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The University, ICTs and Development in the Information Society

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INTRODUCTION

A distinctive feature of William Melody's contribution has been his concern with the role of established institutions as agents promoting or inhibiting social, economic and technological change. He has been particularly concerned with the contribution of university-based critical research in shaping policy in relation to the information society, including issues of uneven economic and social development. This essay takes these concerns forward by focusing on the university as an institution and how it responds, primarily to the challenges posed by information and communication technology (ICT) in managing its internal affairs, and, secondarily, to external requirements for greater engagement with processes of regional economic and social development. We draw upon new empirical work which challenges the hyperbole surrounding the so-called virtual university that has no campus and a growing body of policy research, on the way in which universities engage with their local communities. In summary, we seek to show that, notwithstanding the space-transcending capabilities of ICTs, geography still matters for the university as an institution.

THE VISION OF A VIRTUAL UNIVERSITY

The virtual university has emerged as a potent vision for the future of higher education, utilising new ICTs to radically restructure higher educational provision. What is envisaged in this scenario is a 'university without walls'. Freed from the confines of the campus and its region, the university becomes a virtual institution. In terms of teaching and learning, it consists of little more than global connections of potential students (recruitment), learners and teachers (students and staff), employers (the careers function) and alumni; in terms of the institution's research mission it joins a complex web of researchers, research funders and research users, all held together by sophisticated ICT applications. The vision is one of flexible ever-changing organisations for knowledge creation and distribution. The university, as an institution, appears to dissolve.

This agenda has implications for the whole university. With regard to the university's pedagogic role, it envisages the separation or unbundling of the development of course materials (packaging), the assembly of students (recruitment), the provision

of learning and the assessment of competencies. With this unbundling, the university ceases to be an end-to-end supplier of the higher education process and may undertake one or more of these roles, with other organisations undertaking complementary functions. The university, then, becomes far more externally oriented, an intermediary on the global stage, acting as collaborator, client, contractor and broker of higher education services. Of course, the extent of unbundling varies for different sub-markets, being greater in postgraduate, vocational and life-long learning markets than in the undergraduate 'rite of passage' market.

In terms of research, the vision is one in which research teams cross disciplinary, institutional, and national boundaries. In part, this arises from the growth of big science with its huge research teams and massive resource requirements, but it also builds on disciplinary traditions in all subject areas. More significantly, research increasingly involves working much more closely with users in what has been called 'the new production of knowledge'.

The administration of the university, too, is transformed in the visions of the virtual university. At the heart of this change is the provision of comprehensive information systems to support teaching and research networks. Significantly, there is a shift from an administrative culture to a culture of professionally-supported academic self-management.

THE TRADITIONAL UNIVERSITY AND THE VIRTUAL UNIVERSITY

The most celebrated (or perhaps feared) examples of progress towards the vision of the virtual university are new, for profit institutions, mainly in the United States. The University of Phoenix or Jones International University are often held up as exemplars. The significance of these 'new' institutions, however, lies not in their direct impact: they actually provide a tiny, although growing, proportion of higher education in the United States. Rather, their implication is primarily indirect, operating through the perceived threat to established Higher Education Institutions (HEIs) in terms of their markets for students, and in terms of their demonstration effect. They have added a new impetus and urgency to the body of experimentation and innovation with the use of ICTs within existing institutions. For example, a recent survey found that 41% of universities in the United Kingdom saw ICT as critical for future development, and a further 38% had ICT 'high on the agenda'. It is in this traditional higher education sector, where we would argue that the most quantitatively significant moves towards the virtual university are to be found; what we might call brownfield, rather than greenfield, sites.

The significant point here is that it is not ICT-based new institutions that are the locus of change, but a host of structural forces within higher education which are forcing traditional institutions to adopt ICTs. The key driving force has been the shift from elite to mass systems of higher education linked to declining financial resources per student. This has led universities to seek to use ICTs to achieve efficiency gains in teaching, research and administration. A more diverse student population has also required more ICT-mediated student support. Increased competition for students has encouraged the use of ICTs in targeted recruitment, and in utilising alumni as a resource. Students, as ICT-literate and discerning customers, and governments, as funders, have required more emphasis on quality assurance and accountability through ICT-based reporting systems.

If the locus for change is within the traditional campus university, this raises the key empirical question of how its customs and practices of teaching, research and administration interact with the requirements of virtuality. What is the 'traditional' university? It is conventionally, if mythically, thought of as a band of scholars coming together to create, maintain and disseminate knowledge, governed by a more or less collegiate model of organisation, based around a complex structure of committees and with a high degree of individual and departmental autonomy. In this sense, 'the university' as an institution tends to lack a clear identity, primarily existing in the heads of people who constitute it and a myriad of locally negotiated practices and interactions. The central social role of the traditional university has been to provide a place-based 'rite of passage' for entry into middle class professions through its undergraduate, vocational and extramural provision, together with the provision of ideas-driven 'academic' research. In institutional terms, it has been described as an exemplar of a 'loosely coupled system' characterised by a lack of clearly articulated policy and weak control over the implementation of policy. The traditional university, as an institution, often appears to be only virtually present. Nevertheless, it has proven to be both highly flexible and responsive, in particular, to financial incentives from government, *and* highly rigid and resistant to changes which threaten its autonomy.

REALISING THE VIRTUAL UNIVERSITY

In our research on how universities respond to ICTs, we focused on the strategies, initiatives and programmes within three campus universities in the North East of England (see Cornford 2000; Cornford and Pollock 2002). We found no sign of the break-up of the traditional university. Rather, the traditional university and the virtual university exist in a tense relationship. We found that, in each case, the implementation of the new ICTs appeared to require a *re*-institutionalisation of the university, often as a more corporate body with more explicit goals, roles,

identities, rules and operating procedures. In practice, the moves towards the virtual university seemed to be associated with demands for a far more 'concrete' organisation than the traditional university.

It appears, on the basis of our research, that as computer systems are rolled-out through universities, there is a need for more than a mere standardisation of working practices and a clarification of roles. Policy must be tightened up and applied across the university, in effect, calling the university into being as a far more corporate institution. A stronger centre to the university is required, one capable not just of making policy, but of ensuring that it is implemented.

The progress of the virtual university may seem assured, but this is by no means a straightforward process. Electronically supported processes in the teaching and administrative spheres do not seem to be displacing traditional ways of doing things (even where this is what was intended at the start of the process). Rather, the outcomes are often a matter of the new 'virtual' and the old 'traditional' notions of the university co-existing in a tense relationship. Critical to this hybrid of old and new ways of doing things is the intermediation role undertaken by key members of staff at the 'interface' between the old and the new ways. Often these members of staff have to face in two directions. They are obliged to translate between, we might even say perform, the traditional university to the virtual institution, and they have to perform the virtual university to the traditional university.

For example, in our case studies, administrative staff in departments who were operating with the management information system had to interpret or translate their department (with its local specificity) into the standardised framework of the new information system (and the system designers), *and* to translate the outputs of the system back to the academic staff in their departments (and their established and time honoured practices).

This almost benign state is by no means typical, but it represents one mode of co-existence between the old and the new. Many of the initiatives and projects that we studied *presupposed* structures, roles, responsibilities and processes in the university that simply were not there, or were not capable of supporting the functions which the new virtual university projects expected of them. For example, in one of the sites, there were no procedures for the validation of online courses.

Much of the work undertaken by those building the virtual university appears to be a rather desperate attempt to construct the institutional settings (roles and responsibilities, structures and agencies, categories and classifications) necessary

for the technology to operate in. In almost all cases, this work constituted a far greater proportion of the workload than was expected at the outset of the project or initiative. As one senior manager put it to us: 'Actually, the thing that trips it up isn't that the technology doesn't work, it's trying to recreate the organisation so we can usefully apply the technology rather than just crippling it to do things the way we did them before'. In short the (re)building of the institution and the roll-out of technological systems necessarily proceed together.

What happens where such institution-building is not undertaken or is not successful? A number of the projects that were unsuccessful in re-engineering the institution around them, stalled. Without strong institutional bonds to maintain the commitment of all the necessary actors (students, teachers, assessors, validation agencies, librarians, partner institutions, etc.), projects seemed to fall apart. It might be concluded that bottom-up initiatives tend to fade away when they are not mainstreamed and systemised, that is, when the whole change process is not managed.

Our research offers insight into the changing attitudes and relationships between ICT projects and the campus location of institutions. In much of the rhetoric and, indeed, in the plans and proposals which secured funding for projects, the university campus figured as a barrier that ICTs could enable the institution to overcome or transcend. Indeed, this capacity to 'escape' the confines of place and enter a (potentially) global space is, of course, a recurrent theme within the technological discourse. Yet, when attempts are made to operationalise this transcendence, for example, through the provision of completely remote Internet-based courses, there is often a rapid re-evaluation of this position.

When courses are abstracted from the campus setting, there is a considerable volume of 'work' which the campus discretely undertakes for the institution. For example, the campus constitutes a large and very concrete symbol of the university, its durability and reliability. When courses are abstracted from this (in most cases literally) concrete setting, the issue of how these qualities might be symbolised comes to the fore. Rather than meet the costs of seeking to compensate for the lack of a campus, projects and initiatives are increasingly seeking to develop hybrid forms of provision which combine on- and off-campus elements.

THE REGIONALLY-ENGAGED UNIVERSITY

If the vision of the virtual or 'un-packed' university with which we opened this essay was to be realised, it would pose a real threat to the many agencies seeking

to mobilise universities as key institutions for economic development by further enhancing university disengagement with place (Goddard and Chatterton 1998; Charles and Benneworth 2001). While they are located in regions, universities are being 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 by new processes of globalisation and localisation in economic development, whereby the local environment is as relevant as the national macro-economic situation in determining the ability of enterprises to compete in the global economy. Within this environment, the local availability of knowledge and skills is as important as physical infrastructure and, as a result, regionally engaged universities can become a key locational asset and powerhouse for development, especially in less prosperous regions.

The requirement for regional engagement embraces many facets of the 'responsive university' which are being generated by evolving priorities within the higher education system. These priorities include: meeting the needs of a more diverse client population – for lifelong learning created by changing skill demands; for more locally based education as public maintenance support for students declines; for greater links between research and teaching and for more engagement with the end-users of this research. Regional engagement, as well as ICT, are becoming key drivers shaping the way in which many universities are responding to overall trends within higher education.

Responding to the new demands requires more active management that enables universities as institutions to make a dynamic contribution to the development process in the round. Within the university, the challenge is to link the teaching, research and community service roles by internal mechanisms (for example, funding, staff development, incentives and rewards, communications) and, within the region to engage the university with all facets of the development process (for example, skills enhancement, technological development and innovation, cultural awareness) in a region/university 'value added management' process within a 'learning region'. There can be no doubt that effective use of ICTs is critical to this process.

CONCLUSION

Both the virtual university and regional engagement agendas require the university to become a more corporately-managed institution. As traditional universities seek to respond to the threat of an electronic commerce-based vertical marketplace for students, learning materials and knowledge products, managed by non-university 'infomediaries', they are being forced to make more explicit both their policies and

procedures. This process extends well beyond the technology systems (the standardisation of data types and communication protocols) and into the core of the university as an institution, bringing established categories, identities, roles and responsibilities into doubt. The virtual university requires the active re-institutionalisation of the university and we suggest that the myriad of short-term initiatives supporting *ad hoc* projects is not the way to build virtual universities. Such a fragmented and piecemeal approach, although going with the grain of much university tradition, is prone to failure. Rather, higher education policy needs to pay much more attention to policy formation and implementation and to capacity building, internally, across institutions and in terms of stronger engagement externally with technology vendors and other partners.

Internal capacity building implies a key role for *strategic* action-orientated research at the university centre to support local initiatives and to counter forces for fragmentation. The lessons of local (individual, departmental) experimentation need to be learned and absorbed by the institutions and incorporated into policy. Externally, capacity building implies a key role for national bodies to create common service platforms for all HEIs (an infrastructure of wires, content and people). Improved linkage to the knowledge economy constituencies of R&D, industry, international trade, employment, social inclusion agencies will also be required. Collective action by HEIs can help them to achieve the sheer scale required to manage the relationship with technology and information suppliers. In this context, the single- or multi-site campus should not be seen (only) as a barrier to be overcome, but should (also) be seen as a significant resource, a platform upon which to build hybrid provision. Indeed, collaboration between institutions within a region could be a more realistic way to realise the virtual university than the global partnerships that have been promulgated without much success.

Finally, in relation to their contribution to regional development, there are clear implications for national, regional and local governments in terms of the need to establish policies and practices that enhance the capability of universities to engage with a range of development processes that cross institutional boundaries. In the context of pleas for more joined-up government, it is becoming increasingly obvious that there are few public policy concerns to which universities are not contributing. For example, their research outputs are raising industrial competitiveness through support for innovation and technology transfer; enhancing skills levels in the labour market through graduate placement and continuing professional development; addressing social exclusion through widening participation in higher education; enhancing health and social well-being through the work of medical schools and social policy departments;

cultural development through arts and humanities faculties; and contributions to the public sphere through debate and community leadership. While the functional stovepipes of central government may inhibit cross-cutting initiatives at this level, within the local scene the potential of a university as the key diversified institution is becoming widely appreciated. But to realise that potential, universities must become more integrated internally. In order to achieve this, effective exploitation of ICTs is a key challenge.