and cultural awareness) and link them with the intra-institutional mechanisms in a 'higher education institution/region value added management process'. Put another way, the successful higher education institution will be a learning organisation in which the whole is more than the sum of its parts and the successful region will have similar dynamics in which the higher education institution is a key player.

However, one issue that is making the engagement of universities and colleges with their regions more problematic is the use of ICTs to harness new forms of educational provision. In particular, the idea of the 'virtual higher education institution' as an extension of the traditional place-based institutions and the development of the information society could be seen as threats to the traditional higher education institution wherein its potential role in a region is countered by its weakened setting as a 'place' of learning. In particular, access to the Internet for students may affect the status and authority of university and college teachers, undermining their knowledge monopoly. The emergence of electronic management of university and college education with the 'hollowing out' of existing institutions through on-line course provision by self-employed academics may disembed learning from its regional setting. All such major developments will pose threats and opportunities for regions struggling to adapt to the needs of the learning economy. Policies for education, training, innovation, research, and regional development all need to take into account how higher education systems might be affected by such developments.

Such dynamics concerning global economic and political restructuring and the concomitant emergence of new forms of territorial governance based upon the 'region' are a vital back-drop for those steering higher education institutions in their efforts to formulate strategies to meet regional needs. However, the extent to which the regional organisation of economic activity as set out above implies sustainable regional development is unclear, especially in the light of the dependency of many regional economies on footloose global inward investment and branch-plant activity. In this sense, there are trends towards a heightened differentiation of performance between core and peripheral regions as a result of a more open and unregulated global economic and political system. Higher education institutions can play an important brokerage role within regions in terms of promoting debate on the suitability of different models of regional development and their ability to meet the needs of the regional population.

Responding to Regional Needs

Higher education institutions are responding to this changing environment, amongst other things, by establishing new institutional management structures to meet more effectively the demands of various regional stakeholders. Such changes are occurring not only within the traditional teaching and research roles of universities and colleges, but also within their community service role.

Teaching

A core function of higher education institutions has been to educate through the dissemination of its knowledge base. Whilst this teaching function was initially offered to a national élite of politicians, industrialists, the clergy, and civil servants, through the 20th century access has continually been widened to much larger groups. In spite of this extension of access, the development of the teaching function within long established higher education institutions has not been influenced by regional needs, as most still recruit from, and provide graduates for, national and international markets.

However, the context for education provision is changing as a result of demands to create more regionally relevant education systems. Such demands are a result of policy changes from national governments, especially those associated with the concept of the 'learning society', and from impulses within regions to enhance the relevance of the teaching function. Newer institutions and those incorporated into the higher education sector from outside are creating or have inherited a tradition of providing locally-relevant education. For all types of higher education institutions the challenge is to balance the need to meet regional labour needs with the need to encourage the national and global mobility and competitiveness of staff and students and to position the institution in the global market. In order to realise the potential of higher education institutions for regions, there is a requirement to bring together all regional education providers to reduce duplicative functions, enhance collaborative provision and create a regional learning system by expanding the overall size of the education market. However, this agenda is problematic, as there are tendencies towards the localisation and delocalisation of teaching and learning as the regionally embedded higher education institution is renegotiated with the emergence of the virtual or placeless higher education institution. Higher education institutions are adapting in a number of ways to anticipate the changing nature of teaching.

Firstly, higher education institutions face choices in terms of prioritising different student markets. Most operate, or would like to operate, in nationally and competitive student markets. In particular, larger comprehensive, urban universities and subjects such as medicine are generally very competitive and over-subscribed. As a result, they are more selective and (inter)nationally focused in terms of student recruitment. Many higher education institutions would regard the attraction of the best students to the region from any source as a positive influence on regional development.

However, there are compelling arguments for making greater provision for more locally-based higher education, not least because of the circumstances facing certain groups seeking higher education. For example, the steady shifting of costs in recent years away from the taxpayer and onto a full-time student's present or future family is a powerful reason why more full-time British students have each year chosen to go to a university close to their home (Robson, 1997). Further, most full- or part-time mature entrants (aged 25 and above on admission) are home-based and choose a local institution. Also, most employed people seeking short courses or a continuing professional development (CPD) activity prefer a relatively local supplier. Many universities and colleges already function as distinctly local institutions, or have histories that connect them with the regional

community. Consequently, they have developed a strong role in educational provision for the region. In addition, many national or federal systems such as the US have regionally-defined catchment areas for student recruitment. Further, it is essential that rural, sparsely populated and old industrial regions retain the best students from the regional school system rather than losing them to other more prosperous regions.

Secondly, graduate retention is an important mechanism through which a region can retain people with innovative, entrepreneurial and management capabilities. However, the levels of graduate retention in a region reflect an interplay of several different factors such as: the ability of higher education institutions to provide courses and skills training that reflect the needs of the regional economy; the robustness, diversity, and size of the regional economic base; the pull factor of 'core' regions; the current state of the national economy; the region the student originates from; the type of higher education institution attended; and, the socio-economic background of the student.

Higher education institutions are a major influence on the functioning of the regional labour market. When considering their relationship with employers in a regional context it is useful for higher education institutions to consider themselves as being located at the head of an 'education supply chain' that produces educated people for the region. However, unlike a business enterprise situated in a similar supply chain position, higher education institutions devote relatively few resources to 'marketing' their products (graduates) or to responding to signals about what the market wants. This lack of marketing can be partly attributed to student funding regimes which reward 'production' but not 'sale' and the poorly developed mechanisms to undertake the marketing function outside career services. If higher education institutions were in part rewarded for the delivery of graduates into employment, including local employment, they would clearly have an incentive to put more effort into marketing and economic development.

Higher education institutions are confronted with a complex market place that consists of a variety of enterprises with a variety of skills needs that have to be catered for. These include the mature organisation (Type A) that provides well-established career routes and vocations for graduates. It can choose to have relationships with selected universities and it can influence the curriculum. The rapidly developing company (Type B) will normally be inexperienced in graduate recruitment and there may not be the sectoral coherence of Type A organisations. Finally, the traditional small enterprise (Type C), employing less than 50 and probably less than 20 people, is unlikely to have mechanisms for selecting and screening graduates or providing induction. This makes the articulation of needs problematic. As a result, such companies generally do not want or cannot cope with inexperienced graduates. There may be the poorest coherence between traditional degree programmes and the skills/knowledge which type C companies require.

Small firms with less than 250 employees account for the vast majority of firms in most national contexts. Increasing numbers of graduates are finding their way into such smaller firms via a number of routes such as pre-university placements, learning and sandwich courses, vacation placements, part-time work, recruitment fairs, apprenticeships, teaching company programmes, recruitment at masters degree level, and schemes for unemployed graduates. Because of the great

diversity of these small firms, it is very difficult to identify common needs. However, they generally require graduates to have acquired key transferable skills through their studies and work-based education, especially since SMEs do not have the resources, personnel and time to undertake skills training. Yet, it is unrealistic to expect higher education institutions to have the ability or knowledge to prepare graduates for the diversity of employment situations that they may encounter within SMEs. A vast array of programmes has emerged to bridge the gap between the disparate worlds of higher education institutions and SMEs. Building partnerships and support mechanisms such as apprenticeship, matching and induction schemes, marketing, and curriculum modification can ease the transition between the different institutional cultures and work practices. The challenge remains to develop a regional graduate Labour Market Information (LMI) system to systematically collect, process and disseminate information on the movement of graduates in the region.

Thirdly, higher education institutions can localise the learning process by drawing upon the specific characteristics of a region to aid learning and teaching. The creation of specialist, locally-oriented courses that draw upon the characteristics of the region can give higher education institutions a competitive advantage in national and international student recruitment pools. Further, locally-oriented courses, especially those that are closely connected to growing industries in the region, can offer graduates greater chances of success and mobility in the regional labour market. Locally-based teaching, then, is an effective way of exposing the region to the work of higher education institutions and the skills and talents of their students. Such teaching often draws upon representatives from local industry to add practical experience to the teaching process. Moreover, project and course work, particularly at the post-graduate level can be undertaken collaboratively with regional partners and can be focused upon regional issues.

Overly localised teaching programmes can have several shortcomings; if tied too closely to the economic base of the region, courses can be susceptible to cycles of growth and contraction in the regional economy. Regionally-oriented courses may also have a limited appeal in terms of attracting non-local students and could also adversely affect the performance of students in national labour markets. Finally, many higher education institutions regard their role as generating expert knowledge and providing graduates of the highest quality. One cannot assume that young people in (or outside) a region will be attracted to study those courses that are particularly in the region's economic interests. Indeed, there is evidence that in areas of economic hardship, home-based students will see a degree as a way of escaping from the region and will explicitly reject staying in the area. There is a real tension here. Higher education institutions have always enabled young people to leave their home region in search of the kinds of jobs they want elsewhere, as well as being a means of matching the acquisition of knowledge and skills to the region's developing economy. They have to seriously consider the problems associated with localising the curriculum.

Fourthly, higher education institutions are increasingly playing a regional role in meeting professional and vocational educational demands in the labour market. Technological change means that skills acquired are soon rendered obsolete and career progression is no longer linear. The implication is that there is a significant increase in the demand for adult and continuing education and a greater emphasis

on lifelong learning. As a result there have been many efforts to ensure that higher education teaching programmes more closely match what are seen to be local, regional and national skills needs. This is expected to take place through adult liberal education and tailored and specialist continuing professional development courses for regional organisations, often undertaken in partnership with other local bodies. However, in the absence of lead agencies to articulate the skills needs of the region, it is often difficult for higher education institutions to organise suitable provision.

Finally, higher education institutions are moving away from traditional forms of course delivery and the standard three-year bachelor degree in order to provide flexible packages to a variety of audiences. Most universities and colleges have extended their teaching activities to offer access to traditionally underrepresented groups. In many national contexts, higher education provision is being tailored to meet the specific requirements of indigenous groups and ethnic minority/cultural groups. Higher education institutions are also experimenting with new forms of course delivery especially to those located in rural or marginal areas hitherto poorly served by higher education.

As noted earlier, developments in telecommunications networks (such as broadcasting, cable, Internet, World Wide Web) are challenging the role of the place-based institution in the production, preservation and transmission of knowledge. Developments in ICTs enable a whole host of actors, including higher education institutions and other public and private institutions — individually or in partnership, to mould, and respond to, educational needs in radical ways. The monopolistic position of many higher education institutions in a regional and national context is being supplanted by external education providers, such as Western Governors University and the University of Phoenix in the US, who can enter the regional learning system and offer courses via mediums such as the Internet. Higher education institutions are responding to such threats by offering Web-based courses around the globe, creating a patchwork of internal and external provision in regions delivered by a range of actors. The concept of the ‘virtual institution’ suggests that the role and remit of universities and colleges are in a period of complex re-negotiation. It is unclear whether such developments represent a disembedding of higher education institutions from particular places and communities.

In sum, one of the most important challenges facing higher education institutions is to create a coherent system, in which regional stakeholders work together to develop the overall capacity of human resources in the region. The potential for developing such regional learning systems varies significantly between countries. There are few examples outside of the US of systematic regional cooperation between different segments of the educational system, such as schools, universities and other higher education institutions, and even fewer examples which demonstrate an awareness of the links between education provision and economic development at a regional level. At best, many higher education institutions display a reactive approach to linking teaching with regional development issues. One particular problem is to establish a national system that links further education institutions and higher education institutions on a regional basis as this has the potential disadvantage of blurring the distinctive missions of institutions within the two sectors.

Research

Research within higher education institutions, especially the university sector, has traditionally emphasised the production of 'basic' knowledge for the (inter)-national academic community and neglected the application of established knowledge for the local/regional community. Some researchers in universities have been reluctant to seek external research sponsors and have often been guarded towards collaborative research activities. Furthermore, many national funding regimes exacerbate inter-institutional competition rather than collaboration in terms of research activity and funding. However, there are a number of trends that are encouraging universities to develop mechanisms for commercialising their research base and link their research and expertise more closely to the external environment.

Firstly, it is important to understand the ways in which the shifting production of knowledge (Gibbons *et al.*, 1994) is being reconfigured and how this is altering the conduct of research in higher education systems. Universities no longer have a monopoly on knowledge production. They must enter into strategic alliances with a range of other knowledge producers in order to remain at the cutting edge of research. Universities are increasingly seeking external research partners to tap into wider knowledge networks and meet the rising costs of research. This is being achieved by an expansion of research activities away from traditional academic units to new collaborative units such as research centres and science parks. The important point for universities is that these new vehicles for knowledge production have significant organisational implications. In particular, research centres often have an explicit regional *raison d'être*, and function on a multi-disciplinary and collaborative basis. The expansion of such centres is often also a deliberate institutional strategy to compete with the growing number of private research institutes.

Secondly, higher education institutions have responded to opportunities provided by, for example, the historical, cultural, political or economic context of the region by developing research agendas that reflect these characteristics. The region is often used as a test bed or laboratory for research that gives them a competitive advantage both nationally and internationally. A key question to pursue is the extent to which university research can draw down new ideas into the region to aid its development. Research activities can also be directed towards promoting the growth of regionally-based industrial clusters. From the perspective of many development agencies, universities (and to a lesser extent colleges) are seen as key actors to promote the establishment and development of new clusters of economic activity.

Higher education institutions have established a number of mechanisms to manage their research interface with the outside world. However, the transfer of research between higher education institutions and other stakeholders is a complex process. Rather than regarding research and knowledge transfer as a simple linear model between higher education institutions and their partners, there are a number of simultaneous flows between clusters of stakeholders and higher education institutions that occur on a spectrum from individual and *ad-hoc* interaction and consultancy work to centrally-organised activities. Explicit mechanisms through which research results are transferred between higher education institutions and regional stakeholders include single-entry points such as regional development offices, research centres, spin-off companies, incubator

units, advice and training services, science parks, and mechanisms to exploit intellectual property rights (IPR). However, it is necessary to recognise that the most effective technology and knowledge transfer mechanism between higher education institutions and the external environment is through the institutional teaching function, that is to say through staff and students via the teaching curriculum, placements, teaching company schemes, secondments, etc. This reinforces the intimate relationship between the teaching and research functions of higher education institutions.

Research interfaces such as University Research Centres can be considered as a developing 'dual structure' within most higher education institutions. Basic institutional units such as departments are supplemented by new units and new forms of activity directly linked to the outside world. They are responsible for introducing new ideas and promoting a more entrepreneurial culture in higher education institutions that have spread to more traditional units such as academic departments. These interfaces depend to a large extent upon entrepreneurially sought, locally- and regionally-based funding sources, as well as on collaboration with a wide range of partners to capture such funds. Moreover, new research interfaces are challenging existing institutional structures and management forms, especially in terms of introducing entrepreneurialism into traditional disciplinary-bound departments.

Many higher education institutions have organised their contribution to regional development through a multi-faceted approach that combines a number of the above mechanisms, which, in turn, reflect the evolving needs of the region. The research relationship between a higher education institution and its region must be a dynamic one, utilising a diversity of tools — spin outs, science parks, centres of excellence, and last but not least, teaching and learning through work based experience and professional development — that are linked to research. However, technology transfer between a higher education institution and its region should not be seen as a panacea for regional development. Initiatives need to demonstrate their 'added value' to the region. It has to be examined whether they lead, for example, to a net increase in innovation, employment, wealth creation and linkages.

Community Service

The contribution that higher education institutions make to civil society through the extra-mural activities of individual staff (e.g. in the media, politics, the arts, advising government bodies, socio-economic, and technological analyses), through providing liberal adult education, evening classes, access to facilities such as libraries, theatres, and museums, and through public lectures is being bundled together and recognised as a 'third role' alongside teaching and research. Perhaps more than the other roles, it is this third role of community service which embeds higher education institutions in the region. In certain contexts, this role reflects the 19th century paternalism of industrialists and philanthropists who gave endowments to establish higher education institutions in their home area, amongst other things, to create a 'cultured' and 'civilised' local and regional population. In other contexts, this service role to the local community stems from the obligations on higher education institutions that arise from being major recipients of local taxes.

A number of trends are converging that are increasing this traditional service role. The growing awareness of the global, or supra-national, nature of many problems such as environmental degradation, poverty, and economic development, has created a number of interconnected local responses such as 'Local Agenda 21'. Higher education institutions, because of their multi-territoriality and inter-disciplinarity, are institutions that are strongly placed to interpret global issues on a local scale. Also, the rise of the local state and local voluntary and community groups in response to the declining influence of national structures is of relevance. Moreover, fiscal constraints at both local and national level are creating partnerships between the public, private and voluntary sectors to meet community needs. In this context, higher education institutions, their staff and students, are heavily involved in community service through volunteering, project work, mentoring, leadership and commentary. In sum, through this third role, higher education institutions are one of several actors involved in the governance of local civic society. What this role highlights is the increasing embeddedness of higher education institutions in their regions and their duty as responsible local, as well as national and international agents. This is evident in several ways.

First, regional development and promotional organisations are increasingly looking towards higher education institutions to provide leadership, analysis, resources, and credibility. In this sense, higher education institutions contribute to the less tangible aspects of the development process by building social networks that link key actors in the local community and feed intelligence into these networks. The participation of a university or college can inject an element of unbiased and informed realism into such networks. This 'partnership principle' is increasingly a prerequisite for securing certain forms of funding and for creating an effective platform for enhancing inward investment activity. Further, higher education institutions provide the region with commentary, analysis, information and access to wider networks through mechanisms such as media links and public lectures. They also provide a framework through which ideas and cultures can be shared and transmitted. In this sense, they can play an important role in opening up and internationalising regions.

A second aspect of the service role of higher education institutions concerns community and voluntary action in the region. In particular, the student population represents a significant resource to the local community in terms of volunteer workers. The US offers many lessons for student community service through the 'education for citizenship' model. This partly reflects the historic legacy of municipality throughout the federal states and the tradition of land-grant universities that are dedicated to serving the community.

Third, higher education institutions own a number of facilities such as libraries, sports centres, and arts and cultural venues that are often significant regional facilities offering public access. Since the funding for such facilities at many higher education institutions is discretionary and not provided for in earmarked government block grants, their economic viability often depends upon partnerships, especially financial-based ones, with regional stakeholders. Regional access to facilities at higher education institutions may be a more pressing issue in lagging regions that have a less developed educational, social and cultural infrastructure. Many regional cultural facilities are offered through students' unions. They often play a central role in entertainment provision in the region by

providing comedy, live-music, dance events, and late-night drinking. As such, they can increase the overall 'popular' cultural reputation of a city or region. As in the area of teaching and research it is often necessary for higher education institutions within a region to work together with external partners in developing a portfolio of facilities and services that can be tailored to regional needs. Regional funding levered in this way can widen the range of facilities available on campus to students, thereby enhancing the learning experience. At the same time, active engagement in the community can enrich the life of both students and teachers. In short, the third role is not a one way street.

Conclusion

This article has discussed the ways in which higher education institutions are responding to regional needs in terms of teaching, research and community service. What are the drivers and barriers that each institution has to confront when engaging with the region? What actions can and do various stakeholders take that can either enhance or inhibit greater regional engagement?

It should be apparent from the discussion that responding to regional needs is not a clear-cut process for higher education institutions. It is framed by the history of individual institutions and the political-economic structures of both regions and nation-states. As a result of these particular characteristics there are a number of drivers and barriers to greater regional engagement in terms of the way in which the two main areas of activity within higher education institutions, teaching and research, are undertaken.

Teaching-related drivers to greater regional engagement include: historical roots that link the institution firmly to its local economic base; a desire to increase the uptake of graduates into employment within the region; an increase in postgraduate, professional development and part-time teaching to attract more revenue; recruitment of senior management on to boards of regional agencies and initiatives; opportunities for undergraduate students to study from home and avoid debts; new 'ladders of opportunity' for students through access, franchise, compact, and other arrangements; demand from mature and non-traditional students who are rooted in the region. Concerning research, drivers include: a renewed thrust of government policy towards promoting industrial links and clusters at a regional level; the regionalisation of national technology development and transfer policy; closer links between higher education institutions and the health sector; and in the European context, funding accruing to the regions through the structural funds.

However, there are also significant barriers to greater regional engagement. As regards teaching, these include historic patterns of nationally-driven subject provision and demand for courses that are not particularly congruent with the development needs of the region; academic promotion systems that do not sufficiently reward regional teaching and learning opportunities; the influence of external accreditation from professional bodies that pay little attention to regional development needs; lack of links between the formulation of regional policy initiatives by senior management and implementation by teaching staff; high start up costs of regional collaborative projects; and lack of regional seed corn funds. There are also a number of barriers associated with greater localisation and regionalisation of teaching that include anxiety about the 'decline in standards'

and a fear that enhanced skills increase rather than decrease regional labour mobility. One of the most significant barriers remains the difficulty of matching the attributes of graduates and the skills needs of local employers, especially SMEs. In terms of research, barriers include the largely national driven agendas of research councils; staff promotion mechanisms, peer hierarchies and academic networks that in a similar way to teaching favour activity of an (inter)national significance; the distribution of funding according to the reputation of academics and higher education institutions rather than to the prioritisation of regional developmental needs. Most importantly, there are very few funds at a regional level for substantial research programmes focused on regional needs.

What actions can national governments, local and regional authorities, and higher education institutions themselves undertake to reduce these barriers? First the possibilities for the national government. In the case of a unitary State without regional structures of governance, territorial development poses a fundamental challenge to the division of responsibility between ministries organised on a functional basis. In such a situation, enhancing the responsiveness of higher education institutions to regional needs inevitably requires inter-ministerial dialogue and collaboration (Goddard & Chatterton, 1999, provide an example for the UK). While the primary responsibility for funding higher education is likely to rest with the Ministry of Education or a quasi-independent funding body reporting to it, the regional agenda for universities and colleges is also likely to touch on the concerns of a number of different other Ministries. Insofar as these Ministries already deal with higher education it may be with different parts of individual institutions (for example, one Vice-Rector responsible for research and industrial liaison, and another for cultural affairs). Thus, higher education institutions reproduce the functional divisions within the national government.

There are a number of tasks national governments could undertake to enhance the response of higher education institutions to regional needs. Firstly, Ministries of Education can map the geography of higher education, for example, which courses are taught where, what are the home origins of students, and where do graduates enter the labour market. A particular concern of this mapping task will be to identify the steps between different levels of the education system — schools, further/vocational education/community colleges, higher education, post graduate institutions in order to assess how far the regional pattern of provision assists or inhibits access and progress of students. Further, inter-Ministry dialogue concerning higher education needs to be encouraged: for example, between the Ministry of Employment and the Ministry of Industry to promote the notion of knowledge-based clusters, or between the Ministry of Culture and Sport and the Ministry of Education to promote the understanding of the role of higher education institutions in regional cultural provision. Governments can also establish incentives and funding programmes to encourage higher education institutions to establish programmes or projects with an explicit regional dimension. These should aim at strengthening cooperative activities within the region and promoting partnerships and dialogue between regional education providers such as schools, further education, higher education and other training providers.

Turning to public authorities operating at the local and regional scale, higher education often remains a 'black box'. For example, what drives academics as teachers and researchers, the way in which the institution is governed and

managed, and the mechanisms of central government funding are seldom well understood. Just as it is a key task for higher education institutions to explain this, so too regional authorities must attempt to learn about higher education. A useful way of building the relationship between public authorities and higher education institutions is through joint research. Higher education institutions are a repository of knowledge about future technological, economic and social trends and can be harnessed to help the region understand itself, its position in the world and identify possible future directions. They can also act as a gateway to global information and tailor this information to meet the needs of different sectors of the regional economy. Public authorities need to explore mechanisms with higher education institutions for tapping into this knowledge base at both strategic and operational levels.

Higher education institutions also can play a role in the formulation of regional action plans and programmes. In each of the main themes within a development programme there is likely to be a requirement for active institutional participation. For example, in the search for inward investment there will be room for institutional participation in overseas delegations; in regional technological development programmes there will be opportunities for higher education institutions to provide expertise to assist with product and process innovation through consultancies, student placements and management development; in skills enhancement linked to raising regional competitiveness there should be a place for targeted graduate retention and continuing professional development initiatives; in cultural development, there will be scope for joint planning of provision of non-vocational education and of opening up of higher education facilities to the general public; and in terms of regional capacity building, higher education staff and facilities can be mobilised to promote public debate.

Finally, just as there is a need for national funding bodies to earmark specific funds to enable higher education institutions to pursue a third role, regional authorities will likewise need to underpin their requirements for new relationships with higher education institutions by financial support. This could take many forms but perhaps the most vital need is help for universities and colleges to establish mechanisms for a regional interface that can be sustained on a long-term basis. As more and more sources of funding from national governments and bodies such as the European Union relevant to the third role of universities are short term and project based, local or regional authorities could play a key role in ensuring the sustainability of university and college engagement by financially underpinning the bidding process.

What of higher education institutions themselves? This article has outlined a changing role for higher education institutions in their regions. In particular, their concern is not only to identify their passive impacts in terms of direct and indirect employment but also to create mechanisms through which their resources can be mobilised to contribute to the development process.

Undertaking the third role of community service seriously requires a number of components. The starting point for engagement should be a straightforward mapping of regional links in terms of teaching, research and participation in regional public affairs. A very basic task is to identify the home origin of students, what academic programmes they participate in, and the destination of graduates by occupation, industry and geographical location. With the judicious use of

external data, the higher education institution should be able to establish its share of national and regional student and graduate markets, its contribution to raising levels of participation in higher education in the region and graduate skills in the regional labour market. The institution should aim to establish mechanisms that track students on a longitudinal basis, including their careers as alumni and use this information to guide the shaping of teaching programmes. On the research side, the geography of collaboration with the users and beneficiaries needs to be established. External benchmarks will be required to make sense of these data, for example, to identify regional companies and organisations absent from the list. The mapping should identify the participating departments within the institution, again to reveal possible missing links.

Further, the contribution of the higher education institution to regional public affairs can be mapped by identifying participation in employers' organisations, politics, the media, the voluntary sector, the arts, and other educational institutions. An important distinction will need to be made between informal engagement where staff act in an individual capacity and formal institutional participation in partnership arrangements. Further, it is important to recognise the unique characteristics of each stakeholder such as organisational culture, territorial remit, and funding sources. Documenting the present linkages and publicising them within the region will be an important first step in raising the profile of the institution. Publicity within the institution will be equally important to draw the attention of all of the staff to the extent and significance of regional engagement. Such documentation is an essential prelude to a self-evaluation of the institution's desire and capacity to respond to regional needs. Ideally, this should be undertaken with the assistance of an external peer review group to gauge 'institutional capacity' to respond to regional needs. (A good example of a self-evaluation followed by an external peer review is provided by the University of Turku, Finland — See Puukka (1/200), and Goddard *et al.*, 2000). Such exercises can lead to a thorough re-evaluation of institutional culture. They can also stimulate a shift from a loosely coupled institutional form to a more managerial one. Regional offices and regional 'animators' play a central role in such institutional reconfiguring. This challenge has been neatly captured by Duke:

For universities, the learning region may be the best-kept secret of the dying days of this century. In practical terms this implies blending and combining competition in the "new enterprise environment" with collaboration; fostering and supporting "boundary spanners" who can work across the borders of the university in effective discourse with other organisations and their different cultures; fostering cultural change to enable universities to speak and work with partners from many traditions and persuasions as more learning organisations emerge and together enrich their various overlapping learning zones or regions. (Duke, 1998, p. 5).

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