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BUILDING INSTITUTIONAL CAPACITY FOR HEI REGIONAL ENGAGEMENT IN A SPARSE INNOVATION ENVIRONMENT: A CASE STUDY OF KNOWLEDGE HOUSE (NE ENGLAND)

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Introduction

It is now widely accepted that a key element of the social compact between universities and their host societies is the provision of knowledge of wider value. Some have argued this is a recent development, related to wider changes in the nature of society and of knowledge production (e.g. Gibbons *et al.*, 1994), as universities have lost their privileged role as monopolist producers of certain types of knowledge, facing increased competition in the “global marketplace of ideas” (*cf.* Bryson *et al.*, 2000). Others have pointed to an increasing salience for universities’ knowledge, given the increasing importance of knowledge capital as the basis for economic competitiveness and productivity growth (*cf.* Temple, 1998). But this raises the question of how far universities’ duties extend to responding to demands placed on them by external stakeholders given their core funding and research missions.

Although universities are often stereotyped as “ivory towers” whose academics shun wider roles, universities as institutions have evolved in response to wider social pressures, with new types of university emerging in response to particular social contexts (Delanty, 2002; Arbo & Benneworth, 2006). Indeed, even institutions which have sought to exclude worldly influences from the academic sphere have found that it is impossible to completely stem universities’ wider social impacts (Feldman & Desrochers, 2003). The notion of university/ community engagement is now uncontroversial, embodied in the rise of the ‘third’ (engagement) mission for universities. What remains controversial is balancing between teaching, research and engagement missions, negotiating excellence and relevance, exploiting existing knowledge without compromising production of new knowledge.

For policy-makers, this raises the question of how to develop instruments which maximize social benefits flowing from universities’ past knowledge investments out to society, without undermining their core teaching and research activities (Kautonen, 2007). Governments across the OECD and the European Commission have put a great deal of emphasis upon developing policies which stimulate universities to engage with (primarily) industry (alongside community groups). “Knowledge transfer” has become increasingly professionalized through organisations such as the Association of University Technology Managers (AUTM), the Association of University Research and Industrial Links (AURIL) and the University Companies’ Association (UNICO). But the “third task” has failed to become equivalent to teaching and research in terms of its institutional emphasis. Under these circumstances, the third mission may become neglected, and its activities regarded as temporary and disposable once particular funding streams are exhausted.

In practical terms, those performing community engagement and industrial liaison often lie at the fringes of the university structure, unable to reshape the university corporately to deal with this new mission (Benneworth, 2007), even where there is no active resistance by academics to engagement. Clark’s (1998) analysis of this situation was that universities required what he termed “an extended development periphery”, a series of activities and structures which brought senior managers, enthusiastic academics and support services together with businesses for knowledge transfer. Reorienting universities towards the third mission can be compared with changing course in a supertanker, an extremely slow process whose outcome only becomes visible in its last stages, making it very difficult to steer in the interim. Clark is clear that building long term change within universities requires long-term institutional support, which outside the most committed, entrepreneurial universities also equates to a long-term stable funding stream. This raises difficulties for policy-makers and politicians under pressure to produce short-term results. How can long-term organisational change to facilitate community engagement be built under such short-term policy horizons?

To explore this, we examine the way that one particular established knowledge transfer institution in one region has made the transition from a one-off project to established regional institution. The

organization, “Knowledge House” in the North East of England, built up a strong community of individuals providing the service of getting academics to answer business questions. This community has become important to the partner universities in demonstrating commitment to engagement, and embodies an attractive promise of further potential for commercialization if external parties invest in the universities.

Although it has always fitted with the principles of government policy, policies have not always supported this wider community of technology transfer professionals. We argue that that policies for regional knowledge transfer are better focused on developing technology transfer communities of small change agents, who offer larger potential rewards for their host institutions. It is that potential which helps drive through the institutional changes necessary to universities to fulfill their obligations under the new social contract, and hence help to catalyse wider institution changes.

Building up institutional capacity: top-down vs bottom up

Interest in valourising university knowledge is encouraged by the allure of cheaply exploiting past investments as a kind of “social windfall”. This means that any valourisation activity is intrinsically light-touch and low-cost, whose attractiveness consequently decreases if dependent on significant new investments. Governments have been extremely resistant to creating new funding streams for knowledge transfer at a similar level to teaching and research, either coming through small scale projects or part of a deal to increase research funding in exchange for greater promised social impacts (cf. SSRC, 2002).

Although university knowledge has been created by past investments, that knowledge is frequently embodied within existing teaching and research staff, creation a tension between these staff engaging and the pressures of these existing activities. This tension is habitually finessed by noting that universities already have considerable socio-economic benefits which can be improved through more systematic university policies and practices (Rutten et al., 2003). This helps to refine the initial question to what kinds of policy measures can help make universities more systematic in terms of their policy engagement?

One approach has been to encourage universities to become more actively engaged in regional development strategies. Regional economic development is increasingly dependent on the kinds of university outputs such as new patents and licenses, talented staff, R&D infrastructure such as clean rooms, and new high-technology businesses (Bradshaw & Blakely, 1999) It is therefore possible to regard universities as providers of these ‘services’, and to directly reward universities for providing these services more efficiently and more in line with regional needs. There are a number of problems with this approach, not least-

- In regions whose HE and business sectors do not have significant overlaps it may be difficult to find shared rationales for collaboration (Fontes & Coombes, 2001),
- It can overlook the direct economic significance of HE as magnet for talent and as an export industry in its own right (Goddard, 2004),
- It can ignore the potential that universities have to change regional economic structure, as a source of novel business and policy ideas (Gunasekara, 2006a).

Policy-makers desire for certainty can favour developing valourisation systems which target expanding current regional activity over trying to improve the quality of regional demand. This risks policy-makers setting targets for what can be achieved on current arrangements rather than encourages

experimentation to improve the quality of the regional environment for innovation. Gunasekara (2006b) distinguishes two types of university contribution:-

- **‘generative’** contributions, creating resources which existing companies use in the innovation process, and
- **‘developmental’** contributions, in which universities helped to change the nature of the regional business and innovation environment, working with policy-makers to tailor particular policy instruments both to companies’ needs and universities’ capacities.

In this case, the challenge lies in supporting developmental contributions whilst maximizing generative outputs. In developmental situations, universities’ contributions come as much through helping regional partners to better understand what is needed than through directly providing these services. Universities may do this in their role as significant economic development actors, helping to encourage regional partners to look more intelligently at particular situations. However, universities do not have perfect knowledge about the regional needs and opportunities, some advance comes through regional co-learning, where universities and regional partners take small experiments in direct technology transfer (cf. Muller & Zenker, 2001; Benneworth & Dawley, 2004). If those small-scale experiments are successful, then this suggests a wider possible demand for those activities. By taking several experimental steps in succession, universities and partners embark on a colearning process which helps to build a stronger regional innovation environment.

A heuristic for this co-learning might be that a university and regional development agency co-fund a regional technology centre or liaison office providing consultancy support to all businesses (Garlick et al., 2006). The individual transactions in turn create a database of regional innovative businesses, from which a regional cluster organisation can be mobilized, which might in turn create demand for a “cluster house” around the technology centre. A “growing cluster house” could encourage property developers to create new industrial estates near to universities (science parks). The presence of a network of innovative companies on a science park might in turn help the university to win funding for basic research, using the cluster to demonstrate that its research activities do produce social benefits.

A clear dilemma for policy-makers at the national level is whether such small scale investments in policy experiments will be substantial enough to make the third mission as important to universities as teaching and research, without losing the windfall benefits of a valourisation approach. Moreover, there is a clash between policy-makers’ short term horizons and the need for longer experimental periods necessary or effective regional co-learning.

To explore this issue, we look at the case of the North East of England, drawing in part on the OECD review of its universities’ regional contributions (Duke et al., 2005). In the case study, we produce a stylized analysis of what is happening in the region in order to explain Knowledge House’s impacts, and distinguish between three groupings within the universities, senior managers, academics and knowledge transfer professionals. This is done for the sake of developing more general lessons from an accepted model of good practice, and we acknowledge that the reality in the region’s HEIs is somewhat fuzzier than suggested by our bold model.

The evolving policy environment for English knowledge transfer

Over the course of the last ten years, the UK has witnessed an increasing governmental emphasis on innovation as a driver of productivity growth and economic development, led by the UK Finance Ministry, the Treasury. A series of Treasury policy papers have identified a £30bn ‘gap’ in the UK’s economic performance in those regions with below average productivity levels (HMT 2001, 2003, 2005). The government’s stated intention has been to close this productivity gap without directly redistributing public resources between regions, by investing in success and removing barriers to

economic growth. For less favoured regions (with below average productivity), universities may represent very important sources of potential regional economic growth, and much effort has been placed in this period into stimulating universities to maximize their territorial economic benefits.

This changing approach to economic development policy has likewise precipitated an evolution in governmental attitudes towards universities' knowledge transfer activities. In 1994, as part of an attempt to increase overall HE funding, the UK's sectoral HE group the Committee of Vice Chancellors and Principals (CVCP), published the report *Universities and Communities* (Goddard et al., 1994). The National Commission of Inquiry into Higher Education (the 'Dearing' Inquiry) included a chapter on universities' regional contributions (Robson et al., 1997), and the main report concluded that HEIs should be formally represented on regional bodies. This laid the foundations for a rapidly rising governmental interest in universities regional contributions, which can be categorized into three distinct phases:-

- **Experimental** (1998-2001): a fund – Higher Education Reach Out to Business and the Community (HEROBAC) – was created to give all HEIs the opportunity to bid for up to £1.1m to work better with businesses and communities, a total of £66m awarded to 137 projects.
- **Enthusiastic** (2001-04): HEROBAC was expanded into the Higher Education Innovation Fund (HEIF), and universities encouraged to develop regional consortia to become more systematically engaged (£166m awarded to 213 projects).
- **Consolidating** (2004-07), a shift to metrics-based funding for all eligible HEIs whilst reserving one quarter of the total fund (£238m) for innovative consortia, typically cross-regional teams working in emerging technological fields (11 in the first round).

Source: <http://www.hefce.ac.uk/reachout/heif/>

However, there has also been a shift in the government's attitude to the 'regions', which has evolved in response to an entirely different set of territorial policy drivers, although ultimately still addressing England's persistent territorial economic imbalances. For a brief period from around 2000 to 2004, it appeared that England was set on an unstoppable process of devolution to elected regional assemblies. Regional development agencies (RDAs) were created and the government invested much effort in encouraging other 'regional' bodies to be formed to work initially with RDAs and eventually with the elected assemblies. Funding was provided to create higher education regional associations (HERAs) to help universities work effectively with the newly created institutions. However, following a 'no' vote in the first referendum on elected regional assemblies, there has been a steadily declining interest in the regional scale and for collective regional activity by universities, with more emphasis being placed on localities and city-regions (HMT et al., 2007).

In this period, there have also been a number of other changes which have more indirectly impacted on universities' knowledge transfer activities:-

- A business advice organisation for small businesses, Business Link, was created, then repeatedly reorganised, disrupting efforts to develop links with academics to help firms get over the threshold into universities.
- European regional development funds have been (in some regions hugely) important since the early 1990s when UK universities granted access to these funds; as these funds are now being shifted to focus on new member states, these resources are not available as freely as before, and activities dependent on those funds may be jeopardized.

- In 2004, the Treasury introduced a new tax avoidance regulation that penalized spin-off companies, and so universities suspended much spin-off activity for 18 months until the situation was resolved.

Thus, although the UK and England can be characterized as moving towards a more favourable environment for the promotion of universities knowledge transfer, there is still a degree of volatility and friction between competing policy drivers. How has this volatility affected institutional efforts to engage more effectively with social stakeholders? To explore this we consider one knowledge transfer activity in one UK region which has dealt with this volatility in seeking to develop better regional capacity for knowledge transfer to driver stronger economic growth, and has helped create a more receptive environment within regional universities for the 'third mission'.

Knowledge House emerging as a North Eastern institution

The North East of England is an old industrial region, which industrialized from the late 18th century onwards, but since 1900 has entered a prolonged and steady period of structural decline, failing to establish strong market positions in emerging new technology industries. In the post-war period, this decline was partly mitigated through attracting inward investment, whilst a number of businesses established R&D activities in the region, notably utilities firms (including electricity, water and gas), in the chemicals sector on Teesside, but also in shipbuilding, where the region hosted the national British Shipbuilding Research Association,. However, from the 1980s, these activities came under increasing pressure from deregulation, privatization and cost reduction. There did not appear to be critical mass within the existing business R&D base to develop new industries to replace the jobs lost from the region, and inward investment could not provide an easy or quick fix to these more deep-seated structural problems.

The five regional HEIs, Durham and Newcastle Universities, and polytechnics (higher professional universities) at Newcastle, Sunderland and Teesside seemed to offer a source of regional modernization, with potential to create new industries, raise regional growth levels and tackle high unemployment. Local authorities were at that time investing in technology centres as part of efforts to help regional businesses deal with technological change, particularly automation (such as numerical control) and computerization. These developed varying degrees of linkages to the five regional HEIs; arguably the most closely linked centre, Newcastle Technology Centre, was created by Newcastle City Council, the polytechnic and university; this was not immediately successful, and evolved over five years into a regional technology centre.

At this time, the five regional HEIs identified a clear value in working together **collectively**, because of the (then-)very small size of the local market for SME technological services, the fact that UK universities at that time were not able to access European funding for regional development, and the relatively high start-up costs universities faced in establishing dedicated technology transfer activities. A scheme was established by Newcastle University, HESIN (Higher Education Support for Industry in the North), which as an independent organisation was eligible for ERDF funding. HESIN then became the basis for a number of subsequent developments.

In 1989, the national funding council for HE encouraged the regional universities to develop an MBA-level course for regional businesses. A proposal was developed through HESIN to offset individual institutional start-up costs. This project became the "Integrated Graduate Development Scheme" (IGDS), and was generally successful in terms of take-up by regional businesses. Perhaps more importantly, its financial success (attracting around £600,000 of grant funding and £700,000 of industrial fees) was sufficiently eye-catching to alert the HEIs to the fact that third-stream activities could generate significant additional resources for them.

The IGDS scheme only ran for around two years at full power, at which point the its very limited regional market for executive MBAs was then exhausted. In 1995, the Treasury changed university funding regulations permitting access to European Structural Funds. Universities preferred to bid individually for large scale infrastructure investments which supported research activities, but in it was clear that the continuing small market and high start up costs made commercial consultancy prohibitively expensive for a single university. In response, Newcastle University had written a hybrid infrastructure/ consultancy project proposal, for a so-called "Knowledge House", a physical location where companies could come onto campus and ask the university for help with their technical problems. The European Funding committee in the region decided that it was too infrastructure-heavy for the outcomes promised, but offered instead to fund a virtual version of 'Knowledge House', where SMEs could come to all five universities with their problems. This proposal became Knowledge House, in which a central office and co-ordinators at each university helped firms both to identify and then to deal with academics to solve their technical problems.

That activity, solving SME problems by helping them contact academics, has formed the core of the Knowledge House mission since 1995, although the organisation has developed in ensuing decade. Knowledge House received three tranches of ERDF funding, totaling £3.9m over the period 1995-2005, as well as £4.2m from the Universities funding council under their HEROBAC and HEIF programmes (qv). In 1999, HESIN became Universities for the North East (the North Eastern HERA), and university Vice Chancellors became actively involved, using UNE to create a distinctive regional HE agenda in the North East of England.

UNE has also acquired other elements and projects, as there have been a number of occasions where the regional universities, again motivated by economies of scale, have chosen a regional approach for developing new engagement activities (e.g. providing CPD for business and widening participation). The Knowledge House network has grown to 14 staff, and in 2006 generated £2.2m for the participating regional institutions by delivering 133 completed projects from 600 business enquiries. Knowledge House has also been identified repeatedly as an example of best practice in university/ business engagement (see inter alia CORDIS, 2000; SHEFC/ SE, 2002; HM Treasury, 2003b; DG REGIO, 2004; Duke, et al. 2006)

Top-down/ bottom-up vs. regional co-ordination

The Knowledge House evolution appears to have followed a remarkably smooth trajectory given the relatively disparate national policy regime and drivers to which it has been subjected. One way of interpreting this consistency in evolution would be to argue that what national policy has done has provided an opportunity for a time-limited experiment. When those funds expired, what has succeeded has been maintained and taken forward locally, whilst unsuccessful ideas have been abandoned. But this simple message, that universities make valourisation policies succeed and integrate the third mission into teaching and research activities, overlooks the point that Knowledge House is a long-lived consortium arrangement, a network which has slowly built influence, and only very slowly changed universities' ways of doing business.

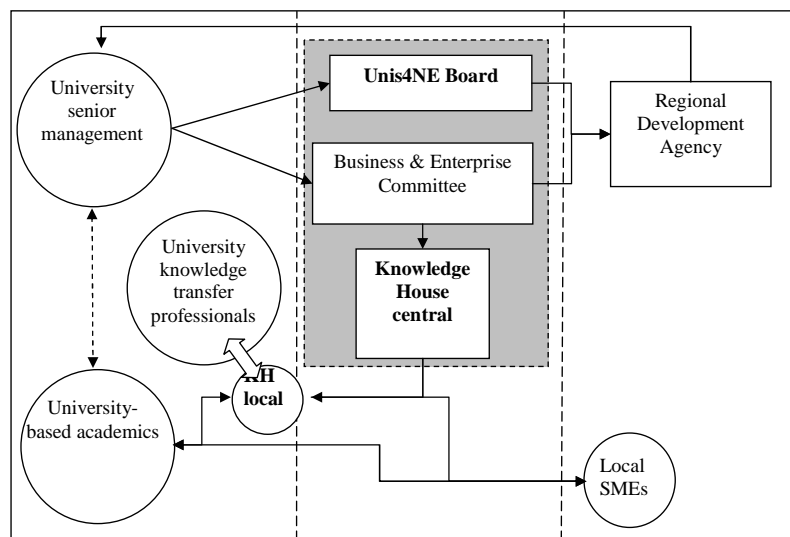
One way to consider the effects of Knowledge House is to clearly distinguish between the 'top-down' and 'bottom-up' effects. Knowledge House has promoted changes in the member universities' approach to technology transfer amongst senior management by creating a need for them to be regionally engaged as well as demonstrating the value of technology transfer. Knowledge House has helped to support the PVCs responsible for engagement by creating a job for them, overseeing Knowledge House through UNE's business and enterprise committee. Knowledge House as an acknowledged best practice in regional engagement has also become emblematic of the universities' commitment to the region, and the universities value this- and hence regional engagement – an opportunity to win additional funds from regional bodies. Knowledge House has therefore been part of a development in the attitudes and behaviour of university senior managers.

From the bottom-up, Knowledge House has also been important in changing the behaviour of academics towards commercialization, and hence contributing to the evolution of an entrepreneurial culture within the region's universities. From the academic perspective, KH can act as an opportunity creator, releasing the academic from the need to undertake acquisition work; KH also manages the contractual situation for the academic which allows the client to receive the knowledge without the academic having to alter their behaviour so extensively. The funds generated by KH also flow directly to the academic's work group and so can help to directly strengthen the research group. The figures show that there are an increasing number of academics choosing to engage with regional businesses through the service. KH has also therefore been part in a development in the attitudes and behaviour of academics in the regional institutions.

These two effects, both on constituent parts of the regional universities, have also evolved in tandem with each other. One the one hand, university senior managers have experienced a rising interest in the regional engagement agenda, whilst on the other hand, and in parallel with that, increasing numbers of their academics are experiencing benefits from becoming more commercially engaged. Thus, the HEIs have become more regionally engaged without the managers having to take the potentially antagonistic step of compelling their staff to become engaged, whilst academics have had an enabling organisational framework to support regional engagement if it is in their interests. Knowledge House has also been able to be extremely experimental because it has become a place where risky reach-out activities can be attempted, whilst preventing failures from contaminating universities' core interests.

Knowledge House is an interesting vehicle, because it was established with the 'third task' as its first mission, namely answering the enquiries of entrepreneurs; it is left to individual academics to resolve the tensions which arise in responding to opportunities, rather than trying to change the supertanker-like course of the five universities. One way to conceptualise this is that Knowledge House has played the role of a co-ordinating mechanism which has allowed university senior managers and their academics to develop in a coherent direction without creating friction and resistance through direct relationships. This co-ordination role is set out in figure 1 below.

Figure 1 The role of Knowledge House in co-ordinating tricky institutional change in universities in the North East of England.



The Knowledge House institution has developed because it has become the answer to a range of stakeholders' demands placed upon the university, and to both universities' managers and academics by permitting engagement without having to initiate significant institutional upheaval. These demands have become negotiated within a community, and as part of that, universities have evolved towards a more engaged position with closer relationships between core funding streams and regional engagement.

What is remarkable is that the arrangement in figure 1 has no clear imprint from any of the policy streams developed by the national government. Although Knowledge House was created before the first wave of interest in commercialization policy, it has nevertheless, as section 4 shows, it has engaged extensively with the policy waves. Knowledge House remains an elusive example of best practice that other UK regions have sought to copy, yet none have successfully replicated its dual role as an agent of change alongside provider of commercialization services. This raises an interesting set of conclusions for developing policies to effectively encourage universities to change their practices towards commercialization and community engagement.

Conclusions: lessons for institutional building in HE

The policies in the UK adopted for commercialization by universities appear to be based on a relatively simple model of organisational change within HEIs, which does not fit well with the longer term processes in evidence in the North East of England, where, as we have noted, the universities have themselves been generally speaking keen to become more engaged. In each case, a fund was created in which universities bid institutionally for funding and then were responsible for driving through the necessary changes in their institutions. However, in some cases, the projects were

delivered without making the cultural changes within the university, so that the projects did not offer a sound basis for continued development of an engaged culture within the university (cf. HEFCE, 2006).

The Knowledge House project did contribute to cultural change, but as one part of a longer-term reorientation which was driven by the universities themselves and supported by a number of government policies which encouraged external partners to demand (and reward) universities to change their behaviour. Knowledge House became a means to make several incremental cultural changes at different levels of the university simultaneously without creating conflict and resistance within those institutions. Part of the change was in creating a new grouping within the university, the knowledge transfer professional, but equally important was in raising that group's status in the eyes of other groups within the universities, the senior managers and the academics.

Knowledge House is an external activity which has nevertheless been part of an evolution of the regional universities' attitudes to commercialization. But its purpose has not been to change attitudes, rather it has provided a loose coupling between different segments of the university which better fit with university cultures than the more hierarchical approach taken by policy-makers. It has been embedded within a larger organisation, UNE, which assembles and co-ordinates the universities' corporate interests, which provides KH with a degree of stability as an external organisation. As Clark indicates (1998), it can be extremely difficult for universities to maintain commercialization organisations because they drift institutionally to the edge of universities, from where they are easily closed down. Knowledge House has been anchored in the individual institutions by a kind of peer pressure provided by the Business and Enterprise Committee of UNE.

Underlying figure 1 is a community involved in engagement, with a variety of different roles being played to ensure that the primary process, getting academics to answer SMEs questions, take place. The role for Knowledge House has therefore been to manage that community to ensure that the primary purpose is delivered, and in doing so has responded positively to a number of stimuli where they have supported this core mission. Whilst it is difficult for a single policy instrument to create a community of knowledge transfer professionals, there may be value to policy makers in using this community perspective to examine whether they are supporting all the elements necessary to incentivise HEIs at all levels to change their behaviours and become more engaged.

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