Journal of the Programme on Institutional Management in Higher Education

Higher Education Management and Policy



OECD
OECDPUBLISHING

Volume 17, No. 2

JOURNAL OF THE PROGRAMME
ON INSTITUTIONAL MANAGEMENT IN HIGHER EDUCATION

Higher Education Management and Policy

Volume 17, No. 2

OECD

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

This work is published on the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries.

Publié en français sous le titre :
Politiques et gestion de l'enseignement supérieur
Volume 17 – n° 2

© OECD 2005

No reproduction, copy, transmission or translation of this publication may be made without written permission. Applications should be sent to OECD Publishing: *rights@oecd.org* or by fax (33 1) 45 24 13 91. Permission to photocopy a portion of this work should be addressed to the Centre français d'exploitation du droit de copie, 20, rue des Grands-Augustins, 75006 Paris, France (*contact@cfcopies.com*).

Higher Education Management and Policy

- A journal addressed to leaders, managers, researchers and policy makers in the field of higher education institutional management and policy.
- Covering practice and policy in the field of system and institutional management through articles and reports on research projects of wide international scope.
- First published in 1977 under the title *International Journal of Institutional Management in Higher Education*, then *Higher Education Management* from 1989 to 2001, it appears three times a year in English and French editions.

Information for authors wishing to submit articles for publication appears at the end of this issue. Articles and related correspondence should be sent directly to the Editor:

Prof. Michael Shattock
Higher Education Management and Policy
OECD/IMHE
2 rue André-Pascal
75775 Paris Cedex 16
France

To enter a subscription, send your order to:

OECD Publications Service
2, rue André-Pascal, 75775 Paris Cedex 16, France

2005 subscription (3 issues):
€ 104 US$119 £70 Y 14 000

Online bookshop: *www.oecd.org*

The ***Programme on Institutional Management in Higher Education (IMHE)*** *started in 1969 as an activity of the OECD's newly established Centre for Educational Research and Innovation (CERI). In November 1972, the OECD Council decided that the Programme would operate as an independent decentralised project and authorised the Secretary-General to administer it. Responsibility for its supervision was assigned to a Directing Group of representatives of governments and institutions participating in the Programme. Since 1972, the Council has periodically extended this arrangement; the latest renewal now expires on 31st December 2006.*

The main objectives of the Programme are as follows:

- *To promote, through research, training and information exchange, greater professionalism in the management of institutions of higher education; and*
- *To facilitate a wider dissemination of practical management methods and approaches.*

Editorial Advisory Group

Elaine EL-KHAWAS,
George Washington University, United States (Chair)

Philip G. ALTBACH,
Boston College, United States

Berit ASKLING,
Göteborg University, Sweden

Chris DUKE,
RMIT University, Australia

Leo GOEDEGEBUURE,
University of Twente (CHEPS), Netherlands

Ellen HAZELKORN,
Dublin Institute of Technology, Ireland

Salvador MALO,
CENEVAL, Mexico

Vin MASSARO,
University of Melbourne, Australia

V. Lynn MEEK,
University of New England, Australia

Robin MIDDLEHURST,
University of Surrey, United Kingdom

José-Ginés MORA,
Technical University of Valencia, Spain

Detlef MÜLLER-BÖHLING,
Centre for Higher Education Development, Germany

Christine MUSSELIN,
Centre de Sociologie des Organisations (CNRS), France

Jamil SALMI,
The World Bank, United States

Sheila SLAUGHTER,
The University of Arizona, United States

Franz STREHL,
Johannes Kepler Universität Linz, Austria

Andrée SURSOCK,
European University Association, Belgium

Ulrich TEICHLER,
Gesamthochschule Kassel, Germany

Luc WEBER,
Université de Genève, Switzerland

Akiyoshi YONEZAWA,
NIAD, Japan

Table of Contents

What is a University in the 21st Century?
Brian D. Denman 9

Rethinking or Hollowing out the University? External Engagement and Internal Transformation in the Knowledge Economy
Michael Harloe and Beth Perry 29

Institutional Mission *vs.* Policy Constraint? Unlocking Potential
Ellen Hazelkorn 43

Reorganising the Teaching-research Tension
Anne-Marie de Jonghe 61

Political Instruments Employed by Governments to Enhance University Research and Knowledge Transfer Capacity
Grant Harman 75

New IDEAs for Internationalisation Within the Knowledge Society
H.G. Büttner 91

The Incorporation of National Universities in Japan: Initial Reactions of the New National University Corporations
Jun Oba 105

Managing Relations with Industry: The Case of Brazilian Universities
Maria Alice Lahorgue 127

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

What is a University in the 21st Century?

by

Brian D. Denman
University of New England, Australia

The term "university" has a longstanding history, yet its definition remains highly contentious at the turn of the century. According to conventional scholarship, the first university initially appeared as far back as the 12th century with the formation of the University of Paris and the University of Bologna (circa 1150 AD). Other scholars, however, contend that the university may have begun many centuries earlier, depending on the definition employed (Neave, 1999; Welch and Denman, 1997; Patterson, 1997). The intent of this article is to suggest a classification of universities for the 21st century, with emphasis placed on the university's role in disseminating and advancing knowledge through scholarship and research. Drawing upon major historic events that have shaped universities in their various forms, this article discusses whether universities are designed to cater to market forces or are catalysts for change in an increasingly "knowledge-based" society.

Introduction

Higher education is and has been in a constant struggle over its definition and purpose. As long as higher education perpetuates the creation of communities of productive learners and scholars, it will continue to influence and be influenced by societal expectations. This struggle is not only inevitable but necessary, for any institutionalised, organisational body that addresses societal issues, norms, and practices should be held under close political and social scrutiny. Of equal importance at this time is the proposition that the world is becoming increasingly interdependent, especially with regard to knowledge distribution. In recent years, a profound expansion of international university co-operation and technology transfer has created a myriad of higher education institutions, suggesting that social stratification and diversity rely heavily on the opportunism of knowledge distribution and advancement. It is therefore important to approach a knowledge-based society as a global whole, for it can be assumed that a university's inter-connectedness to and with the world has influence.

The purpose of this article is to propose a working definition of the university of the 21st century. This is approached first by analysing the historical origins of higher education from the specific vantage point of international student mobility and knowledge transfer. Attention is then paid to the fact that current definitions do not adequately reflect the circumstances of universities within the contemporary context of a world based increasingly on "global-economic integration" (Coleman and Underhill, 1998). Since "universities are subject to the same processes of globalisation" (Scott, 1998, p. 122), it is therefore proposed that a study of international university organisations and their respective university partners might shed light on whether universities are changing to meet the needs of global-oriented, knowledge-based societies. The analysis also examines how universities are modifying their respective structures and functions to maintain or enhance their competitive advantage and, in the process, produces a suggested classification of universities based on their attributes.

A brief historical overview of higher education

From a historical perspective, religious, political and social pressures have been instrumental in shaping what has come to be understood as higher education and its subsequent development. Referring to the transference of

higher knowledge across geographical borders, Welch describes the wanderings of the peripatetic professor and itinerant scholar:

> "[M]any centuries before the common era (BCE), and periodically ever since, philosophers and alchemists pursued their life's work in many different cultural contexts, often at great risk. At times, they were persecuted for their unpopular views, or by those who sought profit from their knowledge and skills, or who wished to prevent the wider world from gaining the advantage of new knowledge" (Welch, 1997, p. 1).

As a result, the Church in the Christian West attempted to provide privileges and protection to select masters [teachers] and disciples [students] during the rise of universities in medieval Europe, (c. 1100 to 1200 CE), as did a variety of secular powers. One case in point was the University of Cambridge (c. 1209 CE), which benefited greatly from the secession of masters from Oxford as well as from King Henry III's incentive to lure masters and students away from the University of Paris to "rejoice in a state of liberty and tranquillity" in the Kingdom of England (Cubberley, 1948, p. 221). Known at that time and place as a *studium generale*, the medieval "university" offered a uniform language of study (Latin), a uniform programme of study and exams for students with a common religious credence, and with the particular focus to attract students that came from other parts of Europe (Neave, 1997, p. 3).

Within the Near East tradition, emphasis on higher education seemed to be placed more on collecting and documenting history. As a case in point, Xenophon's *Cyropedia* (fal. 539 CE), was the first published manual on empire citizenship (Petersen, 1996). In addition, some scholars contend that the Islamic University of Al-Azhar (c. 970 CE) was the earliest known university. Although initially founded as a mosque, the university housed an extensive library and served as a means to educate and spread Ismaili-Shiite teachings throughout Egypt (*www.muslimheritage.com/topics/default.cfm?ArticleID=161*; accessed 6 July 2004). Another Islamic, as well as western custom that stands out is that of altruism which may have influenced the founding of the *Collège des Dix-Huit*, in the late 12th century. It was "an eleemosynary, charitable institution" (Makdisi, 1981, p. 226), which served as an individually endowed *hospitium* that developed into the incorporated college for poor students. This may have been one of the first known instances of philanthropy directed to educational purposes.

In an Asian context, monastic education was considered the "true" form of higher education. As opposed to seeking emancipatory knowledge for the benefit of society or proselytising religious doctrine, the emphasis in Buddha's teachings was divided toward those individuals seeking *nirvana* or *moksha* (spiritual enlightenment) for the sake of their own soul. The first known monastery that might have qualified as a university may have been Nalanda

(c. 5th century BCE) in Bihar, India. At its zenith, it supposedly housed upwards of 10 000 students and 1 500 teachers with a set curriculum (*www.pilgrimage-india.com/buddhist-pilgrimage/nalanda.html*; accessed 5 July 2004). In China, higher education was designed around the tenets of Confucian ethics (c. 1st century BCE), but in its modern form, most universities have been modelled as a consequence of various forms and reforms of colonisation and their shape can be traced back to Japanese influences, social imperialism related to the former Soviet Union, and Westernisation imposed by the United Kingdom (Hayhoe, 1999).

It was not until the mid 1800s that the university became formally defined, however loosely, in terms of purpose and function. Perhaps Newman's idea of a university in 1850 best represented it as a guild or corporation that served in disseminating knowledge (Rothblatt, 1997). At this time, the university served as a territorial display of civilisation-building with a bias towards advancing society-at-large through knowledge distribution. Territorial, if not cultural, imperatives helped shape its structure until the advent of technological advancement. These imperatives served as a catalyst, giving rise to the modern research university, changing "nations from agricultural status to industrial status, which opened up the possibilities of vast world trade" (Cubberley, 1948, p. 799). The Industrial Revolution was also pivotal in triggering a shift from dialectic to didactic pedagogy, transforming "a small, homogeneous, *élite* and pre-professional university … to a large, diversified, middle-class and professional system of higher learning" (Jarausch, 1983, p. 10). The liberalisation of free trade and the shift of emphasis from *élite* to mass education which followed may have furthered a wave of conviction that knowledge production could provide greater economic security and standards for all and, perhaps in a self-serving way, ensure hopeful prospects of a healthier, more prosperous nation. It is this latter circumstance that appears to have created a competition for power and prestige among universities.

As nation-states have advocated the need to increase the size and offerings of university services to a wider proportion of the population, the modern research university has begun to extend the impact of its knowledge production activities beyond territorial borders. The university is of course not the only institutional player involved in this development, as there are other institutions of higher education that are producing a talented, "skilled" workforce (Gibbons, 1998) and generating new and innovative knowledge bases in products and services geared toward societal advancement. Nevertheless, as Scott argues,

> "[…] the university at any rate has the potential to become the leading institution in the knowledge society as the primary location at which symbolic goods are, if not produced, at least conceived and designed" (Scott, 1998, p. 127).

The overriding emphasis in the modern university, however, appears to be placed on the increasing societal demands for higher education expansion. From a global perspective, a blurring of binary system policies (originating from the British Commonwealth), the legitimisation of new modes of degree delivery (*i.e.* on-line and correspondence), and the deepening divide between "have" and "have-nots" have molded and shaped institutions, requiring them to reinvent themselves regularly to address issues of equity, access, and co-operation. As a result, there now appears to be very little difference between universities and other institutions of higher education. Moreover, the strategic planning of universities is increasingly viewed as a reaction to societal necessities or, at the very least, a reaction to national governments and stakeholders. Whether the concept of the university was initially conceived as a form of institutional imperialism or not, a pattern of higher education expansion is taking shape, and with greater intensity, in terms of economic opportunity. It appears that universities are also becoming increasingly controlled by public authority (Riddle, 1993) (Neave and van Vught in Mok Ka Ho, 2003) and accountable to their respective constituencies. Higher education has traditionally been perceived as serving the greater good of the public. However, if the university becomes more and more a business, and hence, the equivalent of a private sector entity, it is feared that its focus on profit will make it "an island without social responsibility" (Hazelkorn, 2004).

The current context

At present, higher education institutions have needed to respond to and cater to the demands of rapid increases in the market orientation of modern forms of government (national and inter-regional), serving to raise their economic profile as well as to increase their economic and political accountability. At the same time, universities have also become increasingly business and customer-oriented, resulting in a transition from collegial decision-making to a kind of corporate management. The university that has become a quasi-marketplace is now competition-driven, bidding not only for "students at the community and city level, but at the international level" (Arnove, 2003, p. 2). This has resulted in a trend toward multinationalisation, which is defined by Altbach as describing academic programs or institutions from one country offered in other countries (Altbach, 2004, p. 3). Given changes in management, marketing, and execution, Bloland argues that academics must also change to "justify the costs of what they do, how they do it, and what results they obtain" (Bloland, 1999, p. 107).

On a global level, neo-liberalism maintains a *status quo* and adjusts to market flows while post-structural conservatism attempts to "raise critical consciousness and equip individuals and their collectives with the perspectives, skills, and knowledge to effect change" (Arnove, 2003, p. 5). Harman and

Harman distinguish between "research commercialisation" and "technology transfer" among universities, with the former identified as transforming scientific discoveries into marketable commodities and the latter as a subsumed altruistic movement of ideas, know-how, and knowledge among research-based organisations and their respective users (Harman and Harman, 2004, p. 154). Although research may be inherent among universities utilising either approach within a global context, its character remains unclear.

The commodification of knowledge alone is a daunting circumstance, but if left to market forces, universities will increasingly be amalgamated in such ways to generate new types of knowledge, not for the sake of knowledge advancement, but for financial gain. As public subsidisation of universities appears to be decreasing in many nation-states, there is increased risk that they may resort to private-sector strategies to increase their coffers, whether it be in the form of attempting to attract a core of "user-fee" type students or in emphasising financially-productive knowledge-producing' market niches. The overriding concern is that this risk may eventually become a requirement.

The current trends, at least in the West, seem to suggest that universities are mobilising their constituencies to take advantage of increased economic opportunities. This is particularly evident in universities that have taken advantage of the international exchange of students and scholars. Among those institutions that have embarked on developing their international efforts as a means to respond to market shifts, many have found that their resources are limited and that they have been forced to extend their staff and resources to compete with increasing expectations from their stakeholders. This has resulted in their seeking out ways to provide more educational opportunities while attempting to conserve their own resources, to utilise those of other entities – and whenever possible – to seek more diverse avenues of funding to keep their programs, activities, and initiatives viable. Program accountability and viability have become commonplace buzzwords with quality control benchmarks increasingly used to determine success.

Increased student and staff mobility between inter-institutional partners can be viewed within the context of technology transfer. Ideally, it has led to a greater awareness of language and cultural differences, sensitivities to disadvantaged groups, appreciation of divergent views and ways of thinking, and a better understanding of one's own institution among others in the world. Institutions that are expanding on trans-national/trans-regional levels are perhaps adhering to political pressures, but at the same time, are susceptible to economic fluctuations. In addition, public health, safety, and security issues are also increasingly affecting society beyond territorial boundaries and, as such, add to the risks. The idea of bringing the world to the student has not necessarily brought the equal availability of knowledge to the world. In the same context, the idea of providing the student to the world has

been similarly unsuccessful. In certain circumstances, the student has been viewed as another exploitable commodity on which many universities have relied heavily for the sake of expanding market share and diversifying financial portfolios.

Stakeholders

While it is acknowledged that there are various stakeholders associated with universities, students are perhaps the most important and hence will be the sole class considered in this analysis. Not all students, however, qualify to pursue their academic studies at the university level. Matriculation into a university may apply only to those individuals who have successfully completed primary and secondary school or the equivalent with advanced standing. In other words, they must attain definitive standards and, in certain cases, meet specific academic criteria.

For the purposes of this analysis, there are two types of students: the travelling student and the non-travelling. The travelling student often views advanced education as a novelty or luxury good, which opens doors to new opportunities for upward mobility, increased status and improved success, whatever the outcome. What sets the travelling student apart from the non-travelling is the manner in which he/she approaches higher education. The travelling student is often encouraged to study for an advanced degree at the university level. In contrast, the non-travelling student is generally one who is financially or geographically disadvantaged. Although the non-travelling student may wish to achieve the same objectives as the travelling student, the non-travelling student may rely more heavily on public and private subsidies in order to receive a higher degree. There are clear exceptions to this generalisation: the new universities such as Te Wananga o Aotearoa (New Zealand), the University of Northern British Columbia (Canada), the University of Lapland (Finland), and Haskell Indian Nations University (USA) serve as examples of institutions which cater to specific cultures, specific groups, or students from more isolated areas.

Although most higher education institutions claim to cater for both types of students, there appears to be a blending effect occurring between public and private and between collegial and managerial-focused learning environments. There is little difference between private and public institutions when it comes to finances. An exception may exist in the developing world, where there does seem to be a clear difference between public and non-governmental universities. Nonetheless, the central point is that whatever their character, what appears to set types of institutions apart from each other are not finances but the students to whom they cater.

Sponsorship clearly plays a role in student access. This may come in the form of references, consent from academic instructors, and financial support, personal or otherwise. Although age is generally not a consideration, an individual's level of learning maturity is weighed as well as one's purpose and the possible application and benefit of his/her education in the real world. In some instances, it is even judged in the context of benefit to a specific community. It does, however, appear that in reinvestigating Turner's concept of "sponsorship mobility", the selection process places greater value on aptitude, abilities and capabilities in "contest mobility" as opposed to the influences of who one knows. The following distinctions are made between sponsorship and contest mobility:

> "Sponsorship mobility is a system that chooses its students by the established elite or their agents. Selection to matriculate into this 'elite status' is based on some criterion of 'supposed merit', but once given, it cannot be taken away.
>
> Contest mobility is perceived as a system in which the pursuit of 'elite status' is merit based. In other words, a fair and open contest is standardised to determine those who qualify and those who do not" (Turner in Hopper, 1972, p. 91).

In the context of "contest mobility", it may be perceived that universities are advocating and promoting equal opportunity in terms of earned upward mobility status. This normative perspective propels competitiveness to new levels, leading oftentimes to disaccord and insecurity between nations and cultures as well as between institutions. In considering factors that influence policy review, Hazelkorn has recently identified "making universities more competitive" as the most influential factor in her study regarding new universities (Hazelkorn, 2004). However, if one were to couple "sponsorship mobility" with that of "diversity" for the sake of "equity", its negative trend may signal further marginalisation in less dominant groups of students. Regardless of context, students who are not selected into their desired academic programs will most likely seek alternative institutions. As a result of escalating tuition rates, it is also increasingly likely that students will shop around for universities that offer degree programs or courses at discounted prices. Recognition must be given to those institutions that are open to all types of qualified students, elastic with regard to economic and political reform, flexible to instability within the marketplace, and permeable in their academic rigor.

The problem with defining university

An idea has its consequences. Whether Newton questioned a university as an idea or its antecedent, "the belief that universities possess a core idea or

have an historical undertaking or special responsibility and trust beyond the moment has remained a constant part of the process of institutional self-evaluation and internal debate" (Rothblatt, 1997, p. 12). Clearly at present, there is no one definition of a university. In many ways, the fact that there in no universal definition may be perceived as positive in the sense that institutions of advanced learning are related to specific audiences, territorial jurisdictions, discipline-specific scholarship, and/or various types of research. As Arnove suggests, a university is and has been utilised in ways to control or contain social, political, and economic power relations (Arnove, 2003). This point of view may be taken one step further in the argument made by some that the university's control over knowledge distribution has become the new hegemonic struggle of the 21st century.

Undergraduate degrees in the West are becoming as universal as primary and secondary school diplomas, and hence, are offered in many, if not most, institutions of higher education. In certain countries, institutions that offer undergraduate degrees in three or more disciplines or fields of study may be classified as a university. Just because an institution includes the term "university" in its name does not necessarily imply that it has been granted the authority or has attained the proper accreditation to offer degree programs. Those institutions that do not achieve this distinction are often referred to as degree or diploma "mills", whereby quality assessment, quality assurance, and perceived quality of degree are placed in question.

What often compounds matters is the usage of the term "higher education». Higher education as a descriptor has been generally used to include all postsecondary, tertiary institutions – whether degree-granting or not – yet it also has its problems with what is deemed "higher" in higher education. The current blurring effect between scholarship and research underscores the multitude of institutional types meeting diverse demands placed upon them, but this effect also leads to a greater stratification of "academic excellence». This circumstance also leads to a rather heated debate concerning the definition of academic scholarship and "excellence". Ultimately, it will be increasingly up to the individual student to decide, in hindsight, whether one's higher education has met or exceeded one's expectations. Higher education exploited for monetary gain may be irrelevant for those who have means to achieve it. For those without means, it is likely to be highly relevant but unachievable.

A working definition of a university in the 21st century

The terms *university* and *institution of higher education*, as cases in point, carry with them varying connotations, depending on the specific educational system on which they are based. The typology used in the International

Association of University's (IAU) *World List of Universities* distinguishes between universities, other institutions of higher education, and other national academic bodies according to country. The IAU listing even recognises the emergence of new region-specific universities (such as the United Nations University, the World Maritime University, and the European University Institute), but its classification excludes a range of specialist and emerging institutions. In addition, it omits the "multinationalisation" factor – institutions which have expanded into multiple geographic areas or virtual domains. Given these circumstances, it is therefore necessary to develop a contemporary definition that is all-inclusive but provides the necessary hallmarks which lend themselves to quality assessment.

Certain assumptions are inherent in any attempt to achieve a current definition. It is also understood that history plays a role as well as salient social constructs. In the narrow context of increased international university activity, it is understood that international networks will become increasingly fundamental attributes of a university in the 21st century. When universities were initially established, the strength of academic networks between academics and institutions identified those types of universities that were current in knowledge epistemologies and discourse. These same kinds of academic networks will continue to connote respectability among the *élite*. In some cases, an institution's academic reputation will rest on such alliances.

It is understood that current prevailing struggles for institutional identity and control are similar to those experienced by universities throughout history. Other types of higher education institutions and modes of delivery may blur what is identified as a "university", but such a distinction will ultimately depend on formal authorisation and accreditation and not upon institutional needs (legitimisation and recognition), societal wants (human capital), or exploitation (for-profit niches). By the same token, authorisation and accreditation alone will not insure a university's continued success. In this connection, it is likely that a university of the 21st century will likely rely on a combination of "contest mobility" and "user pays" principles. Sponsorship may also play a role, but its role will only fuel greater mobility within an expanded university marketplace.

Finally, in the present hermeneutics, it is increasingly evident that a distinction must be made between universities and other forms of higher education. The transferability of degrees as part of the Bologna initiative in Europe to credit transfer schemes between institutions and their inter-institutional partners will require university officials to rely heavily on lists of institutions that are both authorised and accredited degree-granting entities. Among others, the *World Education Series* (published by the AACRAO – American Association of Collegiate Registrars and Admissions Officers, in the United States) and NARIC, a network of National Academic Recognition

Information Centres in Europe, help university officers determine academic course and degree equivalencies.

Given the foregoing discussion, the following working definition of a university is offered:

> A university is a complex higher education organisation that is formally authorised to offer and confer advanced degrees in three or more academic disciplines or fields of study.

Please note that the term "research" is purposely excluded from this definition. It is understood that, although research plays a critical role in any university, in most institutions it does not serve as its most basic function. Examples of institutions with varying levels of research include: *Grandes Écoles* (France), *Hochschulen* (Germany), and *Högskolan* (Sweden), among others. Embedded in the term "advanced", it is believed that "research" and "scholarship" are inherently applied in a university. Issues surrounding types of research and scholarship are likely to be used only to differentiate and rank one university over another. Likewise, "accreditation" was purposely omitted, as accrediting entities differ on all levels (national, regional, local, disciplinary). It is believed that accreditation entities of the future will concern themselves with accountability standards regarding "university status" as in the past, but they will become more integrated into the authorisation process, with periodic review and assessment controls put in place.

A proposed classification of universities

A modest study of universities was undertaken in the process of developing the foregoing analysis and definition. The initial portion of this study resulted in a classification of institutions utilising surveys sent to over 500 international university organisations. The primary rationale for the classification system is to identify like-mindedness between institutions and to forge new avenues for improving academic standards at appropriate levels. With an established typology of institutions, educational system policy-makers are able to identify deficiencies in degree or course offerings within a given sector. It may also aid accrediting entities in their attempts to audit and/or approve universities as a whole or within certain disciplines. Moreover, a typology of institutions will become increasingly important for either the commercialisation or technical transfer of knowledge, as it is assumed that "globalisation cannot be completely avoided" (Altbach, 2004, p. 4).

The proposed classification listing below is a modified version of the Carnegie Classification (USA). Please note that research has been included in the classification process, as this descriptor helps distinguish between certain types. What separates universities from other institutions of higher education is principally their degree-granting status.

	University classification platforms
Doctorate/research universities:	wide range of degree-granting programs from Bachelor's to PhD (20 or more); wide range of research.
Doctorate universities:	wide range of degree-granting programs from Bachelor's to PhD (1 to 20); wide range of research.
Master's/research universities:	wide range of degree-granting programs from Bachelor's to Master's (20 or more); wide range of research.
Master's universities:	wide range of degree-granting programs from Bachelor's to Master's (1 to 20); limited research.
Master's colleges:	limited range of degree-granting programs from Bachelor's to Master's with emphasis on teaching.
Baccalaureate colleges:	limited range of degree-granting programs related to the Bachelor's degree with emphasis on teaching.
	Other institutions of higher education
Academic research institutes:	no degree granted; research only.
Professional programs:	Certification or licensure programs that lead to a terminal degree in a specialised field of study; and portfolio-based programs.
Adult or continuing education:	non-degree programs.

In addition to a classification listing, it is important to incorporate institutional attributes, as they are how institutions identify themselves. The following attributes are a modified rendition of Duderstadt's proposed diversity of institutional types (Duderstadt, 2000):

Institutional attributes	
Historical	(pre-1900s)
Contemporary	(1900-1970)
New	(1970-present)
World-focused:	global in character.
Multi-culturally-oriented:	achieves its character from diverse groups.
Profession-specific:	concentrates on a specific profession or discipline.
Virtual-oriented:	distance and online degrees.
Pedagogically-oriented:	specific form of pedagogy.
Comprehensive traditional:	research and teaching.
Non-traditional:	mature-aged students.
Vocational and community oriented:	practical and applied training.
Lifetime-oriented:	social contract for a lifelong interaction with students.
Entrepreneurial:	for profit.

A further survey

Although data are still being received for analysis, the following graphs reflect analysis of data collected from only 80 institutions representing some 12 countries in a further, just-completed survey. (A copy of the survey

questionnaire may be found following the bibliography.) Despite the relatively small sample, patterns were identified in educational systems and ranking of authorised accrediting agencies.

Educational systems

Responses to the survey suggest that differentiation plays a rather important role in policy. In other words, educational systems are generally and sufficiently flexible enough to cater to differences between institutional types. The survey suggests that educational systems do not stipulate what institutions should be or in what capacity they should serve the community-at-large.

Observations were received from respondents regarding their positive, neutral, and negative reactions to the various circumstances of sponsorship mobility, contest mobility, mass mobility, *lehr-und lernfreihei*t, and user-fees. Please note that the data compiled were not sufficiently comprehensive to reflect differences by country. The following data in graph form was collected from "Section E: System Classification", in the questionnaire attached.

Analysis of the above graphs reflects a possible global tendency toward "contest mobility" and "user pay" principles in universities. The responses related to "sponsorship mobility" reflect a rejection of elitism, despite possible misinterpretation of the factors of equity, equal opportunity, and diversity. The responses related to "mass mobility" suggest an acceptance of a free market for higher education, but the responses are mixed and therefore inconclusive. Acceptance or non acceptance of the principles *of Lehr- und Lernfreihei*t, or teaching and learning freedoms indicates a slight degree of approval of such freedoms, but because of the mixed response, this judgment is also questionable. With regard to a 9 % (strongly disagree) response rate, it is understood that even though teaching and learning freedoms are valued, it was ranked at a lower priority to other system classifications.

Authorised regulatory entities

Respondents were asked to rank the relative importance of regulatory entities that determined university status within and outside of their local jurisdiction. The following results were collected from "Section F: Who Determines Status" in the questionnaire attached:

The dominant patterns identified in the two figures reflect a layered effect of regulatory agencies serving to accredit, audit, or approve universities, degree programs, and courses offered. The level of power each regulatory entity exerts on an institution is reflected in the response rates in percentage. What appears somewhat new in the sphere of regulation is the impact of outside regulatory entities. Finding this demonstrates the increasing need to understand types of institutions on a global scale.

Figure 1. **Context classification**

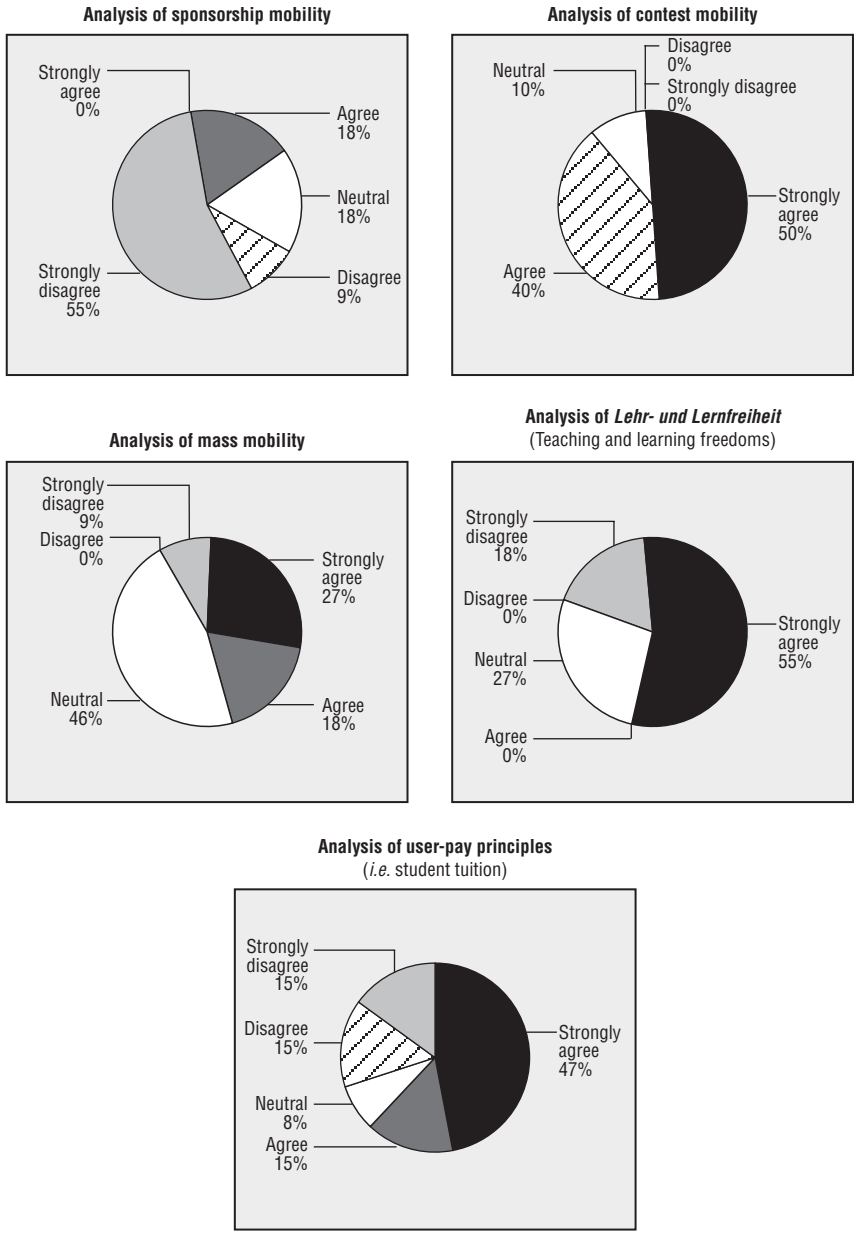


Figure 2. **Relative importance of regulatory entities**

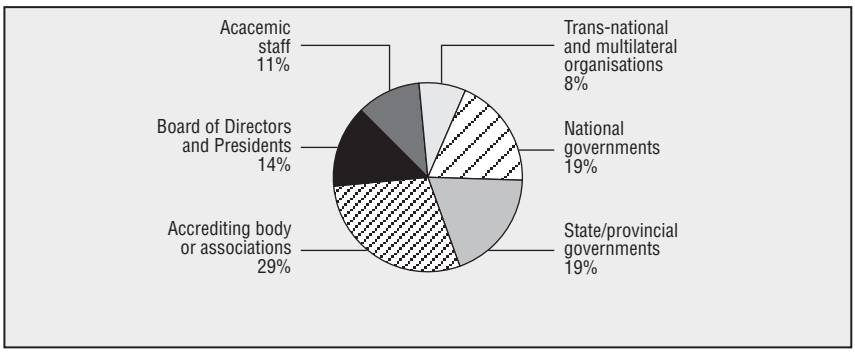
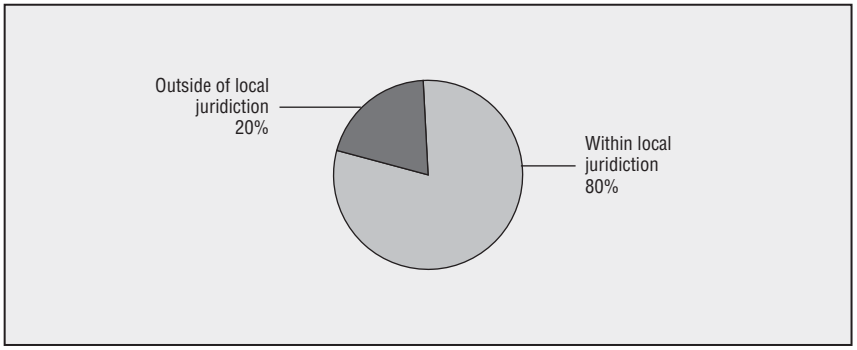


Figure 3. **Percentage of internal *versus* external regulatory entities**



Concluding discussion

This analysis has provided a new and different spin on universities and other institutions of higher education. It does not necessarily contradict other studies, but it addresses certain issues that have not been thoroughly analysed, at least on a global level. The study offers insights into how a university can and perhaps should be defined as well as illustrates types of institutions through a modified version of the Carnegie Classification model. The argument presented does not in any way provide a complete picture of all universities, but the prevailing hope is that it demonstrates the following observations and trends:

1. History has played a major role in the evolution of a university, but the sale of knowledge production may be undermining its historical purpose.
2. The university has played a major role in civilisation and civilisation-building. As such, it has ever since been heavily scrutinised and assessed,

which may explain a shift from sponsorship to contest mobility and a change in the function of meeting societal needs to meeting those of the individual.

3. The university of the 21st century is likely to cater to a "user-pays" type student.
4. Contest mobility is fuelling increased competition among and between institutions, students, and scholars.
5. Increased competition is creating a trend toward various models of meritocracy which, in turn, is leading to power struggles, conflicting standards, and stratifying knowledge-based social classes.
6. Multiple layers of regulatory and accrediting entities will attempt to standardise educational systems, but may not be able to increase levels of academic standards.
7. There is a new sense of flexibility and adaptability which permits the offering of new disciplines and fields of study that transcend traditional disciplines.

The challenges that a university faces in the 21st century are as follows:

1. Being everything to everybody.
2. Sacrificing *Lehr-* and *Lern Freiheit* (teaching and learning freedoms), the consequence of nation-state and market forces.
3. Reinventing itself continually in a heightened state of institutional anxiety.
4. Losing sight of the larger purpose – that is to disseminate and advance knowledge for the sake of knowledge itself. What remains uncertain is whether nation-state and market forces will enforce their influence upon universities to advance only certain types of knowledge (*e.g.* utilitarian).

The author:

Dr. Brian Denman
School of Professional Development and Leadership
University of New England
2351 Armidale, NSW
Australia
E-mail: *bdenman@pobox.une.edu.au*

References

"Pilgrimage India: Nalanda", Retrieved 5 July, 2004, from *www.pilgrimage-india.com/buddhist-pilgrimage/nalanda.html*.

Altbach, P. G. (1998), *Comparative Higher Education: Knowledge, the University, and Development,* Hong Kong: Comparative Education Research Centre, The University of Hong Kong.

Altbach, P. G. (2004), "Globalisation and the University: Myths and Realities in an Unequal World", *Tertiary Education and Management* (1), pp. 1-20.

Arnove, R. F. (2003), "Introduction: Reframing Comparative Education", in R. F. Arnove and C. A. Torres (eds.), *Comparative Education* (pp. 1-23). Lanham, Maryland: Rowman and Littlefield Publishers, Inc.

Arnove, R. F. (2003), "Educational Reform around the World", Paper presented at the ANZCIES, Wollongong, Australia.

Bloland, H. G. (1999), "The End(s) of Academic Labor", *The Review of Higher Education*, 23(1), pp. 107-118.

Civilisation, F. f. S. a. (2001), "Al-Azhar University – 1 000 years of Scholarship", Retrieved 6 July, 2004, from *www.muslimheritage.com/topics/default.cfm?ArticleID=161*.

Cubberley, E. P. (1948), *The History of Education*, Cambridge, MA: Houghton Mifflin Company, Riverside Press.

Duderstadt, J. J. (2000, 4 February 2000), "A Choice of Transformations for the 21st century University", *The Chronicle of Higher Education*.

Farnham, D. (1999), "Towards the Flexi-University?", in D. Farnham (ed.), *Managing Academic Staff in Changing University Systems* (pp. 343-359). Buckingham, UK: Society for Research into Higher Education and Open University Press.

Gibbons, M. (1998), "A Commonwealth Perspective on the Globalisation of Higher Education", in P. Scott (ed.), *The Globalisation of Higher Education* (pp. 70-87), Buckingham: Open University Press.

Harman, G. and K. Harman (2004), "Governments and Universities as the Main Drivers of Enhanced Australian University Research Commercialisation Capability", *Journal of Higher Education Policy and Management*, 26(2), pp. 153-169.

Hayhoe, R. (1999), "China's Universities 1895-1995: A Century of Cultural Conflict", Comparative Education Research Centre.

Hazelkorn, E. (2004, June 2004), "International HE Policy Trends and the Views of New Universities", Paper presented at "The University of the 21st Century: New Generation Universities" Conference, Kamloops, British Columbia.

Hopper, E. (1972), "Sponsored and Contest Mobility and the School System", in E. Hopper (Ed.), *Readings in the Theory of Educational Systems* (pp. 71-90). London: Hutchinson and Co, Ltd.

Hopper, E. (1972), "A Typology for the Classification of Educational Systems", in E. Hopper (Ed.), *Readings in the Theory of Educational Systems* (pp. 91-110). Buckingham, UK: Hutchinson and Co, Ltd.

Jarausch, K. H. (1983), "Higher Education and Social Change: Some Comparative Perspectives", in K. H. Jarausch (Ed.), *The Transformation of Higher Learning 1860-1930* (pp. 9-36), Chicago: University of Chicago Press.

Makdisi, G. (1981), *The Rise of Colleges: Institutions of Learning in Islam and the West*, Edinburgh: Edinburgh University Press.

Neave, G. (1991), "The University of the Peoples of Europe: A Feasibility Study", in *The Open Door: Pan-European Academic Cooperation* (pp. 83-150), Bucharest: UNESCO European Centre for Higher Education.

Neave, G. (1997, April), "The European Dimension in Higher Education", paper presented at the "Higher Education and the Nation State"conference, Twente, The Netherlands.

Neave, G. and F. van Vught (2004), *Centralisation and Decentralisation*, in K.H. Mok (Ed.), Dordrecht: Kluwer Academic Publishers.

Patterson, G. (1997), *The University from Ancient Greece to the 20th Century*, Pamerston North, The Dunmore Press Ltd.

Pedersen, O. (1997), *The First Universities* (R. North, Trans.), Cambridge University Press.

Petersen, B. (1996), "Xenophon's Manual of Empire Citizenship", paper presented at the ANZHES, Brisbane.

Riddle, P. (1993), "Political Authority and University Formation in Europe, 1200-1800", *Sociological Perspectives*, 36(1), pp. 45-62.

Rothblatt, S. (1997), *The Modern University and its Discontents*, Cambridge: Cambridge University Press.

Schugurensky, D. (2003), "Higher Education Restructuring in the Era of Globalisation", in R. F. Arnove and C. A. Torres (eds.), *Comparative Education* (pp. 292-312), Lanham, Maryland: Rowman and Littlefield Publishers, Inc.

Scott, P. (1998), "Massification, Internationalisation and Globalisation", in P. Scott (ed.), *The Globalisation of Higher Education*, Buckingham: Open University Press.

Welch, A. R. (1997), "The Peripatetic Professor: The Internationalisation of the Academic Profession", *Higher Education*, 34, pp. 1-23.

Welch, A. R.and B.D. Denman (1997), "Internationalisation of Higher Education: Retrospect and Prospect", *Forum of Education*, 52(1), pp. 14-29.

International Consortia Survey on University Classifications

University of New England

School of Professional Development and Leadership
Armidale NSW 2351
Australia

Questionnaire for international consortia, alliances and agencies

A. General information

This questionnaire is designed for international university organisations to help classify their respective educational institutional partners. Data collected will be compared to other classification lists available. Please respond to every question as best as you can.

Name of International Consortium/Alliance/Agency

In English:

.....

In local language:

.....

E-mail contact:

.....

Web site:

.....

Number of Current University Members:

.....

B. Institutional partners

In the numbered spaces below, please list your most active institutional partners, with preference given to those that are both degree-granting and research-oriented. If your organisation has a relationship with more than ten institutional partners, you may attach a separate list, but please identify those that you view as the most active within your organisation.

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....
8. .....
9. .....
10. .....

Are any of your inter-institutional partners NOT accredited by some authorised regulatory body?

❒ Yes ❒ No

C. Classification categories

Review the institutional partners you have listed in section "B" and categorise each by circling which best characterises that institution with the numbers provided.

Example: If the *University of New England* were listed as your most important partner in section "B", you would circle "1" in the category: "B doctorate universities".

INSTITUTIONAL PARTNERS

A. Doctorate/research universities 1 2 3 4 5 6 7 8 9 10
- Wide range of degree-granting programs from Bachelor's to PhD (20 or more).
- Wide range of research.

B. Doctorate universities 1 2 3 4 5 6 7 8 9 10
- Wide range of degree-granting programs from Bachelor's to PhD (1 to 20).
- Wide range of research.

C. Research universities/institutes 1 2 3 4 5 6 7 8 9 10
- No degrees granted; research only.

D. Master's/research universities 1 2 3 4 5 6 7 8 9 10
- Wide range of degree-granting programs from Bachelor's to Master's (20 or more).
- Wide range of research.

E. Master's universities 1 2 3 4 5 6 7 8 9 10
- Wide range of degree-granting programs from Bachelor's to Master's (1 to 20).
- Wide range of research.

F. Master's colleges 1 2 3 4 5 6 7 8 9 10
- Wide range of degree-granting programs from Bachelor's to Master's with emphasis on teaching.

G. Baccalaureate colleges 1 2 3 4 5 6 7 8 9 10
- Wide range of degree-granting programs working toward the Bachelor's

H. Other institutions of higher education 1 2 3 4 5 6 7 8 9 10
- Professional programs and/or institutions offering terminal degrees after three to four years of higher education.
- Award Specialization and Degree/License (Please specify).

.....

D. Institutional partner attributes

Again review the institutional partners you have listed in section "B". Now please identify which one or more of the following attributes best describe each institutional partner, circling the partner's corresponding number from section "B".
Please circle ALL relevant descriptors for each.

Historical (pre-1900s)	1 2 3 4 5 6 7 8 9 10
Contemporary (1900-1970)	1 2 3 4 5 6 7 8 9 10
New (1970-present)	1 2 3 4 5 6 7 8 9 10
World-focused: global in character	1 2 3 4 5 6 7 8 9 10
Emulticulturally-focused: achieves its character from diverse groups	1 2 3 4 5 6 7 8 9 10
Profession-specific	1 2 3 4 5 6 7 8 9 10
Virtual-oriented: distance and on-line degrees	1 2 3 4 5 6 7 8 9 10
Pedagogically-oriented: specific form of pedagogy	1 2 3 4 5 6 7 8 9 10
Comprehensive-traditional: research and teaching	1 2 3 4 5 6 7 8 9 10
Non-traditional: mature-aged students	1 2 3 4 5 6 7 8 9 10
Vocational and community-oriented	1 2 3 4 5 6 7 8 9 10
Lifetime-oriented	1 2 3 4 5 6 7 8 9 10
Research-only	1 2 3 4 5 6 7 8 9 10
Teaching-only	1 2 3 4 5 6 7 8 9 10
Entrepreneurial: for profit	1 2 3 4 5 6 7 8 9 10

E. Context classification

Among the contexts listed below, please choose the categories which describe those which most influence your organisation. Use the numbers, 1 = strongest influence; 3 = neutral; 5 = no influence at all, to express degree of impact.

Sponsorship mobility 1 2 3 4 5

Sponsorship mobility is viewed as a system that chooses its students by the established elite or their agents. Selection to matriculate into this 'elite status' is based on some criterion of "supposed merit" but cannot be taken away once given.

Contest mobility 1 2 3 4 5

Contest mobility is perceived as a system in which the pursuit of 'elite status' is merit based. In other words, a fair and open contest is standardised to determine those who qualify and those who do not.

Lehr- und lernfreiheit 1 2 3 4 5

This category emphasises the autonomy of both teaching and learning freedom. "Lehr" refers to teaching; "Lern" refers to learning.

Mass mobility 1 2 3 4 5

Mass mobility means open to all to teach all.

User pays 1 2 3 4 5

User pays refers to those who pay for an education.

Does your educational system have a centrally administered selection procedure?

❒ Yes ❒ No

If yes, to which group does it cater?

❒ Students ❒ Staff ❒ Top Admin.

Is your educational system differentiated into specialised academic programs/modules through which students are selected, trained, and guided to ther future occupational roles?

❒ Yes ❒ No

If yes, at what academic level does differentiation and specialisation occur in your system?

❒ Before postsecondary education

❒ Associate's Degree

❒ Baccalaureate Degree

❒ Master's Degree

❒ Terminal Degree (*e.g.* PhD)

❒ Exceptions (please specify):

F. Who determines status?

Reflecting on the list o institutions in section "B", please place an "X" in the box of those entities which determine university status within your locality or an "O" in the box if outside your locality. If there is more than one entity which determines such status, please rank in order of importance using the brackets provided.

❒ [ ] Trans-national/multilateral organisations.

❒ [ ] National government (*e.g.* Ministry of ED.).

❒ [ ] State/Provincial governmentAccrediting body or association.

❒ [ ] Board of Directors, Presidents, and/or Stakeholders.

❒ [ ] Academic Staff.

❒ [ ] Other (please specify).

What do you consider the single most important issue that derives from the existence of different levels of regulatory or accrediting entities?

1) .....

.....

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

Rethinking or Hollowing out the University? External Engagement and Internal Transformation in the Knowledge Economy

by

Michael Harloe and Beth Perry
The University of Salford, United Kingdom

The development of the knowledge economy is placing universities at the heart of economic and social development processes in relation to their teaching, research and outreach functions. This new engagement places pressure on universities to consider the need for internal transformations to make them "fit for purpose" to meet their new more "entrepreneurial" roles. A core concern here is how best to re-orientate or re-mould the university in such a way as to meet new challenges while guarding the "essence" of the academic enterprise which is embedded in a culture of collegiality that is now at risk but which remains an essential foundation for innovation in knowledge production and its transmission.

Introduction

It is widely accepted that the university is assuming growing importance in policy terms as an engine of economic growth and social transformation. Consequently, universities across both the developed and developing worlds are being encouraged, and in some cases coerced, into greater external engagement, for example with their localities and regions. In this paper we consider firstly, and very briefly, the drivers that are leading to such increased engagement with wider economic, societal, and political actors and the increasing centrality of the university within economic and social development processes. This is highlighted through a discussion of emerging European frameworks for higher education and research. For many, the emphasis on new roles for the university implies the need for internal reform of university governance structures and organisational arrangements. Second, then, we review some of the current literature on university reform in face of the "entrepreneurial" challenge and the different kinds of re-orientations that are seemingly underway. More than external engagements, such internal transformations pose core challenges in terms of the extent to which making the university "fit for purpose" and transforming it into a 21st century institution undermines the essence of what has traditionally been seen as the core of the academic enterprise. A pivotal question here is how to preserve what is distinctive about the university as a site of knowledge production to meet external roles. In the final section of the paper, we consider the range of factors which enable or constrain the particular responses of universities to the dual-edged demands of the internal-external dichotomy.

Knowledge economy, spatial transformation and the universities

It is a commonplace observation that we now live in a knowledge-based economy, where knowledge has superseded physical and tangible assets as the key foundation for wealth creation and economic growth. Most writers on the subject date the concept of the knowledge economy in the academic literature back to the influential work of Bell. In *The Coming of Post-Industrial Society* (1973) he charts the perceived shift from manufacturing to a less tangible world of services and information. For Bell, this shift represents a key step along the path towards a post-industrial economy in which the singular driving feature is knowledge, and in particular, codified abstract knowledge. Putting it simply, the "new" economy is based on creating, doing things to or

with knowledge: "the action of knowledge upon knowledge is the main source of productivity" (Castells, 1996).

A second key driver of current socio-economic transformations concerns the restructuring of notions of space and scale, made apparent by numerous urban and regional scholars over the last 30 years. Here we refer to changing notions of scale with resultant implications for national states as appropriate units of analysis as well as for the actors within them. Much has been written about globalisation and the so-called "death of distance" thesis which sees the rise of information technologies and dissolution of national boundaries in trade, investment, finance, goods, people and services leading to a disembeddedness in which space, place, distance and even time are collapsed. On the other hand, a range of authors focus upon the ways in which territory and scale are becoming more, not less, important as economic synergies, clusters and tacit knowledge spillovers require proximity and a continued emphasis on face-to-face contact. Here, reference to "industrial complexes", "innovative *milieu*" or "creative places" draws attention to the relationship between place, assets and competitive success (Gordon and McCann, 2000. Florida, 2002). Such processes have been referred to as "glocalisation" (Swyndegouw, 1992, p. 61) to reflect the harnessing of local specific assets as a mechanism for achieving global competitiveness. What is clear in all such debates is that space is being rescaled and reorganised in a number of complex and inter-dependent ways, with global, European, national, regional, city-regional and local processes of restructuring.

As activities are rescaled and/or responsibilities redistributed vertically between territorial levels of government, we see also a shift in the horizontal distribution of capacities and capabilities between actors. Processes of liberalisation, regulation, de-regulation and privatisation have combined over recent years to strengthen the movement from "government" to "governance", bringing new actors and institutions into policy arenas (Stoker, 1999). Power is more dispersed between and within institutional actors and contexts, with the result that partnerships are increasingly seen as necessary to reach policy goals and increasingly universities need or are required to be involved in these.

More generally, what does this mean for the university? Such drivers, it is said, combine to place universities at the heart of economic and social development processes (Castells and Hall, 1994; Goddard and Chatterton, 2001). Furthermore, evidence presented at recent IMHE conferences and elsewhere (for example, Felt, 2004) would suggest that this is a cross-national and international phenomena. Taking the supranational level of the European Union as an example, we see increasing concern with the roles and diverse functions of the university designed to realise the knowledge economy at nested scales of activity. In recognition of the movement towards a knowledge society, the Commission has set a number of initiatives in place to ensure that

innovation, research, education and training are core to the EU's internal policies. From an initial focus on education, training and employment set out in "Towards a Europe of Knowledge", which aims to "promote the highest level of knowledge for its people through broad access to education and its permanent updating" (European Commission, 1997), developments since have concentrated more specifically on higher education. Building on the Sorbonne Declaration of 1998, the Bologna Process committed signatory member states to a process of co-ordination towards the creation of a European Higher Education Area (EHEA) by 2010. At the Lisbon European Council meeting in 2000, the target for Europe to become "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (European Commission, 2003) was set. Core to this was the agreement to create a European Research Area (ERA) to lay the foundation for a common science policy across the European Union through coordinating national research policies to combat fragmentation and duplication and has considerable financial implications: to increase EU total expenditure on research to 3% of GDP by 2010 to compete with the United States and Japan (European Commission, 2000).

A separate Commission Communication deals with the regional dimensions of the ERA and sees that the ERA concept implies that efforts should be deployed effectively at different administrative and organisational layers (European Commission, 2001). The Communication states that the role of each of the actors needs to be re-examined, public and private, to establish synergies and take advantage of complementarities among European, national and regional instruments to achieve a "reinforced partnership" (European Commission, 2001, p. 9). Here then the emphasis is upon new sets of actors working in partnership across sectors and territorial levels to achieve the goals of the European knowledge economy. Out of all the challenges posed by the knowledge economy, the local and regional roles of universities and cooperation with industry and enterprise are particularly important. Indeed, the restructuring of space and scale has meant that "for many universities regional engagement is [...] becoming the crucible within which an appropriate response to overall trends in higher education is being forged" (Goddard and Chatterton, 2001).

Both the EHEA and the ERA initiatives aim rather at coordination and harmonisation than the creation of a federal European system of higher education and research. However, the debate over the appropriate levels of coordination in the context of diverse national traditions and cultures remains an open one, particularly in the context of discussions over the potential purpose, scope and role of a European Research Council (Cannell, 2001). What we can say at this stage is that global pressures are leading to varying levels of commitment towards coordination and convergence between

national systems of higher education and research, with concomitant implications for the university as a site of knowledge production. This too has been the subject of recent Commission communications. Universities are seen as unique in their contributions to the core functions of the knowledge society in producing new knowledge, knowledge transfer and transmission and in new industrial processes or services (European Commission, 2003). Yet core issues remain, relating to the global lack of competitiveness of the European university system, the sustainability of university research funding, questions of autonomy and professionalism, the achievement and maintenance of research excellence and the contribution more generally of universities towards the sets of initiatives that comprise the "Europe of Knowledge".

Inherent in the above European frameworks is a recognition that realising the knowledge economy requires both a new commitment to external engagement by higher education institutions and a re-evaluation of the systems and internal mechanisms of universities themselves. In relation to the first of these, we see that the development of a multi-scalar knowledge world placing emphasis on universities' external engagements and their roles within society is shaped in detail by factors such as national political systems, cultural differences, territorial relations, degrees of integration into the global economy, degrees of regionalisation, the natures and histories of higher education and funding systems, specific local circumstances and institutional peculiarities, to name but a few. However, we now discuss the second issue – the pressure that this growing external engagement is creating for internal transformations in universities.

Towards the entrepreneurial or Mode 2 university?

Many have seen the knowledge economy and the restructuring of space and scale as presenting opportunities not threats, stressing the wider benefits of a reflexive, innovative and more streamlined university. For some this is embodied in the concepts of the "entrepreneurial" or "enterprise" university, actively engaging with stakeholders and societal actors. The term was popularised by Clark in his 1998 study of five universities in Northern Europe, recorded in *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. Here Clark identified five core elements to the entrepreneurial university: a strengthened steering core, expanded developmental periphery, diversified funding base, stimulated academic heartland and the integrated entrepreneurial culture. Much debate has been had on the extent to which this can be seen in practice, indeed case studies from universities across the globe on institutional responses to these challenges formed the basis of the IMHE General Conference in 2000. The contributions there revealed varying degrees of convergence and divergence in response to external engagements, as well as a "general supposition that the development of the entrepreneurial/

innovative university is likely to be inevitable in most settings, largely because of external circumstances" (Davies, 2000).

Through these and other case studies, we see a number of different institutional responses to the entrepreneurial challenge. Again, as with the notion of "engagement", interpretations of "entrepreneurial" remain variable, ranging from a neo-liberal market-driven conception of entrepreneurialism based on wealth creation and economic growth to a more socially-responsive and stakeholder based approach.

A less often touched upon dimension of meeting the entrepreneurial challenge relates to the degree of penetration of internal transformations into the heart of the university. In other words, how far is external engagement dependent upon change in the day-to-day practices of academics?

For some however, the idea of the university as a fundamentally different and evolving institution is predicated not on changes in steering or management, but upon shifts in the practice of science. Here we refer to changes in knowledge production (Gibbons *et al.,* 1994) and the emergence of "entrepreneurial science" (Etzkowitz, 2002). Taking the first of these, Gibbons and his colleagues argue that there is sufficient evidence to suggest that traditional ways of thinking about science, doing science and the nature of science itself are being challenged by a new mode of knowledge production. Traditional science, or Mode 1 science, was produced in a context in which problems are set and solved within self-governing and self-regulating academic communities; knowledge production takes place within disciplinary boundaries; research results are communicated through institutional channels; universities are the dominant knowledge-producing institutions and research groups are relatively homogenous and institutionalised. "Knowledge for knowledge's sake" is a dominant rationale, with less concern for the ultimate use to which science will be put or with producing socially acceptable results and peer review is seen as the appropriate mode of quality control.

This contrasts with the new "Mode 2" of knowledge production. Mode 2 is carried out in the context of application, shaped by a diverse set of intellectual, economic and social interests. Problems are set and solved in a transdisciplinary fashion, bringing together a number of perspectives to bear on particular issues. As a result, research findings are communicated interactively and continuously throughout the research process itself, by virtue of different organisations participating at different points in time. Research groups then are more heterogeneous and transient. Mode 2 is characterised by organisational diversity, not just universities, but other knowledge production sites, linked together through functioning networks of communication. Knowledge production then moves out of disciplinary silos in universities and into new societal contexts. This is accompanied by increased

reflexivity on the impacts of research and social accountability. Finally, quality is determined not by peer-review, but by a wider set of criteria that reflect the broadening social composition of the review system. It should be noted that the hypothesis put forward by Gibbons *et al*. is not that Mode 1 is replacing Mode 2, but rather that the socio-economic transformations underway within the auspices of the knowledge economy require a consideration of how and to what extent modes of knowledge production are becoming blurred and overlapping.

A fundamental element of the Mode 2 thesis relates to shifting conceptions of academic roles. Whereas Mode 1 is about "science and scientists", Mode 2 is about "knowledge and practitioners". This is perhaps one of the more controversial and sensitive challenges of engagement: through questioning the fundamental premise of academic identity and distinctiveness, the identity of the university itself is also brought into question. On this account realising the "entrepreneurial university" entails more deep seated changes and challenges than those highlighted by Clark (which is not to deny the importance of those that he does foreground). Whether these blueprints for the university in the knowledge economy will be realised, in full or in part, remains to be seen. However, the challenges that universities already face, to their systems of management and governance and to their dominant, collegial culture are already evident and it is to these that we now turn. This final section of the paper draws on recent UK experience in particular.

Rethinking the university – but how?

Despite political, economic and social upheaval, the university remained a relatively stable though evolving institution from its medieval roots until the second half of the 20th century (Barnett, 1990). Its primary functions – the pursuit of knowledge in a range of academic disciplines and the provision of a liberal education to an elite as part of a more general aim to create a more knowledgeable and enlightened population – have shaped and influenced the nature and form of its organisation. Neither fully autonomous nor constrained, universities in their historical form have persisted as relatively independent institutions able to determine their own internal structures, values, management and governance. Universities have generally been granted a partial degree of autonomy from the state and society, leading to particular and distinctive forms of more or less collegial self-organisation and self-governance. This system is characterised, among other aspects, by academic domination of leadership and decision making, by a clear division of labour between academics and administrators in which the former initiate and the latter facilitate, by elective selection for senior academically related management positions which are normally time limited, and by extensive use of committees for policy formulation and approval. However the current

emphasis on the external engagements of the university is leading to a re-evaluation of the internal workings of the university and the skills required from their staff in order to make them institutions "fit for purpose". The potential realisation of the knowledge economy rests fundamentally on the extent to which universities can adapt to the challenges placed upon them. Among the changes in the external context are:

- New sites of knowledge production (*e.g.* corporate and e-learning universities).
- Contestability of knowledge claims and delegitimation of the university.
- Responding to the needs of government, industry and "customers".
- Linking research to demands for societal and economic relevance.

And the internal changes include:

- The adoption of quasi-market systems and processes, for example in internal resource allocation.
- Shift from a public service to a performance and audit based ethos, frequently under pressure from government.
- Commercialisation of activities in teaching and research and more generally a market led approach to academic developments.
- Pressures on traditional methods of management and governance which are seen as slow to respond and not fully competent.
- Revised systems of remuneration and reward linked to revisions in evaluations of worth and status based on new indicators of performance.
- Individualisation and undermining of the culture of collegiality.

Within this we see issues relating not just to universities as organisations, but also to the staff within them. Indeed, while university managers must forge appropriate responses to external challenges at the strategic level, it is ultimately individual academics that must convert the institutional rhetoric's of engagement into reality.

So a core challenge is how to preserve the integrity of the academic enterprise, at the individual and collective level, as well as reform the university to meet external challenges. Of course, reform is by no means a universally accepted necessity and debates on the desirability and implications of change are widespread. In the IMHE conference mentioned earlier, Davies (2000) refers to several key elements of existing institutional cultures that militate against meaningful external engagements: problem avoidance; internal orientations; individualistic, defensive and isolated patterns of working; fragmented information; low corporate identity and presence; lack of strategic oversight and absence of accountability.

Universities' capacity and willingness to respond to external change and the internal pressures that this creates is, and will be, varied. Strategic leadership and governance, financial robustness, internal systems and histories all combine to shape the potential for internal reform. Of particular importance in relation to external conditions are issues of institutional power and the ability of universities to mobilise different resources and networks to meet organisational aims. This factor lies at the heart of the significant changes which are now occurring in the stratification or status order of universities, both nationally and internationally. These changes are especially evident in the United Kingdom where the 2003 government White Paper on HE was explicitly concerned with ensuring that a handful of institutions could remain or become "world class" universities and which also attempts to restratify the rest under the rubric of supporting "diversity of mission" within a nationally oriented framework.

In relation to internal change there are a number of important considerations. First, the new environment is inherently more risky and complex than the old one, with multiple demands and opportunities and the growing role and complexity of partnerships with external agents. All this places a new emphasis on the management of risks and the creation and maintenance of external engagements as key tasks for university management. In itself this leads to an enhanced role for managerial intervention in areas that were previously the preserve of individual academic departments and faculties – for example in relation to new course development and research selectivity. It also requires new professional skills and to some extent empowers those that have them rather than those that do not. It also puts pressure on traditional methods of selecting staff for academic managerial positions, including those at relatively junior levels as well as the most senior.

The new situation also challenges traditional methods of staff reward and promotion. In the United Kingdom the universities are in the process of replacing the current diversity of scales of pay and grading schemes (where, for academics at least progression was strongly linked to years of service), with a single pay spine and with grading linked to job evaluation and progression much more strongly linked to performance. This change, due to take place over the next two years, is bound to be highly contested and will when completed have a profound effect on key aspects of academic culture and practice. It seems likely to accelerate the rise of a more individualistic and less collegial culture – one of the main dimensions of internal change listed above.

Another aspect of these changes is that they require universities to employ staff, both as academics and administrators, in new roles and with new skills. For academic staff, in the United Kingdom at least, there is a new emphasis on formal training for the profession of university teacher, now

required for all entrants into the profession, and on continuing professional development thereafter. Being a university academic may remain a lifelong form of employment but only if staff are able to be adaptable, flexible and innovative in what they teach and in their research careers – and to be expert at a range of tasks which lie beyond those that the university teacher was commonly expected to perform. And the growing importance of administrative staff in new or enhanced roles and with new skills that are ever more crucial to the university's development – for example in ICT, marketing and external relations and business development – challenges the traditional divide between administrators and academics, their status order and their respective roles in governance and management. One way of describing this change would be to suggest that academic output now depends increasingly on a jointly driven cooperative form of production involving academics and other professionals rather than one in which the latter facilitate and the former initiate and ultimately deliver.

All this and more is resulting in an undermining of the dominant collegial culture of many universities and this has wider consequences, given the ways in which this culture has shaped systems of governance and managerial structures, roles and processes. In many institutions systems of collegial decision making, Senates and their committees for instance, have been unequal to the task of steering universities in their changed circumstances. Frequently, they have been unable to encompass change, all too often they have rather clearly resisted it. And systems of collegial selection for academic managerial posts have been found wanting too. For the reasons stated earlier, the traditional separation between academics and administrators in steering the university has become increasingly blurred, in practice if not according to the formal schemes of governance and management. In a very real sense the institutions and practices of the collegial university are becoming "hollowed out". In other words, while the vestiges of the traditional system of university governance and management may remain in place – with the privileged place they give the academic community in decision making and leadership – their real influence on how the university evolves is eroded and that of a more professionalised and permanent management stratum increases. Frequently the by now increasingly symbolic institutions of the collegial university are required to do no more than endorse changes initiated elsewhere and can only fall back on strategies of resistance when change is not to their liking. Power shifts away from academically constructed and defined hierarchies to managerially defined ones.

This is not a satisfactory long term situation. Academic staff increasingly recognise that this hollowing out has reduced (along with other changes) their degree of individual autonomy and collective engagement with shaping how their institution develops. Meanwhile, administrators feel that their role

remains under recognised and their contribution undervalued by their academic colleagues. Paradoxically, while they often feel that amateur academic management hampers their efforts to raise the university's game, the academics resent their growing power and apparent lack of accountability to collegial systems of management and governance which they constantly seem either to ignore our out manœuvre. Rectors and Vice Chancellors have difficult choices to make: whether to try to sustain or revive these systems, or to move in directions which increasingly turn their back on them. Neither choice seems a particularly good one.

One illustration of this division over the way forward comes from the recent experience of my own university. We asked a group of young academics and administrators to work together "rethink the university": to evolve a vision of the university that they would like to work in ten years time. An early and disappointing reflection of pathology of the academic/administrative divide was those concerned decided to work in separate groupings, one consisting of administrators and two of academics. All of them however decided that the university was too bureaucratic, too slow to respond to change and too centralised in its management. They all concluded that that led to poor staff morale and poor performance. But when they came to solutions the administrators stressed the need for more devolution to more efficient, effective and proficiently managed units while the academics favoured a loosening of managerial systems and controls that would enable them to be more innovative and creative. Despite their common critique of the status quo there was no real agreement on solutions or on the way forward. Would better and more effective management in itself result in improvements in the academic output of the university and its success as an institution? Would setting academics free from management and relying on their dynamism and professionalism to bring success be a better bet? In reality, in the era of the knowledge economy, we surely need to find ways of operating that combine both managerial competence and academic innovation.

That there has been a growth of managerial control in universities in response to their changed circumstances cannot be doubted. Max Weber famously argued that in modern societies older systems of authority and control such as collegiality would be supplanted by bureaucracy and it is not too fanciful to suggest that the growth of university bureaucracy owes more than a little to the increasing failure of collegial systems to be "fit for purpose". However, we cannot just dispense with collegiality as irrelevant because of the nature of the university and what it does. There is a long literature about the position of professionals in organisations and the consequences of something which perhaps paradoxically goes with their collegiality – their relatively high degree of autonomy. This is both a problem for management and a necessary fact of life because the autonomy derives from the professional skills that are

essential and it is to some degree inseparable from them. And a university is of course not just an organisation with some professionals; it is dominated by them because it is they who are the "final producers" of the academic "product".

At the most instrumental level then, the university has to be organised in ways that retain the active commitment of their academic staff. It also has to recognise the reality of a much more complex division of roles and responsibilities between academic and administrative staff. Finding replacements for our hollowed out institutions and practices that derive from collegiality while retaining the recognition that, in its academic essence, it remains a central part of what it is to be a university is a difficult but I believe a vital task if we are to respond effectively to the challenges of the knowledge economy and ensure that we remain at the heart of economic and social development.

The authors:

Professor Michael Harloe
Vice-Chancellor
University of Salford
The Crescent
Salford M5 4WT
United Kingdom
E-mail: m.harloe@salford.ac.uk.

Beth Perry
Research Fellow
The centre for Sustainable Urban
and Regional Futures
University of Salford
113-115 Portland Street
Manchester M1 6DW – United Kingdom
E-mail: b.perry@salford.ac.uk.

References

Bell, D. (1973), The *Coming of Post-Industrial Society,* Basic Books, New York.

Cannell, W. (2001), "Afterword", in S. Dresner and N. Gilbert (eds.), *The Dynamics of European Science and Technology Policies,* Ashgate, Aldershot.

Castells, M. (1996), *The Rise of the Network Society,* Blackwell, Oxford.

Castells, M. and P. Hall (1994), *Technopoles of the World: The Making of Twenty-First-Century Industrial Complexes,* Routledge, London and New York.

Clark, B. (1998), *Creating Entrepreneurial Universities: Organizational Pathways of Transformation,* Pergamon, New York.

Davies, J. (2000), Reflections on the Outcomes of Discussions on "Beyond the Entrepreneurial University", IMHE General Conference, Paris, September.

European Commission (1997), Communication from the Commission "Towards a Europe of Knowledge", COM (97) 573 final, Commission of the European Communities, Luxembourg.

European Commission (2000), Communication from the Commission "Towards a European Research Area", COM (2000) 6, Commission of the European Communities, Luxembourg.

European Commission (2001), Communication from the Commission "The Regional Dimension of the European Research Area", COM (2002) 549 final, Commission of the European Communities, Luxembourg.

European Commission (2003), Communication from the Commission on "The Role of Universities in the Europe of Knowledge", COM (2003) 58 final, Commission of the European Communities, Luxembourg.

Etzkowitz H. (2002), *MIT and the Rise of Entrepreneurial Science,* Routledge, London and New York.

Felt, U. (2004), "University Autonomy in Europe: Shifting Paradigms in University Research?" in *Managing University Autonomy. Shifting Paradigms in University Research,* Bononia University Press, Bologna, 15-108.

Florida, R. (2002), *The Rise of the Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life,* Basic Books, New York.

Gibbons, M., C. Limoges, H. Nowotny, S. Schwartzmann, P. Scott and M. Trow (1994), *The New Production of Knowledge,* Sage, London.

Goddard, J. and P. Chatterton (2001), "The Response of HEIs to Regional Needs", *Universities and Regional Development in the Knowledge Society*, Barcelona, 12-14 November.

Gordon, I. and P. McCcann (2000), "Industrial Clusters: Complexes, Agglomeration and/or Social Network", *Urban Studies* 37.

Stoker, G. (1999), "Introduction", in G. Stoker (ed.) *The New Management of British Local Governance,* Basingstoke, Palgrave.

Swyndegouw, E. (1992), "The Mammon Quest: 'glocalisation', interspatial competition and the monetary order – the construction of new scales", in M. Dunford and G. Kafkalas (eds.) *Cities and Regions in the New Europe,* New York, Belhaven Press.

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

Institutional Mission *vs.* Policy Constraint? Unlocking Potential

by

Ellen Hazelkorn
Dublin Institute of Technology, Ireland

The research-intensive and competitive knowledge society is putting HEIs (higher education institutions) under the spotlight. While many HEIs around the world do not proclaim or wish to be research-intensive institutions the majority desire to intensify their research activity because it is seen as a sine qua non *of higher education. Accordingly, HEIs are busy making critical strategic choices concerning human resources, the research environment, the teaching-research nexus, organisational and management structure, and funding. Governments are also making choices, using policies and financial instruments to help shape institutional mission, priorities and HE systems. But if governments genuinely desire to widen access to the knowledge society and achieve a greater contribution from higher education to economic and social development more is required. This paper applies Porter's diamond of competitive advantage to illustrate the complex relationship between institutional mission and policy constraints, proposing changes in strategy and policy to unlock potential. There are important lessons for both institutions and government.*

> "For 35 years, there has been a sense of drift in the definition of a university. We need to identify much more clearly the great research HEIs, the outstanding teaching HEIs and those that make a dynamic, dramatic contribution to their regional and local economies" (Charles Clarke, UK Secretary of State for Education, *THES*, 6 December 2002).
>
> "What defines a university? To what extent do scholarship, teaching and research each mark a university as being such, and – why?" (Brendan Nelson, Australia Minister for Education, Science and Training, Higher Education at the Crossroads, 2002).
>
> "Should all HEIs continue to have the dual role of teaching and conducting research? 'It is, of course, not the norm everywhere. The Grandes Écoles in France and arts colleges in the US successfully focus on scholarship rather than research'" (Noel Dempsey, Minister for Education and Science, Ireland, during Ireland's Presidency of the EU, 2004).

Setting the agenda

The nexus between higher education and research has been one of the unwritten "rules" since Humboldt first conceived the "unity of teaching and research as the centrepiece of his new idea of a university" (Schimank and Winnes, 2000). Since then several models of the relationship have developed, with the French promoting a pre-Humboldtian systemic divide between teaching and research. The debate has become heated in recent decades, with some arguing, *inter alia*, for the coexistence of such activities based upon dynamics of the global knowledge society/society, the public good or coexistence with teaching, while others argue for increasing incompatibility based on differences in capacity and capability, quality, working conditions/needs, and constraints of the public, institutional and national purse. Unfortunately, for many, the research university has become the default mode.[1] While this particular debate is not the subject of this paper, the role of research lies at the heart of almost every discussion about the mission and strategy of higher education in the 21st century.

Today, governments are thinking much more strategically about research and knowledge production because the role of knowledge production is now intrinsically interlinked with the geo-political positioning of nations. There is also increasing evidence that knowledge production is no longer the special preserve of HEIs; new knowledge today is produced by a multiple of

organisations in the public and private sphere, and in partnership between these spheres. Higher education is only another player – albeit an important one – in a complex global knowledge-intensive industry. Accordingly, government is becoming much more directive in the role that it believes higher education should play in the future, and the task of growing research capacity and capability has become a key focus of government policy. In response, HEIs are (re)examining their mission, strategies and organisation. It is no longer possible for either policy-makers or educational leaders and managers to see these two activities as separate. Growing research is both an institutional and a national strategic concern. However, institutional ability to overcome "barriers to entry" may be very difficult if the environment in which it operates is perceived as hostile or constrained. This has led to tensions between institutional mission and government policy.

Given this context, this paper begins by setting out six propositions which frame the underlying themes. The remainder of the paper considers the complex relationship between institutional mission and government policy, returning in the conclusion to map suggested actions against the six propositions. The latter were derived from the views of over 25 new HEIs from across 17 OECD countries which form the basis of a major study, *Growing Research in New Universities* (Hazelkorn, 2005; see also Hazelkorn, 2004). While that study focused primarily on institutions established post-1970s, their experiences can provide lessons for HEIs and policymakers around world.[2]

Proposition 1: As labour markets mature and professional/academic disciplines move up the value chain, research is essential to underpin teaching and maintain "glocal"[3] relevance. *This* is institutional development not mission drift.

Proposition 2: Knowledge and technology transfer activities are incomplete without capacity-building strategies that enable HEIs to expand their ability to conduct research.

Proposition 3: "Innovation" does not only occur in science and technology, but equally in the social sciences, humanities and the arts.

Proposition 4: In order to widen access to knowledge and participation in the knowledge society, all HEIs should participate in knowledge production and dissemination.

Proposition 5: The fundamental flaw with concentrating knowledge production in only some HEIs is to suck innovation out of the regions, thereby undermining the knowledge society.

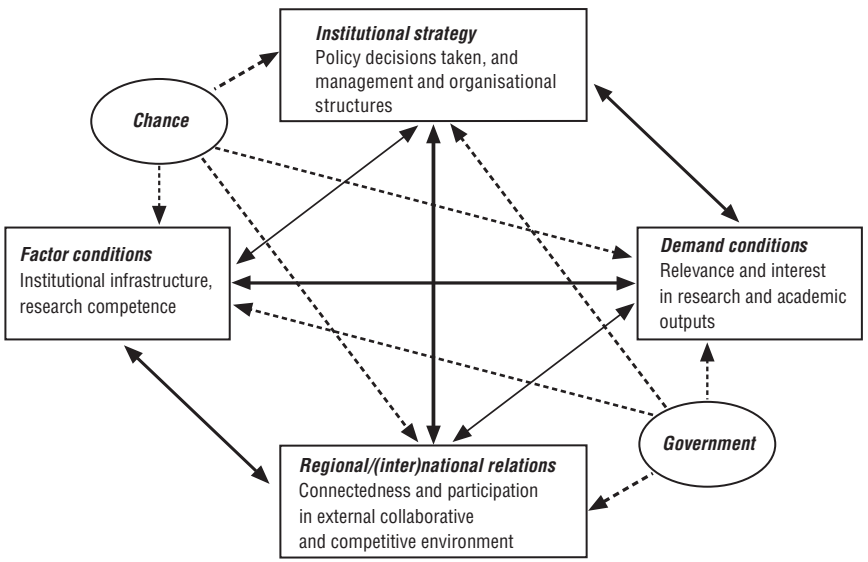
Proposition 6: If governments wish to encourage balanced national social and economic development, then targeted actions and policy instruments are critical to this process.

Problematising the government-university relationship

Porter's (1990) diamond model of competitive advantage provides an interesting way to understand the complex economic and policy environment in which HEIs are now operating and help explain why some institutions are more successful at research. Porter's model seeks to go beyond *comparative* advantage which usually consists of inherited factors of production, like cheap labour or energy, or natural resources to consider *competitive* advantage which is created. Widely adopted in the 1990s as a framework for shaping regional and national industrial strategies, it was conceived around the concept of the "home base". Essentially, the economy cannot be understood as a whole but via specific industries or, preferably, industry clusters. He cites four interlinked factors: factor and demand conditions, organisational strategy, and regional/(inter)national relations. Figure 1 adapts the model to reflect the experiences and actions of higher education.

- Factor conditions: this includes adequate infrastructure and funding, availability of research competence and capability, etc.
- Demand conditions: this includes relevance and interest in the research and academic output, as measured by *e.g.* published papers, patents, commercialisation opportunities, consultancies, etc.

Figure 1. **Adaptation of Porter's diamond of competitive advantage to HE research experience**



Source: Adapted from Curran (2000).

- Organisational strategy: this includes the management and organisational structure, including support services, and decision-making and policies choices.
- Regional/(inter)national relations: this includes membership and participation in collaborative networks and partnerships, with other HEIs, industry or the wider public sphere, and the extent to which the HEI is fully conversant with global factors and competition.

Two factors located outside the diamond but critical to it are government and chance. Regarding the latter, there is no magic wand for being successful, and there are always unknown factors which can arise from time-to-time which can tilt the balance towards success or failure. For Porter, this is the concept of "chance". For HEIs, the role of government can be pivotal; it determines the higher educational system and the role of individual HEIs including mission, governance structures, funding and fees structures, student numbers, and evaluation of outputs.

Porter's model works by illustrating the complexity of a dynamic and competitive environment. Ideally, all factors are contingent upon each other, and no single factor is alone capable of achieving success.

> "Advantages throughout the 'diamond' are necessary for achieving and sustaining competitive success in the knowledge-intensive industries that form the backbone of the knowledge economies" (Porter, 1990, p. 73).

There is a menu of possible institutional or enterprise strategies; the organisation's role is to create the conditions whereby the four corners of the diamond work together. The significance of this model is that it introduces development and growth as part of a complex web, in which government is a critical partner. In this respect, Porter's diamond has "enriched policy discourse" by introducing a "richer understanding of the sources of industrial development and a menu of industrial policy options that are obscured or denied, by the market failure framework" (Best, 2001, p. 8). To paraphrase Best: every HEI strives to develop a distinctive mission, but every HEI also operates within a national and increasingly global higher education system. Many HEIs believe that their ability to make the four corners of the diamond – factor and demand conditions, and organisational strategy and spatial or regional/national relations – "mutually reinforcing" (Curran, 2000, p. 397) are plagued by government which often acts as an inhibiting factor.

The next sections look at the various components of the "diamond". What are the policy and strategy options for HEIs? What is the role of government? To what extent can changes in strategy and policy widen the room-for-manoeuvre and unlock potential?

Institutional strategic choices

HEIs are busy making critical strategic choices concerning human resources, the research environment, the teaching-research nexus, organisational and management structure, and funding. Institutional priorities show a direct correspondence to national and international priorities – not surprising in the context that government, either directly or indirectly via funding agencies and evaluation exercises, acts as both policymaker and funding agency. These choices are, perhaps inevitably, creating tensions.

> "Since most faculty teach, and many faculty perform public service, but fewer win competitive research funds from government or industry, research is the activity that differentiates among and within HEIs" (Slaughter and Leslie, 1997, p. 17).

Differentiation is strongly influencing student choice, funding agencies, employers, industrial and other partnerships, etc., and membership of some discipline and sector organisations (nationally and inter-nationally). Many HEIs

Tableau 1. **Approaches used to grow research capacity and capability**

Porter's Diamond	Institutional policy	Indicative actions
Factor conditions	Invest	Investment strategy, and realign budgets to support research and/or to disproportionately support research active staff or internationally competitive research.
	Establish appropriate organisational structures	Establish organisational structure with designated positions at college/departmental level, including a "graduate school", and provide appropriate research facilities.
	Research clusters and centres	Funding and support mechanisms used to encourage the growth of research groups, capable of winning sizeable external funding and recognition.
Demand conditions	Apply performance indicators	Match internal evaluation processes with external processes to ensure research is meeting international standards and use the results to help shape priorities, funding mechanisms, recruitment, etc.
	Limited number of research priorities	Develop institutional agenda-setting mechanisms to preferentially support internationally-competitive domain only.
	Align funding, recruitment, etc., to research priorities	Ensure that organisational priorities at teaching, funding and support level reflect "glocal" priority domain.
Regional/(inter)national relations	Strategic alliances with other HEIs or industrial partners	Identify key industrial and civic/government organisations which match research strengths and establish partnerships.
Institutional strategy	Presidential leadership	Endorsement of research strategy by senior management.
	"Culture of scholarship"	Proffer wider definition of scholarship which recognises that not everyone needs to be involved in research.

Source: Adapted from Hazelkorn, 2005

feel that taxonomies, ranking systems and "league tables" are contributing to a "prevailing attitude amongst the establishment to the new HEIs" akin to a cartel. They perceive themselves being placed into a "second tier sector of teaching institutions relying on hand-me-down learning from a closed shop of wealthy research HEIs" (King, 2002). Thus, for many, there is a great sense of urgency influencing their decisions. One respondent said it had only five years while another said it had only three years to "get teachers to national research recognition [level] or lose funding".

Despite differences in origins and context, all HEIs are actively grappling with the complexities of research capacity and capability building. While newer institutions have not been well-resourced for research or fared as well competing for external funds, this has not deterred them. Summarising initiatives in the abovementioned study, nine thematic actions are identified and mapped against Porter's diamond (see Table 1). What kind of institutional strategic choices or organisational changes are HEIs making, or other initiatives are they introducing to grow research capacity and capability? How is the organisation creating the conditions whereby the four corners of the diamond work together?

Factor conditions

Inadequate infrastructure, and weak research competence and organisational structures are hindering the growth of research in many HEIs. Newer HEIs in particular suffer greater "disadvantage" but in some instances, the comparisons may be relative. Securing research funding and developing an investment strategy are now viewed as critical to the success of all HEIs. Funds are usually distributed via a resource allocation model, using performance indicators, to support research active faculty, niche fields, interdisciplinary or new fields of investigation, etc.

While research and scholarship is still grounded on the activity of individuals, it is less and less conceived of as an individual activity. A professional approach to research organisation and management via the appointment of a Vice Chancellor (or similar level post) to lead research and development, and establishment of a research office are now ubiquitous. Most HEIs are also actively developing strategies and policies to shift the locus of activity away from individuals working on their own and towards teams or clusters of researchers, focused on timely outcomes. Centres – within departments or semi-autonomous – are the central spine of the research infrastructure, facilitating large teams with entrepreneurial missions and promoting interdisciplinary projects with external partners. Given the critical role that research students play within the research enterprise, many HEIs are choosing to establish "graduate schools".

Demand conditions

Performance indicators, evaluation exercises and other international benchmarking activities are now used widely by HEIs to help improve quality by aligning research with international best-practice and influence priority setting. Competitive funding – whether from research councils, enterprise organisations, industry, etc. – acts as a Darwinian mechanism effectively placing a "value" on research. Traditionally, HEIs had research strength across many disciplines. Today, given the level of competition and limited resources, the perceived wisdom is that future success is a function of specialisation or niche areas in fields of advantage or competence, which are influenced by national priorities and "glocal" considerations. This approach is often matched by decisions to target financial and physical resources to the limited number of research priorities or subject groups, and research active faculty. In this way, HEIs are seeking to establish pockets of excellence which may have far-reaching effects on the rest of the institution. In addition, they are ensuring that HR policies are fully aligned, using recruitment and promotional opportunities to award and reward achievement and potential.

Regional and (inter)national relations

In an era characterised by globalisation and internationalisation, HEIs operate within and are determined by a complex socio-economic environment, which is increasingly more competitive and where the stakes are high. As Delanty (1998, p. 15) observes, "knowledge is increasingly being globalised – detached from its traditional reliance on the nation-state and its custodians, the intellectuals and university professors […]". Thus, an institution's ability to contribute to learning and "the reproduction of the knowledge of individuals or collective agents" depends on establishing a close interaction between science, research and development (Lundvall, 1992, p. 2). Collaboration with external partners and the regional/national economy is now essential to developing programmes and sustainable research. Many HEIs have established an industrial liaison or technology transfer office or knowledge transfer activities. Others have emphasised the broader importance of collaborative research networks or centres, especially with other academic and industrial partners. The implications of this debate are especially significant and potentially valuable for newer institutions, since many of them were established in areas – outside and inside urban conurbations – previously under-serviced by established universities and with a strong remit for partnership.

Institutional strategy

Many HEIs say that the key to success is to embed research into the culture of the institution. This means ensuring that research is seen to be a clear objective of the senior management team, and most importantly and prominently, the president or vice chancellor. But HEIs are comprised of what Boyer (1990, p. 27) called a "mosaic of talent"; in recognition, some HEIs are championing a "culture of scholarship" to recognise and reward a wider conceptualisation of research and academic work. This strategy calls for careful balancing between motivating, mentoring and facilitating research-active faculty, while also ensuring that teaching-focused faculty do not feel underprivileged or disadvantaged (Hazelkorn, 2003). There is a clear realisation here that neither all faculty nor all institutions will be research active to the same extent.

Experiences elsewhere and throughout the literature suggest a similar list of targeted actions. Zajkowski, and Dakin (1997) identify the importance of research leadership, tying performance to "employment status" via promotional opportunities, and establishing a critical mass to ensure the "dynamics of the research group". Geiger (1993, pp. 283-295) illustrates how both Georgia Institute of Technology and the University of Arizona, which had "operated in a milieu in which research was little understood or appreciated", were radically transformed by consciously exploiting competitive advantages, adopting the mantle of regional economic development, and having a flexible administration which was receptive to innovation. A UNESCO seminar on research management reached similar conclusions: focus on strategic planning, human resources training, international co-operation, expanding the teaching-research link, and increasing the social recognition of research (Gutiérrez, 1996). If there is a broad consensus around the list of key actions, why are some institutions more successful than others at growing research?

The role and influence of government[4]

Many HEIs across the OECD strongly believe that government policy favours established institutions, that the criteria and rules for research funding are antipathetic to new disciplines and new HEIs, and that government policy "deliberately encourages operational differentiation" (Clark, 1996, p. 22). Meek and O'Neill (1996, p. 74), and Price (1996, p. 244) observe that older universities resent granting "equality of esteem in mission" or sharing "research spoils" with newer HEIs. Likewise, Coaldrake and Stedman (1999, p. 21) suggest that efforts to reinforce or reintroduce a binary in HE systems in order to "concentrate research funding in research universities" can be interpreted as nothing less than government endorsement of a "self-interested claim". While national contexts and circumstances cannot be

ignored, there are sufficient similarities to suggest that experiences cross national boundaries and operate almost irrespective of political party in power. Experience strongly supports the view that difficulties impeding the growth of research at newer HEIs are not likely to be overcome by conventional means. In other words, without active and selective use of policy instruments, many HEIs will find it increasingly difficult if not impossible to overcome barriers to entry.

Ideally, new institutions need a less competitive and more co-operative environment, but this is unrealistic in today's world. Instead,

> "[…] the type of strategy most likely to achieve the best results would involve active and selective state policies to build up industries capable of overcoming barriers to entry" (O'Malley, 1989, p. 31).

This conclusion arises from the fact that the competitive advantages that older institutions have been built up over time are by now very great. Some institutions are better placed than others, due to the value society places on research, the means to identify and exploit exceptional and niche advantages, the ability to align competence with national/regional strategic goals, access to funding sources and the management of internal organisational and HR issues. Over time, close relationships have also developed between policymakers and dominant players. Thus, if governments genuinely desire to widen access to the knowledge society and achieve a greater contribution from higher education to economic and social development, more is required.

Tableau 2. **Government actions and policy instruments to encourage growth of research in late-developers**

Policy	Indicative actions
Widen access to the knowledge society	• Remove legislative and other constraints on operation and development of HEIs. • Target grants to enable new HEIs to meet 21st century mission obligations. • Increase capacity and competence at sub-national level. • Support linkages between HEIs and region/community and SMEs. • Establish investment fund as part of regional/spatial strategy.
Overcome late-development	Provide "head start" or "catch-up" grants to build infrastructure, *e.g.* laboratories and research libraries. • Target funding for staff development, mobility and HR strategies. • Support research training and flexible career development opportunities, particularly aimed at new researchers and women. • Strengthen institutional/research management and leadership capabilities.
Benchmark to support diversity	• Re-examine definitions of research and criteria/rules for competitive research. • Recognise and reward/fund improvements and potential in research. • Fund research according to wider metrics. • Head-start, differentiated and targeted funding, over reasonable growth periods, for new HEIs and disciplines.

Source: Hazelkorn, 2005.

Based on institutional experiences, the next section suggests some policy recommendations which could help underpin and build diverse HEI missions and promote teaching, research and service for the knowledge society. Actions are grouped under three policy objectives (Table 2): 1) Widen access to the knowledge society, 2) Overcome late-development, and 3) Benchmark to support diversity.

Widen access to the knowledge society

Across the OECD, governments are "responding to increased competition for shares of the global market" (Slaughter and Leslie, 1997, p. 54ff) by asking how higher education can be restructured to more effectively and efficiently be an economic driver. Many governments are responding by focusing research resources on a small number of elite universities or departments, and on a selected number of research themes. This approach is coming under criticism as evidence suggests that concentrating research capacity in a few centres could suck innovation out of the regions. The Lambert Review of Business-Industry Collaboration (2003, p. 6) warned:

> "[…] proximity matters when it comes to business-university collaboration. SME's in particular, find it difficult to work with research departments on the other side of the country. If resources are increasingly concentrated on a small number of world-class research departments, there is likely to be a negative impact on the level of business-university collaboration in the United Kingdom."

Other studies have also suggested that a significant event-horizon exists – the greatest knowledge and technology transfer occurs within 50 km. A study of the Swedish economy argued that access to/participation in the knowledge society is critically dependent on geographical proximity to research and knowledge expertise (Lindbeck *et al.,* 1994) while a report from the German Patent Office revealed that people who filed patents relied significantly on people within their immediate region as exemplars of "prior-art". The "Silicon Valley" is a prime example. Because higher education institutions (their staff – both academic and non-academic – students and graduates) are important generators of wealth, producers of new knowledge and new knowledge workers, and consumers of products and services, HEIs are major actors within a "learning region" or "creative economy" (see Florida, 2002). Thus, in order to widen access to knowledge and participation in the knowledge society, it is not irrational that all HEIs participate in knowledge production and dissemination. Yet, within the group of HEIs which participated in the OECD study, only Sweden and Denmark appear to be committed to the tradition of research-based teaching.

Governments need to unlock HE potential by removing legislative and other governance constraints which heretofore have impeded the ability and capacity of many universities to respond quickly to new opportunities. They also need to ensure policy moves beyond the 20th century binary between education and training, and reflect trans- and inter-disciplinary thinking. Consideration should be given to targeted "glocal" policies and initiatives that enhance and widen participation in the knowledge society as part of a nationally balanced socio-economic strategy. It should aim to encourage and support partnerships between the academy-industry-government-community, exchanging and co-generating knowledge and understanding, and enhancing innovation. Partnerships should build upon and link national and European innovation systems by embedding the various elements and relations of creating, preserving, transmitting and applying knowledge. Practical steps include the introduction of targeted funding or incentive programmes aimed at supporting the breadth of research endeavours, including university and business/community partnerships, regional or sub-national focused and inter-disciplinary projects, and collaboration with other institutions. Formulaic funding has met with mixed reviews because it is often seen as reinforcing existing vagaries of history and institutional status.

Overcome late-development

While all higher educational institutions face difficulties operating in the new global competitive environment, newer HEIs face particular challenges associated with late-development relative to more well-established or mature universities. These include: inadequate facilities and infrastructure, lack of research capacity and competence, employment and career issues, funding for new(er) disciplines, etc. These factors have contributed to an uneven playing field, especially in competition for research funding. Some governments offer targeted funds for newer institutions to "catch-up" but the timeline is usually too short and too little to overcome significant gaps. Government policies and initiatives need to cater for both issues through a significant investment strategy. In this respect, government must avoid simply mimicking the facilities and fiscal standards that have evolved for traditional institutions. Instead, it should encourage HEIs to become models for innovative facilities development, planning and partnership strategies, as well as benchmarks for accountability.

Benchmark to support diversity

Many HEIs believe they are being driven towards a single definition of university and research activity, which is dictated by the established universities and disciplines, by policy-makers' own experiences, and in response to single or narrow funding streams. As long ago as the 1960s,

Reisman (in Shattock, ed., 1996) suggested that insistence on a national standard enforced via funding mechanisms and the external examiner system, in countries such as the UK, had unwittingly created an almost monolithic concept of a university which has made it difficult to create alternative or diverse models. Today, evaluation systems provide useful benchmarks but they also act as "gate-keepers", restricting entry to new researchers, newer disciplines and new HEIs in general. Technology foresight studies act similarly, contributing to narrowing the fields of investigation, new ideas and new theories by continually weighing some "academic" outputs more highly, and/or skewing the HE research agenda in favour of the "specific short-term applied knowledge needs of research buyers".

This narrowing of research fields and players contradicts our understanding of how knowledge is produced and disseminated. It is now widely accepted that as knowledge-intensive institutions, HEIs play a significant role in the national innovation process and the wider global economy. Accordingly, calls for greater inter-action between the university and industry are now the centre-fold of government policy across the OECD and beyond. Current privileging of Mode 2 (Gibbons *et al.*, 1994, 2002) knowledge production arguably gives formal recognition to the intellectual and strategic importance of collaborative and interdisciplinary work focused on useful application, with external partners, including the wider community, pioneered by many newer HEIs. Together these arguments acknowledge that higher education's contribution to knowledge production goes beyond traditional interpretations of research, which is usually understood as expensive "basic" blue-sky discovery conducted in research-intensive universities.

Because the criteria for excellence/success in the new economy are not entirely clear yet, governments should consider adopting a variety of measures that will genuinely facilitate and support research and innovation and underpin diverse institutional missions. Benchmarking exercises should be updated to fully endorse the importance of (basic/applied) research, professional and creative practice, and knowledge and technology transfer activities, with appropriate funding. This means acknowledging that innovation also occurs in the humanities, social sciences and the arts. For example, one of Europe's major growth sectors is the cultural industries,[5] including design, but this field has been largely ignored by funding agencies. According to one participant in the aforementioned study:

> "[…] there is an immense amount of interesting and possibly important things to investigate, things that may be studied with scare equipment and current expenses budget…It would be very good for universities, *i.e.* for students and the quality of their education, that a system to fund non-expensive research was implemented at a large scale."

Critically, head-start, targeted and differentiated funding with reasonable time-lines are required for new HEIs and disciplines.

Unlocking potential

Increasing evidence shows that knowledge-intensive industries hold the key to economic growth, and inversely, "knowledge rich countries will grow faster than knowledge poor countries [...]" (Best, 2001, p. 5). Given the interconnectedness between new knowledge production and the global positioning of nations, growing research capacity and capability is now both an institutional and a national strategic issue. This research-intensive and competitive environment is putting all HEIs under the spotlight. Porter's diamond of competitive advantage illustrates the complex relationship between institutional mission and policy constraints. While there are various strategies and policies within the remit of institutions, these are nuanced by national circumstance, level of maturity, and the cultural and political *milieu* – including party-political and ideological perspectives. This has led to tensions between institutional mission and government policy, suggesting that in many instances what many HEIs want to do is not necessarily what government wants. Thus, many HEIs appear to be pursuing research by fair means or foul.

Many (newer) institutions were established to focus on local and regional needs, and develop and help "retain an *educated* manpower in the area". For some, their role was originally viewed as "teaching only" but with a specific commitment to relevant knowledge and applied learning. Some were allowed to undertake limited research activity, but often with an emphasis (only) on development and consultancy. Over time, and commensurate with the global significance of the knowledge society, the commitment to providing "economically useful skills with industrial relevance" and ensuring that "academic activities are aligned with the economic development of their region"has become inextricably bound to offering advanced qualifications and growing research capacity (Proposition 1).

According to Brennan, there are two dimensions to a research culture. One understands research as an *institutional* activity, conducted in order to maintain the intellectual rigour of the institution and its constituent academic units. The alternate sees research as part of a *national* research and development system, connected with issues of commercialisation, national social and economic benefit and competitiveness. Institutions which are able to connect the two activities are likely to operate increasingly at an international level of excellence. Its research activity will be sustained via the benefit of significant research funds. In contrast, those which focus primarily or only on the former are likely to continue to struggle to maintain even a

modicum of "effective research" (quoted in Turpin *et al.*, 1996, p. 28). For many HEIs, success has been achieved nationally and internationally by pioneering research and innovation in new (interdisciplinary) fields underpinned by developments in technology and in partnership with industry and the wider community. Indeed, it's highly questionable whether the types of partnerships and knowledge and technology transfer opportunities, which policymakers advocate, will or can emerge without the development of expertise via research (Propositions 2 and 3).

Many (new) HEIs face particular barriers to entry, which include infrastructural features such as their relatively poorer resource base and scale of production/activity. Many find policy and funding mechanisms unfavourable. While established providers share strong competitive advantages, late developers have the disadvantage of starting late into a congested marketplace. These barriers to entry are rising, widening the gap between research/knowledge rich and research/knowledge poor HEIs, and their students and faculty. While it's unrealistic to assume that every HEI or faculty member will be research active to the same extent, the identification of who *can* do research, who *should* do research, and *what kind* of research should they do is critical. If HEIs are to play a key role as engines/facilitators of development, it makes little sense to "keep research entirely out of vocational or undergraduate programs and to thereby confine half or more of postsecondary institutions to a posture of teaching only (Clark, 1995, p. 244)" (Proposition 4 and 5).

Over the years, "many HEIs, especially the older ones, have played, and still play, a critical role in the process of nation-building and the formation of a national identity" (OECD, 1999, p. 25). Florida (2002, pp. 290-293) argues that HEIs play three interrelated roles, being centres of cutting-edge research, talent attractors and helping to create a progressive, open and tolerant environment. While an HEI plays a pivotal role, it must interact with a community which has the "capacity to absorb and exploit the innovation and technologies" it generates. Rather than seeking to concentrate resources within a few institutions, greater consideration needs to be given to incorporating higher education development within an overall spatial strategy. If governments genuinely wish to encourage balanced national social and economic development appropriate to the 21st century, positive policy intervention is required (Proposition 6).

In conclusion, HEIs sit in the midst of a complex set of relationships, whose destiny is relative to changing circumstances not all of which are in their control. Government strategy and policies can both help and hinder their performance. As one participant observes:

> "Government strategies both help and hinder with the greatest significance. They help because the budget of universities is determined

to a fair extent by the competitive research performance. They hinder because the government sees us as a new university and does not encourage us to do too much research (which indirectly affects our funding)."

"Institutional recognition has also helped and hindered at the same time. Our university is recognised by industry as the most accessible university and therefore most of the research funds from industry come to us. The Government is aware of this, therefore they do not give us enough research budget, thinking that we get most of what we need from industry."

Porter's diamond illustrates the potential for a logjam when the various elements are not "mutual reinforcing". It also suggests that policy options are critical, and institutional performance cannot simply be explained by the market failure framework. Hence, allowing HEIs to engage in research and compete for funding without providing newer institutions with the resources to achieve them means they are in effect competing in a game they cannot win. In this context, the policy effect (or purpose) has been two fold: 1) to reinforce or re-introduce a binary between institutions; and 2) to privilege traditional definitions of research and ignore the implications of new knowledge production. Depending upon the answers to the questions of whether world-class research happens only in world-class universities and whether world-class experts can be found only in world-class universities, serious challenges are posed for both HEIs and government.

The author:

Dr. Ellen Hazelkorn
Faculty of Applied Arts
Dublin Institute of Technology
Rathmines Road
6 Dublin
Ireland

E-mail: *Ellen.Hazelkorn@dit.ie*

Notes

1. I am grateful to Merle Jacob for this term.
2. Quotations which are unreferenced are from participant HEI responses; anonymity has been preserved as requested.
3. The word "glocal" is adapted from the environmental movement's slogan: think global – act local.
4. I am grateful to Katy Bindon and Noel Lindsay for various comments.

5. Today, these industries – as identified in EU's *Interreg*, *IST* and *Culture 2000* programmes – are among Europe's major wealth creators and sources of employment. Recent studies show that 7.2 m workers or 4.6% of total EU employment are engaged in the production of cultural products and services. See *Exploitation and development of the job potential in the cultural sector in the age of digitalisation*. EC: DG Employment and Social Affairs, 2001; Office for London (1999) *Creative Energy,* Government, London; UK Government (1999) *Creative Industries – a mapping document for the Creative Industry*. London. See also Brown, 2004, p. 16: "Reports for the Greater London Authority note that the creative industries sector is the third largest employer in London, the second biggest source of jobs; it has added £21billion annually to London's output and has grown much faster than other industries". See also Florida, 2002, especially pp. 44-66.

References

Best, M. H. (2001), *The New Competitive Advantage. The Renewal of American Industry*, Oxford University Press, Oxford.

Boyer, E. L. (1990), *Scholarship Reconsidered. Priorities of the Professoriate,* Carnegie Foundation for the Advancement of Teaching, New York.

Brown, R. (2004), "Why I believe Lambert is out of touch with modern industry", *Times Higher Educational Supplement*, June 4. p. 16.

Clark, B. (1995), *Places of Inquiry. Research and Advanced Education in Modern Universities*, University of California Press, Berkeley.

Clark, B. R. (1996), "Diversification of Higher Education: Viability and Change" in V. L. Meek, L. Goedegebuure, O. Kivinen and R. Rinne (eds), *The Mockers and Mocked: Comparative Perspective on Differentiation, Convergence and Diversity in Higher Education*, IAU Press/Elsevier Science, London.

Coaldrake, P. and L. Stedman (1999), *Academic Work in the Twenty-first Century*, Higher Education Division, DETYA, Australia. *www.detya.gov.au/highered/pubgen/pubsauthor.htm*.

Curran, P. J. (2000), "Competition in UK Higher Education: Competitive Advantage in the Research Assessment Exercise and Porter's Diamond Model", *Higher Education Quarterly*, Vol. 54, No. 4, pp. 386-410.

Delanty, G. (1998), "The idea of the university in the global era: from knowledge as an end to the end of knowledge?"*Social Epistemology*, Vol. 12, No. 1, pp. 3-25.

Florida, R. (2002), *The Rise of the Creative Class*, Basic Books, New York.

Geiger, R. L. (1993), *Research and Relevant Knowledge. American Research Universities Since World War II*, Oxford University Press, NY and Oxford.

Gibbons, M. (2002), "Excellence in Higher Education: a niche for the new universities", paper given to the New Generation Universities conference, Sydney, Australia, June.

Gibbons, M., C. Limoges, H. Nowotny, S. Schwartzman, P. Scott and M. Trow (1994), *The New Production of Knowledge*, Sage London.

Guttiérrez, J. (1996), "The 1994 Columbus Seminar on Research Management" in M. Carpenter (ed.), *The Management of Research in HEIs*, Cre-Columbus-UNESCO, Paris, pp. 15-23.

Hazelkorn, E. (2003), "Growth Strategies and Intellectual Capital Formation in New and Emerging HEIs" in S. Kwiatkowski and J. Sadlak (eds), *Knowledge café for Intellectual Entrepreneurship through Higher Education,* UNESCO European Centre for Higher Education (UNESCO-CEPES)/Léon Kozminski Academy of Entrepreneurship and Management, Warsaw.

Hazelkorn, E. (2004), "Growing Research – Challenges for Late developers and Newcomers", *Higher Education Management and Policy*, OECD, Vol. 16, No. 1, pp. 119-138.

Hazelkorn, E. (2005), *Trends in Research Management – Developing Researchin New Institutions*, OECD, Paris, forthcoming.

King, B. (2002), "Two sides of one coin", *Times Higher Educational Supplement*, 13 December.

Lambert Review of Business-University Collaboration (2003), "Executive Summary", HMSO, London, United Kingdom.

Lindbeck, A., P. Molander, T. Persson, O. Petersson, A. Sandmo, B. Swedenborg and N. Thygesen (1994), *Turning Sweden Around*, Cambridge, MIT Press, Cambridge.

Lundvall, B Å (1992), "Introduction" in B Å Lundvall (ed.) *National Systems of Innovation. Towards a Theory of Innovation and Interactive Learning*, London, Pinter, p. 2.

Meek, V. L. and A. O'Neill (1996), "*Diversity and Differentiation in the Australian Unified National System of Higher Education*" in L. Meek *et al., op. cit.*

OECD (1999), *The Response of Higher Educational Institutions to Regional Needs*, Paris.

O'Malley, E. (1989), *Industry and Economic Development. The Challenge for the Latecomer, Gill and Macmillan*, Dublin.

Porter, M. E. (1990), *The Competitive Advantage of Nations*, MacMillan, London.

Price, C. (1996), "Elegant and Democratic Values: How will the new English Universities Gel?" in M. Shattock (ed.), *The Creation of a University System, Blackwell Publishers*, Oxford, pp. 240-259.

Reisman, D. (1996), "Notes on New Universities: British and American" in M. Shattock, (ed.), *op. cit.*, pp. 142-159.

Schimank, U. and M. Winnes (2000), "Beyond Humbolt? The relationship between teaching and research in European university systems", *Science and Public Policy*, Vol. 27, No. 6, pp. 397-408.

Slaughter, S. and L. Leslie (1997), *Academic Capitalism. Politics, Policies and the Entrepreneurial University*, Johns Hopkins Press, Baltimore.

Turpin, T., S. Garrett Jones, N. Rankin and D. Aylward (1996), *Patterns of Research Activity in Australian Universities*, Commissioned Report No. 47. National Board for Employment, Education and Training. Australian Research Council. Australian Government Publishing Service, *www.arc.gov.au/publications/arc_pubs/96_26.pdf*.

Zajkowski, M. E. and S. R. Dakin (1997), "Leadership in the University Research Centre: Two Australian Cases", *Journal of Institutional Research in Australia*, Vol. 6, No. 2, pp. 1-2.

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

Reorganising the Teaching-research Tension

by

Anne-Marie de Jonghe
University of Southampton, United Kingdom
and The Concord Group, Belgium

In this paper we examine the tensions resulting from the transformation processes going on in research and teaching, typical at traditional universities that have been actively developing their research mission. We will also look at universities that only recently decided to focus on research and wonder if they will be able to better manage or even avoid such tensions.

More specifically, we will reflect on the possibility of unbundling the teaching and research missions and the resulting tasks of professors. A growing number of newcomers in higher education are taking up parts of the activities of traditional universities. How will they develop? What are the possible answers from traditional players? In addressing these questions, we will look at the value chain for each of the activities and see if and how reconfiguration can provide the answer.

The analysis will enhance our understanding and provide inspiration for new management approaches. In traditional institutions, unbundling seems to have started at the structural level but support systems are lacking and at the individual level academics are still expected to engage in research and teaching besides many other tasks, such as administration and service to the community at large.

We will discuss these issues in the context of the broader literature on the topic and draw conclusions that should be relevant for everyone in the higher education sector involved in managing tensions between research and teaching.

Introduction

New conceptions of research and teaching together with new demands based upon market requirements are leading to transformation processes in many academic organisations. The meaning of "research" is no longer clear. Research now often comes in various types (mode 1 and mode 2). As a consequence of new cognitive theories in the psychology of education concerning student experiences with their learning processes, and not only because of consumer demand, teaching is being replaced by a focus on learning, Research is being criticised because the learning needs of society are being neglected.

Many of these changes imply organisational transformation processes in order to deal with these increasing and changing tensions between research and teaching. In this article we focus on these tensions and point to some potential avenues for managing them better than has traditionally been the case at many established research universities, resulting in unclear rules and disappointed academics. One way of trying to resolve the tension has been by promoting the unity of research and teaching, but this does not necessarily result in student-centred learning, a demand often expressed towards traditional academic institutions. Student-centred learning usually implies a different role for professors, encouraging them to support and coach students in their own learning process and requiring active participation from both teachers and students, in contrast to traditional lecturing or teaching, which often starts from a rather teacher-centred approach.

In what follows, we briefly discuss the ongoing debate between advocates and opponents of the unity of research and teaching. We also compare the experiences of a traditional research university defending this unity with a newcomer institution combining a student-centred learning approach with a research focus. We present the arguments leading to the separation of academic activities. Before concluding we discuss some managerial approaches to managing contradictions and tensions.

Is it essential to conduct research if a commitment to student-focused learning exists?

Many attempts have been made to link teaching and research. In the USA, in an important 1996 policy statement, the National Science Board put forth the argument that the integration of research and teaching at all levels would

promote public support for science and engineering (Duderstadt, 2000). Higher education has always tried to link these two fields but at the government level, in Europe as well, it is often the case that two different departments or ministries are in charge of education and research.

Hereafter we briefly summarise the debate about the research-teaching link, which shows how complex it is to reconcile the two.

The ongoing debate

Many traditional research universities still embrace the concept of research-based teaching. Is this a real answer to the tension or is it a nice slogan to fence off criticism concerning the neglect of teaching in research-driven institutions? What does this mean for teaching-only institutions or institutions which are attempting to do research but receive less funding when research funding is intended to be concentrated in centres of excellence?

Hughes (2003) points out that *the relationship between research and teaching* has been taken for granted by many universities. However, the Humboldtian link between research and teaching has been seriously questioned. Research challenging the link (Feldman, 1987; Hattie and Marsh, 1996) and showing that there is little if any relationship between research productivity and teaching excellence, has led to a fierce defence with requests for the link to be constructed and planned for (Boyer Commission, 1999; Healey and Jenkins, 2002, Jenkins *et al.*, 2003).

From a recent literature review Hughes (2003) concluded that anticipated and empirical evidence to support the existence of a research and teaching relationship did not exist. He concludes that the relationship is based on a myth (misinterpretation of available evidence, mystification of the debate and mischief of the protagonists). In one of his latest works, Barnett (2003) states that the strategy of linking the two is flawed; it neglects substantial differences between the two activities; it fails to see the ideological character of the relationship; it overlooks the fact that research and teaching are not unitary activities across universities but different across disciplines.

Robertson and Bond (2001, 2003) state that what is missing in this debate is knowledge of the *experience of academics* concerning this link. They point out that more insight into how academics see this relationship and act on it in practice will reveal the complexity and the variation in that experience. His case study of 25 academics at the University of Canterbury (New Zealand) shows that the academic epistemological beliefs are critical to understanding the link. For him universities consist of different communities of inquiry, in which the relationship between research and teaching varies. This also means that student learning varies according to the different disciplines.

It is often said that research has a negative *impact on student learning*. However Duderstadt (2000) states that there will be no negative impact if an emphasis on research exists in an institution. He is also in favour of involving undergraduates more in research. According to Nybom (2003), Humboldt was rather thinking of graduate education when he talked about the link.

The study of *student experiences* has been somewhat neglected (Murphy *et al.*, 2003). Light (2001) indicates in his book *Making the most of College. Students speak their minds* that most students pointed to activities outside the classroom as the most valuable (jobs, internships, extra-curricular activities, independent study projects, writing projects, small classes and seminars). Some research has been done on developing research-based courses for undergraduates and postgraduate students and on how the learning experience of students increases if they are taught by research – active staff (Brew, 2001).

From this debate we learn that one way of solving this tension is by defending the unity of research and teaching at the institutional level, but that often makes the problem worse. Imposed links between research and teaching do not solve the impossibility of carrying out both activities without sufficient support. Research and teaching are different disciplines with different qualities and characteristics, requiring specific competences. There are differences among the scientific disciplines and even among academics in the same discipline in their approach to this unity; one model for all does not exist. The needs of undergraduates and postgraduates are different and require adapted approaches towards learning (to enter the labour market or to specialise further in a field?) and research (labour market or academia?).

In this discussion the old concepts of teaching and learning what is academically useful for one's research is mixed up with new insights on learning (not only for research purposes) from the point of view of the student.

A practical experience: comparing a newcomer institution focusing on student-centred adult learning with a traditional university moving into self-guided undergraduate learning

Comparison between a research-based teaching model such as the one at the old (founded in 1425) *Katholieke Universiteit Leuven*-KUL in Belgium, member of the leading research universities (LERU) and a student-focused learning model such as the one at a new institution (less than 10 years old) such as the *Universitat Oberta de Catalunya*-UOC in Spain, a public distance e-based university, shows that the former still operates in a professor-centred environment. In the KUL concept of "guided independent learning" (GIL) students are treated as self-regulated adult learners. "Researchers have to introduce the students to their disciplines and create an environment that supports the student to become member of the discipline-specific intellectual community" (Elen, 2003).

However, the professors who would like to adapt their teaching according to the new canon are left mostly without support. Academics have to deal with multiple tasks and demands and feel overwhelmed. In traditional universities support systems are not organised to deliver teaching services to students. Where is the guidance? It is interesting to see that the literal translation of the Dutch concept is "accompanied self study". However, students are left mostly on their own, sometimes dealing not only with traditional tasks but also with extra tasks and often a technology platform which gives them more information than they can handle.

According to Elen (2003) the following factors impede the embedding of the GIL concept in the university culture: lack of effective educational structures; conflicts of interest, which make it impossible to implement the strategy with sufficient financial means for support systems; and specific ideas of what the role of a professor is. Besides the support issue, most professors live in a context where published research is more and more emphasized and therefore they are concerned about this since it is rewarded through funding and through the promotion system.

Our research on the tension zone between research and teaching and our analysis of the pedagogical model of UOC (student learning comes first) make us seriously doubt that the so-called lack of scientific status of the GIL concept, as Elen (2003) indicates, is an important element that prevents the concept from taking off. It is clear that without elaborating a faculty-specific, programme-specific and discipline-specific concept of GIL and without a clear idea about their own role, (because of a confusing mission) individual faculty members cannot take ownership of the concept.

At UOC there is a focus on student learning for which a specific process has been adopted and which replaces the dominant and even exclusive focus of traditional universities on a professor-centred teaching process. Professors at UOC have a management role. They are responsible for designing the course and are in contact with external experts in the field who can provide course material. External tutors and consultants are in close contact with the students.

The model for delivering learning services to students seems to be excellent. However UOC is also stimulating and managing research through its Internet Interdisciplinary Institute (IN3). Why does a newcomer with an excellent model for learning services also want to do research? Can the same organisation do this? How will it do it? Will a newcomer such as UOC also be able to develop a specific model for its research? Or will it end up with the typical problems traditional universities encounter when trying to juggle the demands of research and teaching?

At the institutional level, unbundling of activities seems to be organised at UOC. The organisation of delivering learning services and the organisation

of research activities through the IN3 institute are separate entities within this network organisation.

In 1998, IN3 was created as the research institute of UOC. IN3 focuses on the study of information and communication technologies (ICTs) and their development (especially Internet), and the use of these ICTs by persons and organisations, in order to understand the economic, social and political transformation they bring about. So right from the start, UOC has decided to focus its research specifically on the information society, hoping to one day have a worldwide impact on knowledge society research. In the 2001-2004-contract program, UOC aimed to expand these IN3 activities and to ensure its competitiveness, as measured by the number of publications in scientific sources in a certain year. Furthermore, the UOC hoped to increase the participation of the internal professors in this matter.

At first, this invitation was widely applauded by many professors. Some simply missed doing research; others were worried about losing the esteem of their peers. In any case, a majority of the professors volunteered to take on research activities for IN3.

However, after a while some internal professors started to feel that this initiative had merely increased the pressure and their workload and had caused a lot of confusion about how to organise their work weeks, as the "managerial" profile required to be a successful professor at UOC differed completely from the characteristics that a successful researcher needed to possess. The manager/researcher combination turned out to be quite tougher than many professors had thought.

UOC was confronted with the challenge of finding the appropriate model for its functioning and of finding the right balance between traditional research values and a more managerial view of the work of an academic. It experimented with different approaches to this problem. It reflected upon and looked for ways to improve the organisation of its research.

The focus on multi-disciplinary research on the information society, ICTs and their implication for society is in itself already a different research model.

Another aspect of this model is that research is not always carried out by the same persons as the ones in charge of organising student learning. UOC does not require professors to participate in IN3 projects. Research is voluntary. Some professors may have difficulties with the way in which the research objective is being implemented, but they do not question that research has to be carried out. Academics in charge of student learning need to make arrangements for their managerial work if they want to carry out research. Today, Professors at UOC have a personal development plan in which personal research has its place. Researchers from outside are attracted to work exclusively in the research branch of the IN3 Institute.

From the UOC example we learn that a professor in charge of putting the learning materials together has to know the research and the (external) researchers/experts in the field but it is clear that he/she does not have to carry out research in order to provide adapted learning material.

It is also clear that the experience of putting together the learning materials gives rise to discussions with experts and can have an influence on this research or the way it is represented, a process we can call teaching-led research. At UOC, the researcher/expert gets help from the professor/manager instead of seeking it out himself.

The decision to engage in research depends on the way s academics within the institution sees their role. For student learning and for the delivery of learning services it is not essential. However this does not mean that the materials should not contain researched issues. It can never be the goal of teaching to deliver cookbook recipes.

What researchers or traditional teachers should understand is that many students are not going to be researchers and that the learning process provoked in the student should be much more important than presenting the discipline in a scholarly way. The question a researcher/teacher who has difficulties with switching to the new mode in teaching should ask is: what does a student need to understand and analyse critically in my discipline that can be useful for his functioning in society?

Hereafter we argue that whatever the outcome of the debate, the processes of teaching and research will have to be organised in a different way. Academic work and responsibilities will have to be broken down into separate activities, and primarily carried out by different individuals or groups.

Unbundling

Separating academic activities makes it possible to organise academic processes in a different way. Hereafter we indicate some of the main forces and implications of unbundling.

Forces leading to unbundling

Based on our analysis, our experience in working with traditional and not so traditional organisations, we would like to point out that whatever the conclusion of the debate may be concerning the existence or absence of a link between research, teaching and learning, the following forces will lead to the separation of the different activities at traditional universities.

Complexity

Plurality of missions is one of the examples of complexity of traditional research universities: teaching, research and service to society. Universities are

carrying out several types of research: basic, applied, mode 2, government funded, contract based, etc. Teaching not only involves young students but also more mature students, professionals, virtual students, etc. The complex processes involved in carrying out all these tasks cannot be integrated within one organisation or by one person with the current means. Processes of teaching and research have to be broken down and organised in a less archaic way.

Cost

Innovative responses will have to be developed in order to avoid a decline in the quality of faculty work-life and student learning (Marcy and Lieberman, 2003).

To implement both research and teaching strategies conforming to quality standards will be too costly for most traditional places. It would require a reconfiguration not only of the faculty and department roles but also of the resources and support services, and this is a major hurdle for most traditional (and less traditional) institutions.

Technology (ICT)

ICT is part of the cost issue, requiring investments in systems, materials and people. ICT for research and ICT for teaching are different; they require different skills. If committed teachers in traditional institutions do not benefit from a better support system they will not be able to change their traditional role and meet the demands of different teaching methods. It will be difficult to ask individuals to do both research and teaching according to continually increasing standards.

Even *within* one area, *e.g.* teaching, it may be appropriate to consider separating activities, as described elsewhere (*e.g.* de Jonghe, 2003; de Jonghe *et al.*, 2003). In an article in which he describes the alternative developments in higher learning in the twenty-first century, Heydinger (1997, in Peterson, Dill, Mets and Associates) mentions eight steps for redesigning higher education institutions proposed by The Public Strategies Group, Inc. One of the steps, seen as the most radical and difficult, is the organisational separation between provider and producer. Providers are responsible for ensuring that education is delivered. Producers are developing the content and delivering the service. He points out that in today's educational systems the boards or similar governing entities are responsible for both producing and providing the service. If we take this further we even see the splitting up of tasks of the individuals involved in the implementation, which consists in producing the content, developing and delivering the service.

Unbundling at university level or at the individual level?

At the institutional level unbundling has already been taking place in traditional universities. Structures for research and teaching have often been set

up separately. In some universities, departments are responsible for research, while teaching committees/commissions are responsible for teaching matters.

But at the individual level professors in traditional institutions are still mostly supposed to deliver both research and teaching (not to mention administrative duties and service to society) sometimes in the same time period, which is particularly burdensome in the disciplines where little or no teamwork exists. Thus the tension is felt at the level of the individual faculty who are supposed to function in these dual roles and structures. In fact, if the role and expectations of professors are not clearly identified, a change in structure may actually increase rather than alleviate the already very strong pressures and tensions.

Is it essential that the same structure provides and delivers both research and teaching and that individuals, especially for what teaching is concerned, are responsible for the whole production process and the delivery of the teaching/learning service?

Implications of unbundling

Strategy

Unbundling implies that *at the institutional level* the relationship between research and teaching has to be redefined and reorganised. This implies that if this reorganisation is not possible, institutions have to make choices and may have to adapt their mission. The implications of unbundling will require skilful management to maintain a delicate balance between organisational coherence and letting entrepreneurial initiatives blossom; and also skills in managing contradictions. A mix of cooperation and competition within the organisation will be the consequence of academics performing diverging tasks.

Organisation

How should the unbundling be organised without loosing *organisational coherence*? First universities should decide which product they want to deliver on what market. After this decision has been taken the *internal* organisation should be adapted in order to be able to implement the chosen strategy. For instance in the case of a specific teaching strategy for executives, the support services should be organised in such a way as to be able to provide the necessary support to directors of the program and teachers. It would be necessary to look into business examples of analysis of the value chain and of reorganisation or setup of support services.

It could be that for specific parts of the chain *separate companies* have to be set up. After all this is not new to universities. Why should only technology transfer benefit from peripheral structures at traditional universities?

Technology centres have already been in existence for a while at the periphery of universities.

Network *organisations* could also provide a solution. They could provide the support that is missing. Spin-offs are one part of a network usually involved in technology for society. Other initiatives could be set up around other needs of the university itself. Clarks' (1998) developmental periphery could develop further into a network organisation. This would avoid the extreme connotations of "unbundling" and "bundling in".

What does the network economy mean for university management? UOC uses a network of companies in support of its teaching mission (de Jonghe *et al.*, 2003). Its research is part of an international research network, which grows around the focus on the information society from different disciplinary points of view. It seems that virtual research networks or other networks are able to strengthen organisational coherence.

People

In universities, research and teaching have become "life-constitutive projects". Each project is taken on with such a commitment that for those actors, it becomes a significant part of life itself. It plays a part in constructing their being (Barnett, 2003).

For individuals, a redefinition of academic work has to take place as well as a new division of labour. Choices also have to be made; it is no longer possible to be everything to everybody. This is particularly hard for traditional comprehensive research universities. The value chain of teaching and research should be analysed. Mann (2003, in Eggins *et al.)* states that a value-based approach should be taken towards the work of an academic. This implies that the academic has clarified his own values, ethics and purposes. Academic freedom means free choice for academics: how do they see their academic identity? Where do they feel they can contribute?

In general *a difference* in attitude towards research and teaching *between disciplines and between individuals in disciplines,* has to be considered. Different kinds of research exist, and different approaches to each are appropriate. In certain disciplines, such as the business and management discipline, where the tension between its status as an applied field and its status as an academic discipline is causing many problems, the debate will be particularly difficult. Harrington and Booth (2003) report from an empirical study carried out in 2001/2002 on research and teaching issues related to undergraduate business research methods courses at several UK universities that the tension, the conflict and lack of consensus revolving around questions of teaching and research are a significant barrier and even a threat to effective teaching,

learning and research. Engwall (2003) suggests that management studies are addressing the needs of the "Mode 2" society.

The tension is not so much between research and teaching but in the attitude or lack of respect for the challenges, the difficulties and the contradictions, which the different activities are experiencing. Respect for intellectual achievements in their context should be the rule. This means a strategy of academic difference (Barnett, 2003); not one against the other but different models, assessments, etc. A change in attitude will be necessary. Would it help to create non-disciplinary intellectual structures or to deliver interdisciplinary teaching in teams (Duderstadt, 2000)?

Human resource management has to grow. Above all, attention to the individual academic should be concretised by a human resource management system that can handle professionals rather than a promotion system. This includes adapted assessment systems with accountability systems for every task and not flawed measurement systems; and reward systems, for all intellectual achievement.

Towards novel management approaches facing the tensions and contradictions

University has always been synonymous with diversity and contradictions. It is necessary for leaders to be able to handle contradictions, to use tensions in a constructive way and not fall in power traps at the top, and to stay sufficiently involved in order to influence decentralised parts.

If we examine the list of twenty-seven complexity issues in universities mentioned by Barnett (2003), we have to conclude that many other organisations have to deal with similar forms of complexity. Many organisations have to learn how to manage contradictions. In the management literature, there has been extensive and growing attention to the issue of the management of dualities or tensions along a number of dimensions, especially in the field of internationalisation, cross-cultural management, organisational behaviour, leadership and human resources management as well as strategy and marketing [see *e.g.* Bartlet and Ghoshal, 1989, 1997; Trompenaars, 1993. Evans, Pucik and Barsoux (2002), among many others, explicitly treat "HRM as Tension Management"].

We may even compare a professor with a manager stuck in the middle between his geographical boss, his segment boss and his product boss. The literature and the experience on the organisation matrix show that this type of organisation has a rather limited success. Usually it is used in a period of transition to another type of organisation. It *can* be made to work if the tensions it brings about are managed in a positive way. However, it rarely if ever works in and of itself, without careful and at times difficult and

cumbersome management efforts. Those rather common concepts and experiences from business have not been tried in many universities.

Conclusion

Are we going back to the "multiversity" concept developed by Clark Kerr (1963), the architect of the modernised research university in an environment of massification, to define the modern university? It was a controversial vision to many at that time. But it catches the idea of diversity and contradictions of the modern university.

Further study of the management and organisation of dualities in universities is warranted, requiring reconciliation and/or dynamic balancing in order to achieve organisational effectiveness. The tension issue needs to be studied further with close attention to its destructive or constructive potential and to the above-mentioned implications of unbundling, that is redefinition at the institutional level, and at the individual level, acceptance of differences between disciplines and between individuals in disciplines and managing contradictions without loosing organisational coherence in new setups such as the network organisation. In so doing, instead of generating dysfunctional behaviour, a novel management approach could lead to innovation and constructive organisational development.

The author:

Anne-Marie de Jonghe
University of Southampton
Centre for Higher Education Management and Policy at Southampton (CHEMPaS)

also

The Concord Group
Kardinaal Mercierlaan 97
3001 Leuven
Belgium

E-mail: anne-marie.dejonghe@skynet.be.

References

Barnett, R. (2003), *Beyond all reason: living with ideology in the university*, SRHE and Open University Press, Buckingham, United Kingdom, Philadelphia, Unites States.

Bartlett, C. and S. Ghoshal (1989), *Managing across Borders: The Transnational Solution*, HBS Press, Boston.

Bartlett, C. and S. Ghoshal (1997), *The Individualised Corporation*, Heinemann, London.

Boyer, E. L. (1990), *Scholarship reconsidered: Priorities of the Professiorate*, The Carnegie Foundation for the advancement of teaching, Jossey-Boss.

Brew, A. (2001), *The nature of research: inquiry in academic contexts*, Routledge, London.

Clark, B. (1998), *Creating entrepreneurial universities: Organisational Pathways of Transformation*, IAU Press/Elsevier Science LTD, London.

De Boer, H., J. Huisman, A. Klemperer, B. van der Meulen, G. Neave, H. Theisens and M. van der Wende (2002), *Academia in the 21st Century. An analysis of trends and perspectives in higher education and research*, Adviesraad voor het Wetenschaps- en Technologiebeleid (AWT), Den Haag. *www.utwente.nl/cheps/publications/* (19 August 2003).

De Jonghe, A.-M., S. Dutta, E. Van Poeck and P. Verdin (2003), "Universitat Oberta de Catalunya, A University without distance", *INSEAD Case Study*, Fontainebleau, France.

De Jonghe, A.-M. (2003), UOC (Universitat Oberta de Catalunya), "A Case of Dramatic Change: Leapfrogging Traditional Universities", November 2003, *working paper*, University of Bath, School of Management (DBA in Higher Educational Management), Bath, UK.

Duderstadt, J. J. (2000), *A university for the 21st Century*, University of Michigan Press, Michigan.

Elen, J. (2003), "Reality of excellence in education: the case of guided independent learning at the Katholieke Universiteit Leuven" in E. de Corte (ed.) *Excellence in higher education: proceedings from a symposium held at the Wenner-Gren Center*, Stockholm, 31 May and 1 June 2002, Wenner- Gren international series 82, Portland London.

Engwall, L. (2003), "Excellence in management education" in E. de Corte (ed.), *op. cit.*

Evans P., V. Pucik and J.-L. Barsoux (2002), *The Global Challenge. Frameworks for International Human Resource Management*, McGraw-Hill.

Feldman, K.A. (1987), "Research productivity and scholarly accomplishment of collegues related to their instructional effectiveness; a review and exploration" in *Research in Higher Education (3)*, pp. 227-298.

Harrinton J. and C. Booth (2003), "Rigour *versus* relevance, research *versus* teaching: evidence from business and management studies", Abstract of unpublished paper presented at the Society for Research in Higher Education (SRHE) Conference on "Research, Scholarship and Teaching: Changing Relationships?" Royal Holloway, University of London, 16-18 December 2003.

Hattie, J. and H.W. Marsh (1996), "The relationship between research and teaching. A meta-analysis", in *Review of Educational Research*, Vol. 66, No. 4, pp. 507-542 Winter.

Healey, M. and A. Jenkins (2003), "Educational Development through the disciplines" in Macdonald R. and H. Eggins (eds.), *The scholarship of academic development*, Open University Press and SRHE.

Heydinger, R. B. (1997), "Principles for designing institutions" in M. W. Peterson, D.D. Dill, L.A. Mets and associates, *Planning and management for a changing environment,* Jossey-Bass, San Francisco.

Hughes, M. (2003), "The mythology of Research and Teaching relationships in higher education", Abstract of unpublished paper presented at SRHE conference cited.

Jenkins, A. R. Breen and R. Lindsay R. (2003), *Reshaping teaching in higher education: linking teaching and research*, Kogan Page with the Staff and Educational Development Association, London.

Kerr, C. (1963, 1982), *The uses of the university,* Harvard University Press, Cambridge, Mass.

Light, R.J. (2001), *Making the most of College. Students speak their minds*, Harvard University Press, Cambridge, MA.

Mann, S. (2003), Chapter in H. Eggins and R. Macdonald (eds.), *The scholarship of academic development*, SRHE.

Marcy, M.B. and D. Lieberman D. (2003), "Report from the project on the future of higher education: teaching, learning and faculty work in a climate of restricted resources", abstract of unpublished paper presented at SRHE conference cited.

Murphy R., G. Joyes, R. Scott and J. Goode (2003), "Students' experiences of learning and teaching in HE: extending the evidence-base", Abstract of unpublished paper presented at SRHE conference cited.

Nybom, T. (2003), "The von Humboldt legacy and the contemporary European university", in E. De Corte (ed.), *op. cit.*

Paulson, K. (2000), "Reconfiguring faculty roles for virtual settings", *Journal of Higher Education*73 (1°), pp. 23-140.

Robertson, J. and C.H. Bond (2001), "Experiences of the Relation between Teaching and Research: what do academics value?", in *Higher Education Research and Development*, 20 (1°), pp. 5-19.

Robertson, J. and C.H. Bond (2003), "The Research/Teaching relation: variation in communities of inquiry", Abstract of unpublished paper presented at SRHE conference cited.

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

Political Instruments Employed by Governments to Enhance University Research and Knowledge Transfer Capacity

by

Grant Harman
University of New England, Australia

Governments of developed nations use a variety of policy instruments to enhance university research and knowledge transfer capabilities. These include advocacy, persuasion and information; consultation and committees of enquiry; creation of major research centres and commercialisation agencies, and investment in research infrastructure; grants, subsidies and other financial incentives; and legislation and regulation. Comparatively little is known, however, about which instruments work best and in what situations, and why some instruments are chosen over others. Little also is known about who the main beneficiaries are of different programs and to what extent program proliferation, often with numerous different agencies involved, leads to duplication and inefficiencies, and works against national R&D priority-setting efforts.

Introduction

This article explores cross-nationally the policy instruments employed by governments of developed nations to enhance university research and knowledge transfer capabilities. Governments and universities are actively experimenting with an increasingly diverse range of policy instruments to support university research, especially in high priorities areas, and more effectively capture the benefits of knowledge creation and application to support economic and social development. These efforts are being driven primarily by the desire of governments to enhance international economic competitiveness and the quality of life of their populations. Universities, on the other hand, are attracted to expanding income streams but more commonly they are driven as much by the desire to more directly serve their societies and so generate political support for ongoing public investment in research (Goldfarb *et al.,* 2003; Geuna, 1999).

Comparatively little, however, is known about which policy instruments work best and in what situations, what contextual and policy factors impact on implementation, and why Ministers and government officials choose some instruments over others. Information is lacking on relative costs *versus* benefits of different efforts, about the extent to which current government programs are meeting their intended purposes, and whether or not an apparent duplication in programs and agencies is detrimental to efficiency. Relatively little detailed analysis is available about who are the main beneficiaries of government support and regulatory mechanisms, while there are important issues about the relative merits of government action *versus* initiatives by universities, academic researchers and firms.

Governments, university research and knowledge transfer

Since the early 1980s, first in America and more recently in many other developed countries, governments and research-intensive universities have been putting much more effort into enhancing their capacity in knowledge transfer, particularly transfer of university generated inventions and discoveries to the commercial sector. The three key terms of "research commercialisation", "technology transfer", and "knowledge transfer" are often used synonymously in discussions, although strictly speaking there are important differences in their precise meanings. "Research commercialisation" refers to the process of turning scientific discoveries and inventions into marketable products and

services. Generally university research outputs are commercialised by licensing patents to companies or by the creation of "spinout" companies that usually depend on assignment of university intellectual property (IP) for their initiation. In the scholarly literature, the term "technology transfer" has a number of specialist meanings but in essence it refers to "the movement of know-how, technical knowledge, or technology from one organisation to another" (Bozeman, 2000, p. 629). The most common use of the term is in relation to the transfer of inventions and associated "know-how" from research organisations (especially universities and public research institutes) to research users. "Knowledge transfer" is a more recent term used mainly in Europe to refer transfer of knowledge and university expertise to research users. While research output is of central importance, the term knowledge transfer is often used in a broader sense to include all types of university knowledge, whether of commercial value or not, and transfer to a wider groups of research users than merely business firms.

Research commercialisation is based on IP rights of which patents, industrial designs, copyright and trademarks are the most important. IP rights reward investment in R&D by granting ownership to inventors, their employers, those who funded the research, or some combination of these. Over the past two decades, governments and universities have become increasingly aware of the value of IP and various strategies that can be employed to derive commercial and public benefit from its utilisation.

Licensing of inventions and the creation of new companies, of course, are not the only mechanisms of research commercialisation employed by universities, since both graduates and academics regularly carry knowledge from universities to business firms, while industry accesses university-based knowledge through sponsored research, conferences and academic journals (Sizer, 2002). However, increasingly licensing and company creation are seen as the two key mechanisms of university research commercialisation efforts.

In OECD countries generally, governments and universities are allocating increased funds to support knowledge commercialisation and build up appropriate administrative and technical capacity (OECD, 2003b). Many governments now have in place a multiplicity of programs with numerous agencies being involved, raising questions about overall policy coherence and coordination, and about whether or not large corporations tend to benefit more than SMEs (small to medium sized enterprises) and universities (Harman and Harman, 2004). Some countries clearly are doing better than others in terms of measured outputs and economic growth rates, while within countries there are notable examples of particular regional successes, such as Silicon Valley and Route 128 around Boston in the United States and Cambridge and Edinburgh/Glasgow in the United Kingdom. This raises important questions about the effectiveness of different combinations of

government and university strategies, about the relative amounts of funding involved, and how such funding is employed and with what success.

Why some countries are more successful than others in commercialisation of university research outputs appears to be dependent on a variety of factors, particularly government financial support and the regulatory framework, incentive systems operating to affect the behaviour of universities and researchers, institutional cultures, and the legal basis relating to the ownership and commercialisation of IP. Important recent theoretical contributions to discussion on this topic have been made by the Swedish economist, Magnus Henrekson, and colleagues (Henrekson *et al.,* 2001; Goldfarb *et al.,* 2003) who argue that America has been far more successful than Sweden in commercialisation of university research, despite Sweden's strong research base. They attribute this particularly to different government roles, a stronger incentive structure in America for both universities and academics to be actively involved in research commercialisation, and the legal basis for IP ownership in American universities. While Sweden has employed a largely government led "top-down" approach with an academic environment that discourages academics from actively participating in commercialising their ideas, the American approach has been strongly "bottom-up", with government IP legislation providing strong incentives for institutional and academic involvement in research commercialisation. This has been combined with a more highly competitive American higher education environment to produce an environment conducive to effective knowledge commercialisation.

Policy instruments and government R&D funding

The concept of policy instruments comes from recent literature on public policy. Policy instruments can be defined as strategies or mechanisms employed by governments to facilitate designated ends and goals *vis-à-vis* particular target populations. The central idea is that governments can act through different instruments to achieve particular goals, and that the instruments chosen are important because they usually involve significantly different policy-making processes and produce different effects (Woodside, 1986; Peters *et al.*, 2001). Different instruments to support knowledge commercialisation include: the provision of information, persuasion and advocacy; economic incentives and disincentives (including subsidies, pricing structures and taxation concessions or charges); government provision of facilities (such as new research centres and commercialisation agencies); and regulation (such as through legislation relating to IP).

Key considerations are the degree to which coercion *versus* incentives are used. Over three decades ago, Lowi (1972) emphasised the importance of differentiating between different instruments on the basis on whether

coercion is remote or immediate, and whether or not policy seeks to control individual behaviour directly or through the environment. Howlett and Ramesh (1995) distinguish three types of instruments based on the degree of coercion: voluntary instruments using persuasion and advocacy; mixed instruments using information, exhortation, subsidies, taxes and user charges based on a greater role for the state; and compulsory instruments including regulation, public provision and direct provision of services. In recent years, as Atkinson and Nigol (1989) note, "governments, under pressure to restrain expenditures, have sought to employ less obtrusive means of intervention" and "prefer to use the least coercive instruments possible".

Bridgman and Davis (2000) suggest useful criteria for selection of suitable policy instruments for particular circumstances: appropriateness (is this a reasonable way for proceeding in this policy area?), efficiency (will this instrument be cost-effective?), effectiveness (can this instrument get the job done?), equity (are the likely consequences fair?), and workability (is the instrument simple and robust, and can it be implemented?). Linder and Peters (1989) point to the importance of understanding the meanings ascribed to particular instruments by decision-makers who use them (or experts who design them), and the processes by which some instruments come to be favoured over others.

In choosing policy instruments to support enhancement of research capacity and knowledge commercialisation capabilities, governments today are faced with various new pressures and challenges related to their role in supporting university research. Traditionally, research funding was seen as having two main stakeholders, the research community, and those who fund research. Under these arrangements, universities and researchers largely determined research agendas while governments saw their responsibilities essentially in maintaining capacity in knowledge creation that could benefit society and provide spillovers to the economic sector. In recent years, however, larger groups of stakeholders are demanding involvement in establishing research priorities and deciding on financial allocations, while the business community itself is carrying out more research and being more involved in supporting particular types of university research (OECD, 2003a).

In the discussion that follows, particular attention is given different types of policy instruments in use in different countries and problems in the multiplicity of programs and different government agencies being involved. A final section draws attention to key policy issues that need attention.

Advocacy, persuasion and information

Governments today put considerable effort into achieving their policy goals with regard to university research directions and priorities and

commercialisation efforts through advocacy and persuasion by Ministers and senior officials, and by providing detailed information in high quality publications and on web sites. These instruments, of course, are at the softer end of the policy instrument scale and relatively cheap to employ. But their effects can be significant, especially when used by well-briefed, able and sometimes charismatic Ministers and officials. In a curious way, sometimes Ministers and officials take up the cause of knowledge transfer and support for research with surprising missionary zeal.

In Scotland, a particularly important role was played by the Enterprise and Life-long Learning Minister, Wendy Alexander, who in a brief period from 2000 to 2002 became the leading advocate for investing increased sums in Scotland's research enterprise and capturing more effectively the research outputs for Scotland. In Australia, the current Science Minister Peter McGauran has performed effectively the role of advocacy and persuasion but even more impressive has been the performance Chief Scientist, Dr Robin Batterham, who successfully combines the roles of Chief Scientist with a senior executive position in a multi-national mining company. Batterham has proved particularly persuasive both with governments and universities. From governments, he has secured substantial funding for the *Backing Australia's Ability* (Howard 2002) program and its continuation, while he has stirred universities to be more proactive in knowledge commercialisation, cleverly using effectively both criticism and praise. He has praised good practice and high achievement, but he has quite savagely criticised Australia's performance in commercialisation as comparing unfavourably with competitor countries.

Governments spend considerable sums in providing a wide range of information to key stakeholders, especially to publicise key programs, provide detailed advice on accessing resources, and providing rationales for overall program directions. Information is conveyed using a range of mechanisms including impressive glossy major reports, and web sites and CDs. Recent examples of impressive major reports are *Creating and Sustaining the Innovation Society* from the Irish Higher Education Authority (2002), *Research and Knowledge Transfer in Scotland* for the Scottish Higher Education Funding Council (2002) and *A Science Strategy for Scotland* from the Scottish Executive (Alexander 2002).

Consultation and committees of enquiry

Consultation and committees of enquiry serve a variety of purposes, including seeking policy input from key stakeholders, helping develop detailed policy directions and priorities, seeking consensus among stakeholders, and achieving endorsement or legitimacy for government

proposals and policy directions. A recent OECD report, *Governance of Public Research* (2003b), demonstrates that across OECD countries governments are having more frequent consultations with stakeholders and are involving stakeholder representation particularly in priority setting.

Governments in the Asia Pacific region, for example, use a variety of priority setting mechanisms involving stakeholders, including development of national science and technology plans, the use of advisory bodies, and employment of foresight processes with outside representation. Since 1970 Japan has been conducting periodic technology forecasting exercises using the Delphi method while Korea uses foresight with the results being integrated into national priorities by experts who are involved in evaluation and pre-budget review. In Hong Kong priority areas have been established by an Areas of Excellence Sub-Committee of the University Grants Committee following consultation. In the past, Australia depended on a sectoral and pluralist approach to priority setting, with priorities being set within major policy domains, often resulting in strong competition between research and operations in health, education or energy. However, the Commonwealth Government's innovation plan released in January 2001, *Backing Australia's Ability* (Howard 2001), flagged the need for an emphasis on research in which Australia enjoys or wants to achieve a competitive advantage. This resulted first in January 2002 when four research priority areas were announced for the Australian Research Council's 2003 funding round under the National Competitive Grants Program but more recently national research priorities were identified through extensive consultation and development of a short list of priorities by an expert committee from more than 180 submissions.

Committees of enquiry or consultation processes have been used widely to deal with a variety of other planning, review and direction setting efforts. Recent examples are the Lambert Review (2003) of university-industry partnerships in the United Kingdom, the Scottish Taskforce on the Knowledge Economy (MacDonald, 1999) and the recent Australian task force report on closer research collaboration between universities and public research institutes (Department of Education, Science and Training, 2004).

Establishment of major centres, commercialisation agencies and infrastructure investment

Governments have been active in establishing new research centres in high priority areas, linking industry and university research efforts, creating or supporting specialist knowledge transfer activities, and major infrastructure investment. Many countries have established special research centres or centres of excellence in high priority areas, particularly biotechnology, ICT and new materials. In the Asia Pacific region a number of

governments have set up special research centres or centres of excellence. Examples are to be found in Japan, Australia, New Zealand, and Hong Kong. Japan launched a new university resource allocation prioritisation program in 2002 called the 21st century COE (Centre of Excellence) Program with the aim of promoting research units of world-class excellence in selected fields. The fields supported in 2002 were life science, chemistry and materials science, information, electrical and electronics engineering, humanities and interdisciplinary subjects. Each research unit selected is being allocated resources around JPY 100 to 500 million for five years (OECD, 2003a, p. 98).

Joint university-industry research centres have been created in many countries. Examples are the Canadian National Research Council's six major research centres and institutes, the Australian Government's Cooperative Research Centre program (that has some 70 multi-site, multi-partner centres) and the new Californian Institutes for Science and Innovation (with a USD 300m allocation of support over four years) (Geiger, 2003).

While generally universities have been required to bear the substantial financial and staffing costs in establishing technology transfer offices, in a small number of countries including Japan governments have provided short-term support to universities to assist in covering the costs of patenting and commercialising inventions (OECD, 2003b, p. 13) while in England and Scotland new streams of funding for knowledge transfer can be used at an institution's discretion to support research commercialisation functions. In a small number of countries including, Korea, Denmark and Sweden, governments have experimented with creation of regional or sector-based technology transfer offices to support the work of a number of universities. Since 1994, for example, Sweden has had seven broker institutions, called technology-bridging foundations, whose task has been to mediate commercialisation of R&D from universities and researchers to small and medium sized enterprises by facilitating patenting processes and matching up researchers with venture capital funding (Henrekson *et al.,* 2001). With these arrangements potential economies of scale might be realised by spreading fixed costs over a greater number of institutions, but these models may find difficulty in developing ongoing close working relationships with researchers.

A major need in highly expensive scientific research is for access to major research facilities. Hence this has led governments to develop special programs to fund and subsidise investment in highly expensive facilities, often to be used by researchers from a number of different universities. But there are major policy issues about how many particular facilities any country needs, where they should be located, what institutions and researchers should have access, and to what extent charges for use should help to defray operating and possibly replacement costs.

Grants, subsidies and other financial incentives

Public funding of university research and R&D is one of the major instruments used by governments to steer science systems and to capture more effectively economic and social benefits. Many countries have embarked on reforms of their current funding systems as well as developing new forms of grants, subsidies and incentives. Grants take many different forms but particularly important are institutional or block grants, project funding, and special program and conditional funding.

Institutional or block grant funding traditionally was based on student enrolments or number of research units, without clear differentiation between teaching and research components. However, in recent years the clear trend has been to separate streams of funding for teaching and research, and for research funding to be based increasingly on research performance and quality. One of the most elaborate schemes for research block grants is that used in the United Kingdom by the various higher education funding councils based on the Research Assessment Exercise (RAE), which is a periodic assessment of the quality of research in some 70 different disciplinary areas. Both Hong Kong china and New Zealand use variations of the RAE methodology while in other countries including Australia block research grants are based on performance indicators. While in Australia about 5% of total operating grant funding for research has been based on performance indicators, the Higher Education Funding Council of England allocates some 20% of total funding on RAE assessments, resulting in leading research universities gaining larger amounts from their research allocations than their teaching allocations (Harman, 2000).

Project funding allocations are made on the basis of applications submitted in response to notifications or calls for tenders and are evaluated usually by peer review processes. Project funding traditionally allowed researchers considerable discretion with project implementation but more recently project funding is becoming similar to business funding of R&D in that it tends to be contract based, with specific objectives and milestones.

Special programs and conditional funding schemes for research generally are linked to priority areas and funding is allocated on a competitive basis, although frequently universities or business partners are required to provide contributions while researchers are often required to make efforts towards commercialisation. Other special grant programs are aimed to assist early development phases of research projects that have commercial potential. In the United Kingdom, for example, in combination with the Welcome Trust and the Gatsby Charitable Foundation, the Government established the University Challenge Fund to provide seed funds to groups of universities for early stage R&D. In Scotland, in addition to its universities being able to access University

Challenge Fund support, the Scottish Executive has established its own Proof of Concept Fund which to date has provided some GBP 45 million to support the early stages of commercialisation.

Subsidies and loans are available in a number of countries to business firms engaged in commercialisation projects. In Japan, for example, the government encourages industry to invest in R&D by providing favourable interest rates from the Japan Development Bank (Ram *et al.,* 1999, p. 7), while in other countries special efforts are being made to provide help to SMEs that have generally benefited less than large corporations from commercialisation efforts. The new Australian Commercial Ready program is directed particularly at SMEs (Department of Industry, Tourism and Resources, 2004).

Taxation concessions are used in a large number of countries, including the United States, France, Germany, Austria, Japan and Australia, to assist business investment in R&D and commercialisation of new products and processes. For example, the Australian R&D Taxation Schemes permit companies to deduct up to 125% of qualifying expenditure incurred on R&D when lodging their corporate tax returns (Jones *et al.,* 2003). This scheme is similar to schemes in Austria and Denmark, and somewhat similar to the French scheme that permits a taxation deduction of up to 50% of the annual increase in expenditures on R&D (Ram *et al.,* 1999).

Legislation and regulations

Laws and regulations have been used relatively sparingly apart from legislation relating to IP and enabling legislation to establish new programs and allocate public funds. By far the best known legislation relating to knowledge transfer is the Bayh-Dole Act of 1980 enacted by the United States Congress that allowed universities to appropriate property rights to an invention resulting from university research that was financed by federal grants. The fact that property rights were awarded to universities rather than inventors gave strong incentives to universities to set up their own offices of technology transfer that have become instrumental in negotiating the appropriate mechanisms of commercialisation (Goldfarb *et al.,* 2002).

Over the past two decades many other countries have followed the US example, revising and often amending legislation with regard to IP. While some countries such as Sweden continue to award IP rights to academics, the clear trend appears to be to give IP ownership of university inventions to institutions. In Japan and Korea, for example, recent reforms have given universities more control over the IP generated by their researchers and provided incentives for universities to be actively involved in commercialisation. In 2002 a Japanese Strategic Council on Intellectual Property was established "in order to quickly establish and advance a national strategy for intellectual property"

(Stenberg, 2004, p. 17). This led to enactment of a new Basic Law on IP in 2002 which aimed particularly to encourage the creation of IP in universities and increase international standardisation, with particular measures being directed to facilitating the establishment of technology licensing offices in universities and supporting the education of specialists in IP law. IP management arrangements in Korea were modified by the Technology Transfer Facilitation Law of 2000 that unified IP management in all public institutions, requiring the establishment of technology transfer offices and sharing of proceeds of license income between inventors and institutions, and by amendment of the Patent Law in 2001 allowing public universities to gain financially from patent licensing (Yun, 2003, pp. 240-250).

Multiplicity of instruments and programs

One surprising feature is the multiplicity of instruments and programs in use in many countries, and the wide range of different government agencies involved. This phenomenon can be well illustrated in the case of Australia, where both Commonwealth and State Governments have major commitments, not only in funding university research, but also in directly providing seed funding and grants to firms. Current Commonwealth Government programs directed particularly to assist research commercialisation include the Commercialising Emerging Technologies (COMET) program (which provides funding to businesses and individuals in "commercialisation of innovative products, processes and services"); six separate R&D START programs (which provide grants and loans to smaller Australian companies involved in commercialisation); the Innovation Access Program (which assists business firms in fostering innovation and adoption of best practice); the R&D taxation concession programs; the venture capital programs which include a Pre-seed Fund, an Innovations Investment Fund to develop a venture capital market for early stage companies, a Renewable Energy Equity Fund, and the Pooled Development Funds Program (which is delivered through private sector fund managers who raise capital from investors); the Building on IT Strengths (BITS) program (which is establishing 10 information and communications incubators across Australia); the ICT Centre of Excellence (located in Sydney with responsibilities for research, education, commercialisation, and linkages); and the Biotechnology Innovation Fund (aimed to increase the rate of commercialisation by reducing the cost of demonstrating proof of concept for new biotechnology initiatives) (Jones *et al.,* 2003).

State Government initiatives have been more recent, with major pushes coming from Labour Governments in both Queensland and Victoria. Their main activities have included: establishment of new advisory innovation and commercialisation councils; creation of advisory units to assist businesses in commercialisation and access to venture capital (such as the Venture Capital

Unit in the Queensland Department of State Development); and establishment of business and seed capital funds, ranging from proof of concept grants through to equity investment grants. The Queensland Government has been particularly active, establishing a Smart State Facilities Fund with allocations for major university capital programs, and taking the bold initiative of establishing an Australian Institute for Commercialisation to work with both universities and business firms. In Victoria, the State Government has established an AUD 310 million science, technology and innovation initiative aimed to enhance Victoria's science and technology base and encourage commercialisation.

In all, a large number of different government agencies in Australia are involved in supporting research and knowledge commercialisation. The Commonwealth Government currently supports innovation including research commercialisation through 11 different departments (Jones *et al.*, 2003). The Department of Industry, Tourism and Resources alone has 22 different programs including five separate R&D Start programs costing AUD 1.8 billion over eight years, tax concessions for business for R&D investment costing AUD 400 million pa in income foregone, the Pharmaceutical Industry Investment program costing AUD 300 million over five years and the pre-seed fund costing AUD 78.7 million over ten years. At State level, especially in Queensland and Victoria, there also is a multiplicity of separate programs (in Queensland there are 18 separate programs administered through five different departments) and until recently Queensland and Victoria engaged in a bidding war against each other trying to attract "high tech" industries.

Conclusions

The analysis presented important questions about current government efforts and about the use and effectiveness of different policy instruments. In the first place, questions need to be asked about the multiplicity of different programs and government agencies involved in many countries. Significantly, one key theme that emerged from submissions from stakeholders to the Lambert Review of Business-University Collaboration in the United Kingdom was that while many Department of Trade and Industry schemes "were welcome, [but] taken together the overall picture was extremely complex and [...] rationalisation and greater coherence would be welcome" (Lambert Review 2003).

Second, there are important issues about the value of priority setting in a context where governments employ a multiplicity of policy instruments and programs with numerous agencies being involved. Priority setting is becoming increasingly common across OECD countries, with frequent attempts to

establish national research and commercialisation priorities. Yet even if governments intend that national priorities should apply to all agencies and programs, there is reason to question the prospects of successful implementation.

Third, rapid development in knowledge commercialisation has put considerable strains on university resources. While some countries have provided limited funding to assist universities, in many cases universities have been left to their own resources, often with the expectation is that income flows from licensing and start-ups will provide the necessary cash flow. Experience, however, shows that income generation from knowledge transfer takes time, and generally even strong research-intensive universities generate only comparatively small proportions of their total budgets from knowledge commercialisation. In these circumstances, there could be merit for countries to follow the Japanese example of providing funds to directly support technology licensing offices, or the example the English and Scottish higher education funding councils in creating additional funding streams to support knowledge transfer.

Fourth, important theoretical questions need discussion, such as why governments choose particular policy instruments over others, and about the efficiency and effectiveness of particular instruments. To date, relatively little discussion has appeared in professional and scholarly literature about these issues, especially about the role of different instruments and different forms of incentives for academics, universities and firms.

The author:

Professor Grant Harman
Centre for Higher Education Management and Policy
University of New England
2351 Armidale, NSW
Australia
E-mail: gharman@metz.une.edu.au.

References

Alexander, W. (2002), *A Science Strategy for Scotland*, Stationery Office Bookshop, Edinburgh.

Atkinson, M. M. and R.A. Nigol (1989), "Selecting Policy Instruments: Neo-Institutional And Rational Choice Interpretations of Automobile Insurance in Ontario", *Canadian Journal of Political Science*, Vol. XXII, No. 1, pp. 107-135.

Bozeman, B. (2000), "Technology transfer and public policy: a review of research and theory", *Research Policy*, Vol. 29, pp. 627-655.

Bridgman, P. and G. Davis (2000), *The Australian Policy Handbook*, Allen and Unwin, St. Leonards.

Department of Education, Science and Training (2004), *Review of Closer Collaboration between Universities and Major Publicly Funded Agencies,* Department of Education, Science and Training, Canberra.

Department of Industry, Tourism and Resources (2004), *Commercial Ready Program Discussion Paper*, Department of Industry, Tourism and Resources, Canberra.

Geiger, R. (2003), "Beyond Technology Transfer: New State Policies for Economic Development for US Universities", paper presented at 16th CHER Annual Conference, Porto, 4-6 September.

Geuna, A. (1999), *The Economics of Knowledge Production: Funding and Structure of University Research,* Edward Elgar, Cheltenham.

Goldfarb, B. and M. Henrekson (2003), "Bottom-up *versus* top-down policies towards the commercialisation of university intellectual property", *Research Policy*, Vol. 32, No. 4, pp. 639-658.

Harman, G. (2000), "Allocating Research Infrastructure Grants in Post-binary Higher Education Systems: British and Australian approaches", *Journal of Higher Education Policy and Management*, Vol. 22, No. 2, pp. 111-126.

Harman, G. and K. Harman (2004), "Governments and Universities as the Main Drivers of Enhanced Australian University Research Commercialisation Capability", *Journal of Higher Education Policy and Management*, Vol. 26, No. 2, pp. 154-169.

Henrekson, M. and N. Rosenberg (2001), "Designing Efficient Institutions for Science-Based Entrepreneurship: Lessons from the US and Sweden", *Journal of Technology Transfer*, Vol. 26, No. 3, pp. 207-231.

Higher Education Authority (2002), *Creating the Sustaining and Innovation Society*, Higher Education Authority, Dublin.

Howard, J. (2001), *Backing Australia's Ability*, Commonwealth of Australia, Canberra.

Howard, J. (2002), *Backing Australia's Ability: Real Results, Real Jobs*, Commonwealth of Australia, Canberra.

Howlett, M. and M. Ramesh (1995), *Studying Public Policy: Policy Cycles and Policy Subsystems*, Oxford University Press, Toronto.

Jones, A., D. Hunt and D. Sharp (2003), *Commonwealth and State Government Programs Supporting Innovation in Firms at January 2003*, Department of Industry, Tourism and Resources, Canberra.

Lambert Review of Business-Industry Collaboration (2003), *Summary of Consultation Responses and Emerging Issues*, HM Treasury Public Relations Enquiry Unit, London.

Linders, S.H. and B.G. Peters (1989), "Instruments of Government: Perceptions and Contexts", *Journal of Public Policy*, Vol. 9, No. 1, pp. 35-38.

Lowi, T. (1972), "Four Systems of Politics, Policy and Choice', *Public Administration Review*", Vol. 22, pp. 298-310.

MacDonald, G. (1999), *Scotland: Towards the Knowledge Economy,* Scottish Office, Edinburgh.

OECD (2003a), *Governance of Public Research: Towards Better Practices*, Organisation for Economic Development and Cooperation, Paris.

OECD (2003b), *Turning Science into Business: Patenting and Licensing at Public Research Organisations*, Organisation for Economic Development and Cooperation, Paris.

Peters, B.G. and F. Van Nispen (2001), *Public Policy Instruments: Evaluating the Tools of Public Administration*, Edward Edgar, Cheltenham.

Ram, D., J. Kirkland and B. Bozeman (1999), *University-Industry R&D Collaboration in the United States, the United Kingdom, and Japan*, Kluwer Academic Publishers, Dordrecht.

Scottish Higher Education Funding Council (2002), *Research and Knowledge Transfer*, Scottish Higher Education Funding Council, Edinburgh.

Sizer, J. (2002), "Research and the Knowledge Age", Tertiary *Education and Management*, Vol. 7, pp. 227-242.

Stenberg, L. (2004), *Government Research and Innovation Policies in Japan,* Swedish Institute for Growth Policy Studies, Ostersund.

Woodside, K. (1986), "Policy Instruments and the Study of Public Policy", *Canadian Journal of Political Science*, Vol. 19, No. 4, pp. 775-793.

Yun, M. (2003), "Regulatory Regime Governing Management of Intellectual Property of Korean Public Research Organisations: Focus on the Biotechnology Sector" in *Turning Science Into Business: Patenting and Licensing at Public Research,* Organisation for Economic Development and Cooperation, Paris.

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

New IDEAs for Internationalisation Within the Knowledge Society

by

H.G. Büttner
Technical University of Delft, The Netherlands

In response to the Bologna declaration and the increasing competition in attracting the best students, four leading European technological universities (the IDEA League) established common educational quality management principles. Mutual recognition of degrees has been established with the key aim of enhancing student mobility as part of the curriculum. Students have the flexibility to move from one IDEA university to another after completing the first three years of study (bachelor level equivalence) in order to complete a master's degree at a partner university. Graduates will receive the degree of the hosting university, and will have a truly international qualification.

Implementation of these quality management and mobility features has led to partnerships with international companies. The article will discuss the challenges in establishing this new model of collaboration facing the different national systems and cultural backgrounds of the four universities, situated in Germany, the Netherlands, Switzerland and the United Kingdom.

Introduction

In recent decades, universities have increasingly found themselves in the limelight due to the internationalisation of higher education, and also due to their knowledge creation. Universities are asked to contribute to the knowledge society on the one hand by creating and producing knowledge, and on the other hand by educating highly qualified graduates. However, according to Wolf (Wolf, 2002), there is no clear relation between a high educational level and economic growth:

> "[…] among the most successful economies, there is in fact no clear link between growth and spending on education, let alone between growth and central-government involvement in education planning."

There may be no clear relation between the educational budget and planning of a country and its economic growth, but surely scientific and technological research play an important role in advancing the productivity of a country. Hence, the influence of universities in the higher educational system cannot be neglected because universities are one of the major breading grounds of research. In fact, Wolf smoothens her first finding and reports on the important role of mathematical literacy in the labour market. For example, over the last two decades, an extremely wide spectrum of companies have been employing physicists.

How do universities cope with this variety of roles? From time immemorial, universities have been active in education and research but recently, universities need to consider new factors in education: internationalisation and the massification of higher-education. In principle, internationalisation is a standard part of university life, since it is an integral part of research activities, whereas the internationalisation of education is more recent. Universities produce graduates who increasingly work in an international world – the global market. Consequently, in the 90s, internationalisation in education found its way to the political agenda. Bartell (Bartell, 2003) reports that in 1995 the American Council on Education emphasised that all undergraduates require contact with and understanding of other nations, languages and cultures in order to develop the appropriate level of competence to function effectively in the rapidly emerging global environment. In Europe, we witnessed the introduction of a variety of mobility programmes, *e.g.* Erasmus/Sokrates and so forth. In addition, the European Council aims at making Europe the "most competitive and dynamic knowledge-based economy in the

world" and therefore Europe needs to compete on the international scene in producing top-quality graduates.

In Europe, strategic alliances of universities seem to be one of the responses to this growing international competition (van der Wende, 2001). Furthermore, Kennedy (Kennedy, 2003) claims that a key policy issue of higher-education governance in the 21st century is that

> "deliberative partnerships need to be developed that allow for communication, debate and discussion to inform decision-making."

Following these suggestions it seems sensible to set up a network of universities dealing with the new challenges in higher education and internationalisation. In the IDEA League, an alliance of four leading European technical universities situated in Germany, the Netherlands, Switzerland and the United Kingdom (Büttner, 2002), we want to learn from each other, exchange best practice and use the partners as a point of reference. This allows for benchmarking and for gaining more insight into how other institutions and countries approach these questions, which are especially useful since they are governed by national bodies that are often virtually unaware of international implications. Firstly, we will address how organisational and cultural aspects influence such a strategic collaboration. Then we will discuss how the alliance actively promotes collaboration and joint activities. In 2000, we started with comparisons of a variety of study programmes looking into degree structures. From the outset, quality assurance (QA) was another point of consideration within the alliance. This falls in line with the subjects currently given high priority in the Berlin Communiqué of September 2003 (Berlin, 2003), requesting to the implementation of the following points of intermediate priority: QA, a two-cycle system, recognition of degrees and periods of study. We also discuss how these achievements can be related to industrial collaborations and how we see mobility in the long run.

Organisational culture

In the following we present data that will give us some indications on the differences between these partner universities concerning their international community. Imperial has the highest number of foreign students, this being a consequence of its longstanding policy of recruiting students from abroad. Possibly ETH's and TU Delft's low number of foreign students, with less than 10%, can be explained by the fact that they are situated in small countries and less well known, whereas RWTH has just under 20% of foreign students and a similar percentage of foreign doctoral students. However, for ETH and TU Delft the picture changes significantly when looking at the number of foreign doctoral students, with ETH now boasting the highest percentage of foreigners.

In fact, at TU Delft and RWTH, the statistics concerning doctoral students only provide an indication of the actual situation because these students are frequently not registered as students since they are also university employees.

Looking at the professorship, the picture is reversed: with two thirds of foreigners, ETH has by far the highest number. ETH is thus truly international at the professorial level but not at the undergraduate level, whereas Imperial shows small variations in its percentage of foreigners between students, PhD students and professors, with professors being the lowest. Does this reflect a difference in the appointment of professors at these four universities? In the quality management working group, we compared the procedures of appointing professors at the four partner universities and perhaps surprisingly we found common practices:

- Procedures are manifestly international in advertising and recruiting so as to be able to attract highly qualified candidates.
- The selection process includes an assessment of the candidates' potential contribution to teaching. Clearly, each IDEA university has its own mission and there are rather different value-systems and national academic staff-structures for the four partners that play a role. For example in the United Kingdom, internal promotion to a professorship is much more common than on the European continent. At RWTH, it is practice that professors in engineering subjects come from industry before joining a university. In addition, there is a legal requirement for teaching in German, which might considerably limit the number of international candidates. In the case of ETH, we find a special asset with its offer of a dual-career couple service when appointing staff (DFG, 2004). Looking at the high number of German professors at ETH there must be some competition between ETH and RWTH in the appointment of professors. Moreover, ETH may profit from its location in a multilingual country when hiring international professors. Despite being situated in the German-speaking region, French, Italian and also English are very common in Zürich, and particularly at ETH. Furthermore, teaching in German is not obligatory; in fact, ETH is increasingly moving towards teaching in English. This policy has been introduced because ETH specifically intends to recruit more foreign students into its newly developed master programmes. In 1997, TU Delft begun teaching in English and in the frame of its change to the bachelor-master structure introduced English overall in all master's programmes. With English being widely spoken in the Netherlands and the number of foreign master's and doctoral students on the rise, we might expect this to facilitate the process of hiring of foreign professors in the future.

How are these four universities funded? Table 1 shows the overall income and the third money-stream (an expression that is not widely used in the

Table 1. **Some figures of IDEA universities: percentage of foreign (doctorate) students and professors, and yearly income**

	Imperial College London (Imperial)	Delft university of technology (TU Delft)	ETH Zürich (ETH)	RWTH Aachen (RWTH)
	United Kingdom	The Netherlands	Switzerland	Germany
Number of full-time students in 2002	10 336	13 189	9 570	30 080 (out of these, are in science, technology and medicine)
Percentage of foreign students	22% note: these are non-EU foreigners	9%	7%	18%
Percentage of doctorate students	29%	5%	20%	8%
Percentage of foreign doctorate students	30% note: these are non-EU foreigners	Around 40%	50%	15%
Number of professors in 2003 (in fte)	297 (without medicine)	199	278	306 (without medicine)
Percentage of foreign professors	17%	13%	33% from Germany, 35% other countries	8%
Number of staff in 2003 (in fte)	6 000	4 650	5 900	6 700
Total budget in € in 2003	€ 585 mn (£390 mn) – for 2001/2	€ 432 mn	€ 746 mn (1 119 mn SF)	€ 484 mn
Third money stream	19%	16%	14%	30%
Budget year starts in	August	January	January	January

Source: Annual reports or Web sites of universities.

United Kingdom). Third money-stream includes income from industry, charities, and EU funding. In our comparison, we see that ETH and TU Delft have the highest percentage of public funding. With 30%, RWTH has the highest third money stream, most likely connected to the substantial recruitment of professors coming from industry. Liefner (Liefner, 2003) reports that in the United States, private funding is very important in contrast to European universities, in which public funding dominates and private funding is almost negligible. He looks at examples of universities in the Netherlands, Switzerland, the United Kingdom and the United States. Concerning the allocation of resources, Liefner finds that the US institutions largely allocate resources in a competitive way. In contrast to this approach, the bulk of the funding is not directly linked to performance in Switzerland, and it is allocated internally, mainly via fixed budgets. Germany's approach is similar to the Swiss public funding and resource allocation approach, but nevertheless, RWTH generates a considerable amount of its research income

through industry and thus must compete for it externally. The Netherlands and the UK's allocation system contains competitive elements, and a market approach is also used internally. Further, Liefner analyses how resource allocation influences behaviour and discusses what determines the success of a university. He finds that long-term success lies in the quality of the academics, with well-qualified people responding to a greater extent to individual motivation and scientific interests rather than to financial incentives. In addition, the ability to attract highly qualified and motivated students has an impact on the long-term prospects of a university. These two features, top-quality academics and students, are the objectives of the IDEA universities.

Quality assurance (QA)

From the beginning, the IDEA League recognised that QA was an important issue. Fact finding and understanding how each partner dealt with QA and how it is embedded in the national system formed the starting point for discussion. Our analysis enabled us to agree on a set of educational quality management principles taking into account the cultural differences and national systems in place (Büttner, 2002). In view of this we now fall in line with the Berlin Communiqué (Berlin, 2003), that advocates the importance of QA and asks for co-operation and networking with regard to QA. The Communiqué also states that the primary responsibility for QA lies with each institution itself.

As part of the Bologna process, there have been many surveys on QA in higher education and Billing's paper (Billing, 2004 and references therein) provides a good overview of this issue. Billing reports that examples of the transfer of QA frameworks are rather unsuccessful. A QA culture needs to be developed within an institution taking into account the culture and the given local and national constraints. This is precisely what the alliance did, and thus the establishment of a set of standards based on our differences and commonalities is the basis of our collaboration in QA. But are these educational quality management principles really implemented at each partner institution? This is regularly an agenda point of the yearly general assembly of the IDEA League, and we find that the principles are indeed almost completely implemented with the exception of one partner who has so far no national QA body, and therefore is running two pilot projects concerning the implementation of QA. Progress of the implementation is monitored via the annual meeting and this showed that QA is still not yet fully alive at each university. Thus, we decided to have a transfer workshop on quality management, essentially a workshop on good practice in education between the four universities. Over the course of one day, people from different disciplines of the four institutions discussed both the successful and unsuccessful practices. In particular, the experience of discussing in a cross-

disciplinary environment was found to be very beneficial thanks mainly to openness and mutual trust. Clearly, internal communication of the representatives of the domain-specific groups will be vital to carry this further and sustain this relationship. The aim is that colleagues from a partner university regularly become involved in each self study. We continuously need to raise awareness of QA in education and to work on attitude change – in the long run.

Degree structure and qualification profiles

The Bologna declaration and the start of the alliance both took place in the second half of 1999, and so the discussion on degree structure and the introduction of a two-cycle system, was immediately taken up by working groups in the alliance. Especially TU Delft and ETH did not want to be dominated by their governments and chose to become engaged at an early stage. It turned out that the comparison of study programmes with partners from outside the national system was found to be very useful by all involved. Overall, a two-cycle system, as suggested by the Bologna declaration, is only partially in place at the IDEA League universities (see Table 2). At Imperial, there is a mixed degree-system of integrated master's courses and a bachelor-master structure. In 2002, TU Delft introduced a bachelor-master structure, whereas ETH decided to spread the implementation over several years, *i.e.* introducing the bachelor-master structure over all departments fading out the diploma courses at the same time, with the last bachelor being made available

Table 2. **Academic structure: degree system and details on academic year**

	Imperial College London (Imperial)	Delft university of technology (TU Delft)	ETH Zürich (ETH)	RWTH Aachen (RWTH)
Degree structure	• MEng (4 y), • BEng (3 y) not in all subjects; • MSci (integrated 4 y master study), • BSc (3 y and 4 y) • specialised MSc courses of 1 year	• BSc (3 y, in Dutch) • MSc (2 y, in English)	• BSc (3 y, in German and English) • MSc (1.5 y, in English); all BSc programmes will be in place by 2005 (currently, mixture of Diplom and BSc/MSc structure)	• Diplom (4.5 or 5 y) • BSc (3 y) in some cases • MSc (2 y) in some cases; (move to BSc/MSc structure as from 2006)
Academic year	Early October until end June	Early September until end June	Mid-October until early July	Mid-October until mid-July
Division of academic year	3 terms	2 semesters	2 semesters	2 semesters
Main exam periods	May/June	January and June	March and September/October	Not defined for final exams

Source: Annual reports or Web sites of universities.

in 2005. RWTH has so far introduced few bachelor-master programmes but its state ministry of Education is now obliging an overall introduction of bachelor-master programmes in 2006.

Where does the QA aspect come into the degree system? The IDEA League educational quality management principles have an outcome-orientated approach to a study programme: we talk about the establishment of a qualification profile of the graduate, *i.e.* the attributes, competences and skills graduates should have acquired during the course of their degree. A qualification profile has a general and a domain-specific part. By scrutinising study programmes in terms of objectives, content, structure, and so forth, we developed qualification profiles and agreed on minimum requirements between the four partners in a number of subject-specific groups. There is rather wide variation in the manner with which different domains deal with this issue. Engineering subjects normally showed smaller discrepancies and were somewhat familiar with working out a qualification profile whereas in the natural sciences, the outcome orientation of a study programme is less well accepted. This might be part of the cultural difference of the subject matters, with engineering focusing on finding solution to problems, often in a team, whereas the natural sciences target more the understanding of the matter, in which the individual contribution is paramount.

By establishing these profiles we are able to define the pivot point from the bachelor's level to the master's level. Where a bachelor degree is not (yet) available in a specific area, a certificate of bachelor equivalence is established based on the specification of the qualification profile. At the same time, the outcome profile of the bachelor's degree is the entrance profile for the master's degree. This is in line with the IDEA League's principle of offering courses at the master's level as the norm for all graduates of the four universities, but still allowing for mobility. This was endorsed by signing an agreement on convention of titles between the four partner universities and formed the basis for introducing an IDEA scholarship for master's programmes. Details on this scholarship will be discussed in the section on mobility.

Links to industry

For industry the recruitment of qualified, competent graduates is of course the major issue. With regard to this the quality management principles with their qualification profiles are very appealing because they provide transparency of the educational system in use at four universities in different countries and the profiles of graduates which can be expected. Frequently, companies target a limited number of universities as part of their recruitment policy and the structure of an alliance offers an efficient mechanism for this procedure.

The establishment of a Web site was instrumental in helping the IDEA League partners in their negotiation in establishing an academic-industrial partnership. These companies are players on the global market, and they find it beneficial that graduates have been mobile and gained intercultural experience at an early stage. Moreover, the coverage of the companies' research and manufacturing laboratories fits well with the location of the four universities. Student internships that are profitable for all sides are a point of mutual interest. Indeed, the company gets a preview of students who are candidates for employment without committing themselves, and at the same time the educational system of a university frequently requires an internship, especially in engineering subjects. For the students it offers the opportunity to see how a particular company works and they can decide if they wish to pursue a future career in this area. Overall, links are established that can lead to research collaboration between the partners or intensify existing collaborations.

Research collaboration is desirable for both partners, and forces can be joined on the educational side, *e.g.* the possibility of having people from industry giving lectures in universities. In view of bringing their staff up to date, industry might also be on the lookout for opportunities to work with universities. Sponsoring of events, workshops, and so forth are obvious options. Co-promoting an academic-industrial partnership might attract good students, especially from abroad. To this end, it is clearly desirable to have more scholarships.

Mobility

The Bologna declaration and its follow-up fosters vertical student mobility, which means that after completing the first three years of study (bachelor level equivalence) a student can complete a master's degree at another university. There are mixed feelings about this for a variety of reasons: a degree of a university has a certain reputation and this explains why students have chosen a particular institution. Normally, a university wants to keep its students. Universities might also have financial reasons, due to funding based on student numbers or number of degrees awarded. However, promoting vertical student mobility within an alliance should lead to a rather balanced approach and, regardless of balance, will provide opportunities of vertical mobility for students. By signing an agreement on convention of titles between the four partner universities in 2003, the alliance created the basis for an IDEA scholarship for master's programmes, anticipating that students will begin moving at the beginning of the academic year 2004. Each IDEA university offers three scholarships for one student from each partner university – a total of twelve scholarships, covering tuition fee and part of living expenses. Despite being on the forefront of the new

educational approach promoted by Bologna, the scholarships do not yet attract enough candidates. In the first round, at RWTH and TU Delft, two candidates applied and there is one student from ETH who wants to move to an IDEA partner. However, as of now there is no candidate from Imperial. A possible reason for the low interest is that the concept of completing one's studies by going to two universities is rather new. Another barrier might be that a bachelor-master structure is not yet in place at all four partners. Furthermore, professors may view this concept of vertical student mobility as a risk of losing potential PhD candidates.

From the students' point of view, horizontal mobility – study for a set period in the master phase at a partner university – is favoured over vertical mobility because they will remain enrolled at the "sending university". In the United States, student exchange is increasingly encouraged: for example Harvard and Stanford have announced that in the future all their graduates will have an overseas study experience (Maslen, 2004). Actually, in Europe horizontal student mobility has been applied for a number of years following the introduction of the Erasmus grant programme by the EU, and Switzerland also participates in this programme. Nevertheless, vertical mobility is attractive in that it allows the obtention of degrees from more than one university which students quite rightly consider as an asset for their job prospects. Probably one should consider that studies at a partner university of a longer period, *e.g.* for more than 6 months, might be of interest for students in view of receiving a joint or perhaps a double degree. However, there are hurdles, amongst others in the national legislation, for joint or multiple degrees, which need to be addressed. A report by the European Commission "Trends 2003, Progress Towards the European Higher Education Area" prepared for the European University Association EUA (EUA, 2003) shows that the European landscape of European Higher Education Area is rather diverse concerning degree structures, credit systems, quality assurance, accreditation, etc. With students now considering mobility as an important asset of their study experience and mobility playing an important part in internationalisation, the pressure to resolve the problem increases. An additional pressure comes from the European Union with the introduction of *Erasmus Mundus* (Erasmus, 2004), a funding scheme for setting up joint master-courses by offering funding for the operation and mainly providing scholarships for students from non-EU countries. Essentially, discrepancies need to be settled individually, and clearly the European Union intends to foster examples of good practice but cannot address an overall scheme. With regard to using the complementarities of a number of universities, joint courses would be an interesting concept. Efficient use of resources is also a factor supporting this approach. Certainly investment is required during the setting-up stage, but in the long run it liberates more staff time for research. With its diversity, such a course is

attractive to motivated people and the graduates of such a course should be highly qualified for careers in industry. Thus, the future seems to point towards the creation of joint master-courses between universities.

At present, the IDEA League has identified a number of projects within or with part of the alliance universities in which it would be desirable to run joint master courses. In order to support this, we established an overall checklist of criteria that need to be addressed in order to establish such a joint course. Table 2 shows some of the difficulties that need to be addressed within the IDEA League, such as the start/end and structure of the academic year and the exam period. At the same time, this fresh approach provides opportunities for introducing new features that might be more difficult to implement in long-established systems. Some of the IDEA partners are currently setting up bilateral courses with partner universities in the third world, and feedback from this experience is starting to flow back to the alliance. Setting up joint master-courses poses the question of admission. Within the IDEA League the qualification profiles for the bachelor's degree provide the entrance to the master's programme. But what about students from abroad? A comparison of the selection criteria at each partner university, and how each institution deals with the admission of foreigners, shows that there are many similarities between the four and that opportunities to collaborate exist. For example, the evaluation of degrees from rather less known universities sometimes requires time-consuming efforts and sharing expertise in this area is profitable.

Global culture

The IDEA League was created in response to internationalisation and the increasing competition in higher education, and now works together on a broad spectrum of issues. We learn from each other, share expertise and experience and through this process each individual institution develops. In addition, we learn about the differences in culture and functioning, and this is what is required in a global world. So are we converging towards one culture? Bird and Stevens (Bird and Stevens, 2003) argue that shared experiences makes one a member of the global culture. Referring to global managers in business, they describe the characteristics of members of the global culture as

> "being educated, connected, self-confident, pragmatic, unintimidated by national boundaries or cultures, democratic and participatory, individualistic but inclusive, flexible and open and begin from a position of trust."

Can this also be applied to higher education and is the IDEA League on its way to a global culture? We share experience and expertise and we intend to educate our students in this direction. By sharing expertise we also share knowledge, and historically, universities are places of knowledge production.

Nowotony *et al.* (Nowotony *et al.*, 2002) explain that knowledge production is no longer simple and that nowadays knowledge needs to be put in the context of the knowledge society:

> "Contextualization means that (unknowable) implications as well as the (planned or predictable) applications of scientific research have to be embraced. […] Contextualization which contains, or is accompanied by, such a 'human element' is more likely to take subjective experience seriously. […] Universities will need to be adaptable organisations (and comprehensive institutions?) rather than specialized organisations (or niche players?)."

International collaboration widens the context of a university and highlights cultural differences, and therefore, contextualisation should happen easily in universities that are embedded in an alliance. This is especially important for graduates because today's students need to be educated for skills, knowledge, and employability (Scott, 2002) and this requires that the context be taken into account. A study involving 1 200 graduates from 30 leading universities in 10 countries revealed that there is remarkable agreement on their views concerning their career goals: 75% wanted to work for a global company or work with people from different countries (Bird and Stevens, 2003). They agreed that their four most important priorities were their own personal development and growth, developing a career, spending time with close friends and relatives and building a family. Given that the objectives of graduates from different countries are converging, the approach used by the IDEA League seems to be headed in the right direction.

Acknowledgement

I would like to express my gratitude to all those who contributed to this work by their involvement in the IDEA League activities.

The author:

Dr. Herma Büttner
Secretary General IDEA League
University Corporate Office – OOIT
Technische Universiteit Delft
Julianalaan 134, P.O. Box 5
2611 VE Delft
Netherlands
E-mail: h.g.buttner@tudelft.nl.

References

Bartell, M. (2003), "Internationalization of universities: A university culture-based framework", *Higher Education,* Vol. 45, pp. 43-70.

Berlin 2003, Berlin Communiqué 19 September 2003 *www.bologna-berlin2003.de/en/communique_minister/index.htm* or *www.bologna-bergen2005.no/EN/Berlin_com/Comul.hm*.

Billing D. (2004), "International comparisons and trends in external quality assurance of higher education: Commonality or diversity?", *Higher Education,* Vol. 47, pp. 113-137.

Bird, A. and M.J. Stevens (2003), "Toward and emergent global culture and the effects of globalization on obsolescing national cultures", *Journal of International Management,* Vol. 9, pp. 395-407.

Büttner, H. (2002), "Ideals of the IDEA League", *Proceedings of the IMHE General Conference*, 16-18 September 2002, pp. 357-366 and *www.theidealeague.org*.

DFG (2004), "*Dual-career couples*", Brochure from "Deutsche Forschungsgemeinschaft", Bonn, and "Stifterverband für die deutsche Wissenschaft", Essen, March 2004, p. 26.

Erasmus M. (2004), *http://europa.eu.int/comm/education/programmes/mundus/index_en.html*.

EUA (2003), "*Trends 2003, Progress Towards the European Higher Education Area*", Reichert S. and C. Tauch, European Commission Directorate-General for Education and Culture, Trends No. 1, July 2003 *www.eua.be/eua/jsp/en/upload/Trends2003final.1065011164859.pdf*.

Kennedy, K.J. (2003), "Higher Education Governance as Key Policy Issue in the 21st Century", *Educational Research for Policy and Practice,* Vol. 2, pp. 55-70.

Liefner, I. (2003), "Funding, resource allocation, and performance in higher education", *Higher Education,* Vol. 46, pp. 469-489.

Maslen, G. (2004), "Berlin centre builds Australia's European profile", *The Times Higher Education Supplement,* 4 June 2004, p. 12.

Nowothny, H., P. Scott and M. Gibbons (2002), "*Re-thinking Science. Knowledge and the Public in an Age of Uncertainty*", Polity Press in association with Blackwell Publishers, Cambridge, United Kingdom and Malden, United States.

Scott, P. (2002), "The future of general education in mass higher education systems", *Higher Education Policy,* Vol. 15, pp. 61-75.

van der Wende, M.C. (2001), "Internalisation policies: about new trends and contrasting paradigms", *Higher Education Policy,* Vol. 14, pp. 249-259.

Wolf, A. (2002), "*Does education matter? Myths about education and economic growth*", Penguin Books, London.

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

The Incorporation of National Universities in Japan: Initial Reactions of the New National University Corporations

by

Jun Oba
Hiroshima University, Japan

In April 2004, all national universities, which had previously been legally subordinate to MEXT (Ministry of Education, Sports and Culture), were given a legal personality and became "National University Corporations". With this change, each national university now enjoys greater autonomy vis-à-vis *the government in terms of how it uses its budget (block grants), personnel issues (recruitment, appointments, salaries, etc.), internal organisation, etc., although universities are still subject to government regulations in some areas, such as the size of enrolments and tuition fees. Now that national universities are no longer bound by the strict regulations imposed by the government, each of them should be able to develop its own individuality and specialise in certain fields.*

This document will mainly focus on examining the initial reactions of the newly created National University Corporations. On the basis of recent information on national universities (National University Corporations), we shall show how they have clarified their strategic objectives and plans, and also how they have changed their organisational structures and staffing so as to achieve these objectives and plans. Some universities encountered serious problems in preparing their incorporation, particularly with regard to decision-making processes, the apportionment of powers between the president and departments, and staffing. We shall then analyse the problems stemming from the incorporation of universities, and conclude by presenting some of the major problems faced and the directions that may be taken by universities and the government in our knowledge-based society.

Introduction

Until March 2004, national universities were a service of the Ministry of Education[1] and were administered directly by the Ministry. Last April, they were given the status of legal persons and were incorporated as autonomous institutions under public law. They now enjoy greater autonomy and are expected to develop their strategy so as to improve education and research in a process that will transform them in depth in the coming years.

The aim of this document is threefold. Firstly, it will describe the changes that have occurred in national universities since they were incorporated; then it will examine their initial reactions to these changes; and lastly, it will try to assess the future of the national universities and Japanese higher education as a whole.[2]

The system of National University Corporations

Greater autonomy

Under the National University Corporation Act (hereinafter the "Act"), each national university has been given a legal personality and incorporated as an autonomous institution under public law – a National University Corporation (NUC).[3] It is anticipated that the new national universities will develop their education and research functions individually on their own initiative. This reform of higher education is considered to be one of the most important since the first universities were established in Japan.

The national universities have obtained considerably greater autonomy in terms of defining their strategies, structural organisation, personnel management, financing and other aspects. The budget is now allocated to each institution in the form of non-earmarked block appropriations, on the basis of a medium-term plan (MTP) prepared by the university and approved by the Ministry of Education, which is itself based on the medium-term goals (MTGs) defined by the Ministry of Education in consultation with each institution. The MTG/MTP are valid for a six-year period.

Each university's performance will be evaluated at the end of the MTG/MTP period. The budget granted for the following period will be adjusted in the light of the evaluation results.

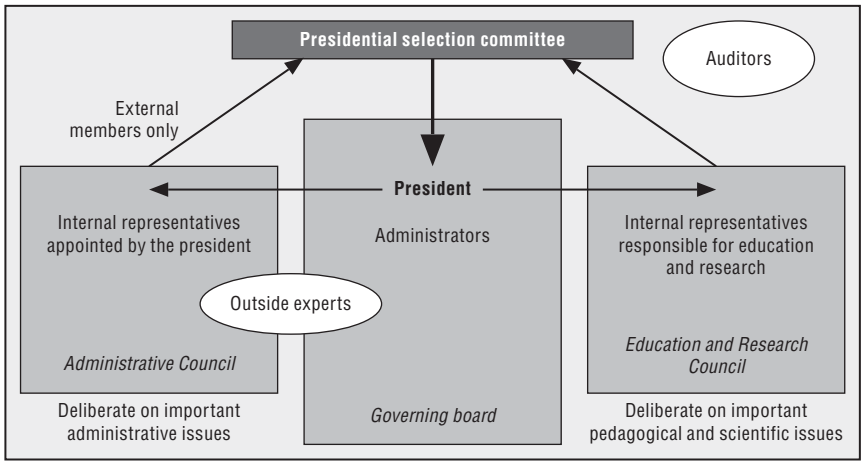
Stronger governance

With the new national universities having been given greater autonomy, their management teams have been reinforced accordingly.

The president will now be appointed by the Minister of Education on the basis of the proposal made by the NUC concerned. This proposal will be prepared by a presidential selection committee made up of members drawn from inside and outside the university.

Around the president, who is the ultimate decision-maker, three deliberative bodies have been established: 1) the governing board;[4] 2) the administrative council; and 3) the education and research council. University governance is shared by these three bodies, all of which are under the authority of the president. In addition, the structure of the secretariat is now left to the discretion of each institution within the limits of its budget.

Figure 1. **Governance of National University Corporations**



Participation of outside persons in university management

In order to ensure that universities are accountable and responsive to society, outside experts participate in the management of the university. At least one of the administrators on the governing board must be from outside the university. In addition, the majority of members of the administrative council, which deliberates on important administrative issues, are outside persons who are supposed to improve university management by introducing private sector management techniques and thereby contribute to strategic decision-making.

Staff now without civil servant status

The status of the personnel of national universities has been changed and staff members are no longer civil servants but employees of the university. This policy was adopted to make personnel management more flexible, enabling teachers to engage in a variety of activities and making it possible to recruit qualified academic and non-academic staff, including foreigners.

Operating grants

The budget of the former national universities was derived almost entirely from the special account for national education institutions.[5] The revenues of the special account comprised transfers from the general account (54% of revenues for 2003), self-generated income including registration fees, tuition fees, income from university hospitals and other receipts. As a rule, all of these revenues were pooled in the special account.

One of the major benefits of incorporation for institutions is the fact that the resources provided by government are now allocated as block appropriations. The NUCs receive a non-earmarked block grant (operating grant), which includes staff payroll costs. This gives heads of institutions greater latitude in decision-making.

Institutional evaluation

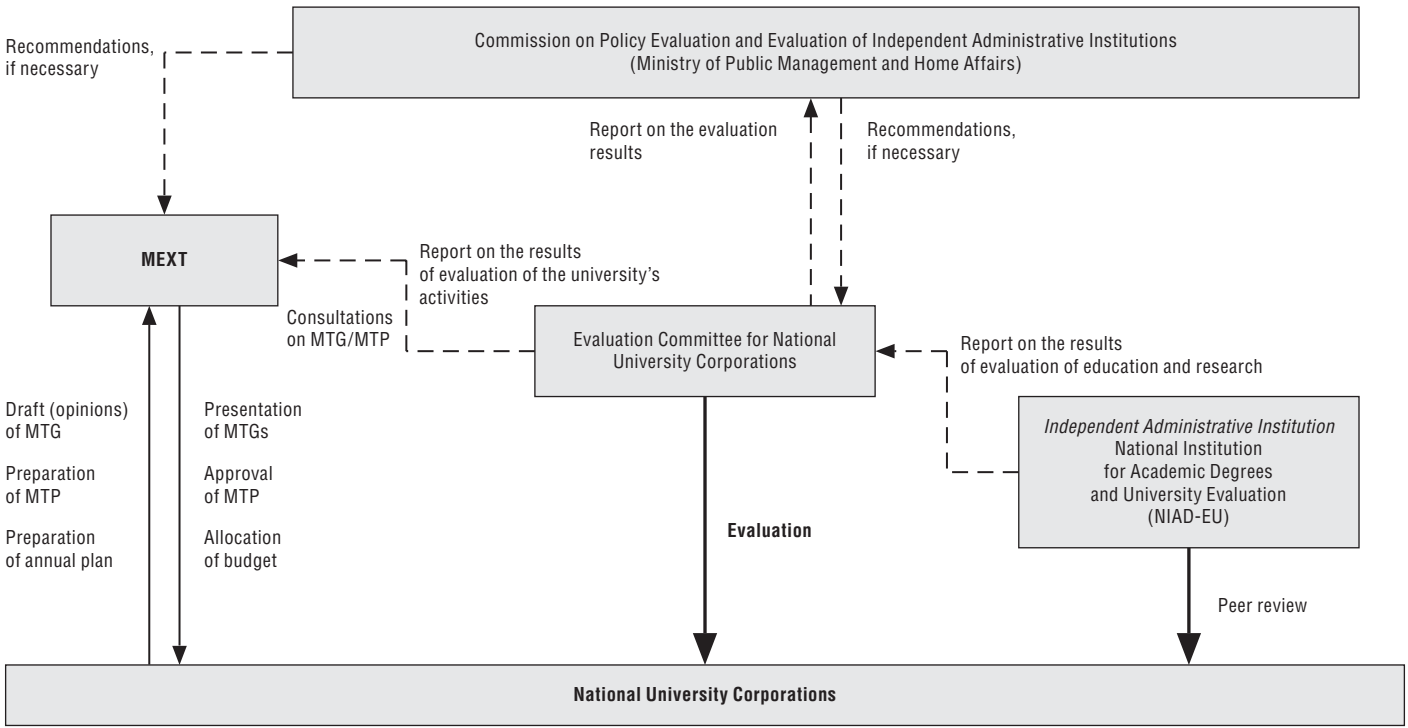
Primary responsibility for the evaluation of NUCs has been given to the Evaluation Committee for National University Corporations within MEXT (hereinafter "Evaluation Committee"). The Evaluation Committee was set up on 1 October 2003, before the NUCs had been established.

For aspects primarily related to education and research, in order to respect the specialised nature of university teaching and research, the National Institution for Academic Degrees and University Evaluation (NIAD-UE) will report to the Evaluation Committee.

The Evaluation Committee will in turn report the results of the evaluation to MEXT and to the Commission on Policy Evaluation and Evaluation of Independent Administrative Institutions of the Ministry of Public Management and Home Affairs. This commission may make recommendations to the Evaluation Committee and to MEXT, as it deems necessary.

The Evaluation Committee must be consulted by the Minister of Education, not only regarding the evaluation at the end of the MTG/MTP period, but also when MTGs are being implemented or modified and when the MTP is being approved.

Figure 2. **Evaluation system for National University Corporations**



MTG: medium-term goals.
MTP: medium-term plan.

Various aspects of National University Corporations – an overview of progress

Medium-term goals and the medium-term plan

The initial MTG/MTP projects were prepared by the former national universities and presented to MEXT in late September 2003. They were then forwarded to the Evaluation Committee for its opinion.

There were several remarkable initiatives in some projects, including new management concepts, specific and quantified commitments and measures to upgrade student services, but the projects mostly consisted of moderate and unambitious ideas, with the result that the Evaluation Committee expressed its dissatisfaction with the projects and decided to ask the national universities to revise them.

The projects were finally adopted on 11 May 2004 by the Evaluation Committee and authorised without amendment by the Minister of Education on 3 June. However, before they were adopted by the Evaluation Committee, 85 of the 89 NUCs had modified their projects. Of these 85, an additional 37 institutions (44 in all) had set quantified targets and a further 32 (43 in all) had set time frames for the implementation of certain programmes.

Table 1. **Examples of the quantified targets set by MTG/MTP**

University	Quantified target
Muroran National Technology Institute	Increase the outside research funds to be obtained by approximately 10%, including the grant-in-aid for scientific research (Kakenhi) of MEXT.
Tsukuba University	Maintain the over 90% success rate in the national examination for doctors of medicine.
Tsukuba University	Organise consultation activities for students more than 30 times a year.
Tokyo University for Agriculture and Technology	Increase the number of teachers engaging in contractual research or joint research by 10% on the 2000-03 average.
Shizuoka University	Double the number of patents obtained (from 25 to 50) by the end of the MTG/MTP period.
Kyushu National Technology Institute	Implement at least 5 research projects involving the entire university and aimed at solving world problems.

University governance

Greater accountability

National universities now have greater autonomy and this must go hand in hand with greater accountability. This need for greater accountability not only concerns institutions, but also their managers and all the stakeholders. This will require improved management, particular in the area of university governance.

The president

The presidents serving at the time the universities were incorporated were appointed as presidents of the NUCs under the Act. Since then, presidents have been appointed by the Minister of Education on a proposal made by each NUC, which is prepared by a select committee confined to appointed members, including persons from outside the university.

The new selection method has not been well received by most academic staff, since traditionally the president was selected by a vote among teaching staff. Many universities have kept a voting system, but it does not have the same validity. The regulations of Ochanomizu University specify that the selection committee must consider three candidates elected by the teaching staff, but without notifying the committee of their ranking so as not to influence its decision.

In addition, the position of president is open to persons from outside the university campus, sometimes including non-academics. The Kanoya National Institute for Physical Education and Sports was the first university to have an open competition for the position of president. After reviewing the applications, four candidates were selected, including two non-academics. The Committee finally selected two candidates, one of whom was the former CEO of a company and the other the serving president, and the final choice was then made by the teaching staff.[6]

Stronger presidential teams

In preparing for incorporation, national universities strengthened and reconstituted their management teams around the president. Presidents now have more vice-presidents and assistants, and they have their own secretariat or private office more often than was previously the case.

The governing board and administrative council newly created by the Act have a number of outside experts as members, including business managers, public accountants, lawyers and former senior ministerial staff. Some universities extend invitations to foreign experts. For example, Hiroshima University made Bruce Johnstone (Table 2) a member of its administrative council. Kobe University appointed Michael Lewis Shattock, formerly Registrar of Warwick University in the United Kingdom, as an administrator, and in this capacity he sits on the governing board.

At the same time, national universities have reduced the number of committees of teachers, which symbolised collegial democracy. For example, Hokkaido University has cut the number of committees by half and created five management units under the president, including the planning and steering unit and the research strategy unit. Ochanomizu University has almost entirely eliminated over 60 committees and has set up 11 management units.[7]

Table 2. **Outside members of the administrative board of Hiroshima University**

Name	Occupation (former)
W. Imanaka	President, Chugoku Newspaper.
K. Inai	President, Japan Audiovisual Educational Association (former Secretary to the Minister of Education).
B. Johnstone	Professor of Higher and Comparative Education, State University of New York at Buffalo (former President of State University of New York).
M. Ogasawara	President, Board of Education of Hiroshima Prefecture.
M. Onami	Special advisor, Kyoto Tachibana Women's University (former President of Ritsumeikan University).
T. Shiiki	Lawyer.
S. Takasu	President, Chugoku Economic Federation / Chairman of the Board of Directors, Chugoku Electric Power Co. Ltd.
K. Tanabe	Secretary-General, Tokyo Conference for Collaboration in Chugoku [former Director-General, Chugoku Bureau of Economy, Trade and Industry (METI Chugoku)].

Reorganisation of central services

Several national universities have entirely reorganised their secretariats. For example, Hiroshima University has dismantled the general secretariat which previously managed central administrative affairs, and has established offices under the supervision of each vice-president (Figure 3). The president also has his own private office, which has been appreciably reinforced.

Staff

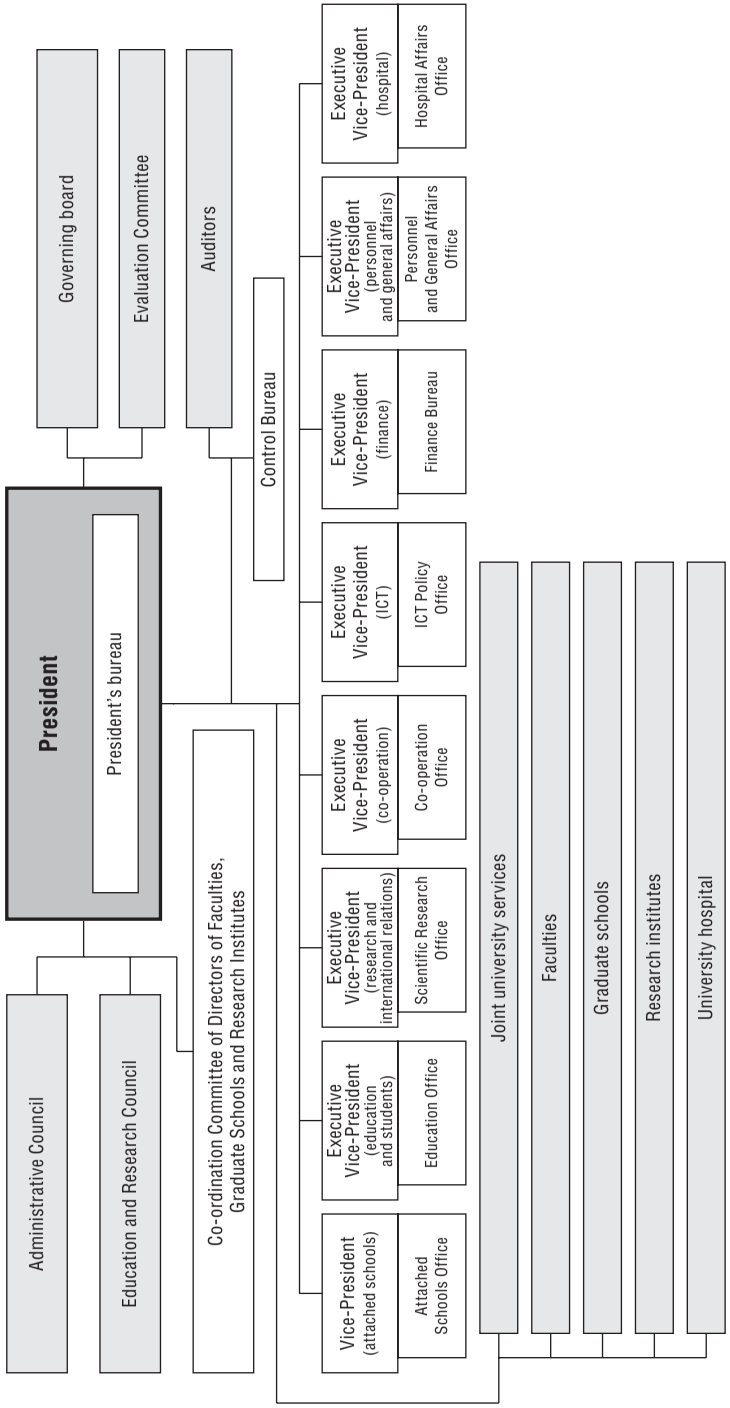
Teaching staff

Before incorporation,[8] the decision to hire or promote teaching staff was made by the faculty council, and this decision should in principle still be made in the same way. However, the university administration and outside experts are increasingly involved in these decisions.

More frequently, when a teacher retires, his/her department can no longer expect that it will automatically keep this post. It is up to the administration to decide whether the post should be reassigned to a specific department (which might be the same department) or whether it should be abolished.

What is more, some national universities have said that they intend to introduce fixed-term contracts for a larger proportion of teaching staff. For example, Tokyo University of Medicine and Dentistry has decided to sign fixed-term contracts with all teachers and senior lecturers. Although this policy is only applied with the consent of teachers, 90% of them have already agreed to fixed-term contracts. It is planned that 25 to 30% of contracts will not be renewed when they expire.[9]

Figure 3. **Governance of the national university corporation of Hiroshima University**



Administrative staff

Since university staff do not have civil servant status, national universities can recruit administrative staff without having to hold a national civil service examination. Since the 2004 recruitment campaign which began last autumn, national universities have been organising qualifying examinations by region.[10] Candidates who pass this examination may apply for posts in national universities located in the relevant region.

Despite this change in status, the 2004 examinations attracted many applicants and the competitions concerned were often very selective. The new recruits are supposed to be more motivated and interested in university administration than the former civil servants, many of whom chose their positions at random among the numerous civil service posts available after they were selected through the national examination process. Many of the people recruited as administrative staff through this channel admitted that they did not think of themselves as being university staff, but as government civil servants.

Some universities have also recruited experts for managerial posts requiring specialised knowledge. This kind of recruitment was not possible before universities were incorporated. For example, Tokyo University has appointed a former manager of JR (Japan Railway), which had undergone privatisation, to the post of director of the financial analysis unit. This unit was established at the time of incorporation to manage all of the university's resources which, traditionally, had been administered individually by each department.

Greater conflict

This change in status has resulted in greater conflict between management and trade unions. As the unions now have full labour rights, which were limited under the civil service regime, they have begun to submit various demands to the university administration, such as payment of overtime. This is a real problem, since NUC funding does not allow all overtime to be paid. In some universities, following negotiations, trade unions have filed complaints against their administration with labour inspectorates.

Financing

The operating grant

The total amount of the operating grant for the 2004 financial year was in principle the same amount that had been transferred from the general account to the special account in 2003. However, following the negotiations between the Ministry of Finance and MEXT in winter 2003-04, it was agreed that the operating grant would be reduced by 1% per year, except for the salaries of teaching staff.

A number of NUCs have already reduced the share of appropriations allocated to institutional units in anticipation of this reduction. Hiroshima University, for example, has reduced the operating budget of each unit by approximately 20%, including the salaries of contract employees.

University charges

The amounts of the main university charges, such as the registration fee, tuition fees and the entrance examination fee, were formerly set by the government. Since the universities have been incorporated, they can set the amounts of their charges within the limits set by MEXT, and the revenues generated are generally available to the NUCs.

For 2004, it was decided that the NUCs could raise the registration fee and tuition fees by as much as 10% over the standard amounts set by the Ministry. The standard amounts for both these fees are the same as the amounts for 2003, *i.e.* JPY 282 000 and JPY 528 000 respectively.

For 2004, all NUCs set fee rates that were identical to the standard amounts. However, as of next year, it is very likely that charges will be raised since the operating grant will start to be reduced. This may mean the end of the uniform tuition fees charged by national universities.

Investment in peripheral activities

Now that they have corporate status, national universities can invest in certain activities outside education and research, such as a technology licensing office (TLO) established as an incorporated business. This is now a key requirement since intellectual property, which belonged to the inventor under the former system, will now generally belong to the NUC in which the inventor works. When its autonomous status was established, Tokyo University established a University-Industry Relations Office, the director of which is one of the university's vice-presidents, and also set up its own on-campus technology licensing office (Toudai TLO, Ltd.: CASTI)[11] by incorporating an existing company located off campus.

More competitive financing

The government is focusing its budget on competitive funding, which tends to be open to both public and private institutions, whereas previously these types of programmes were generally reserved to national universities. For example, MEXT's foreign research grant programme, intended for the teachers in national universities, was stopped when the universities were incorporated, and the ministry redefined the missions and launched a new grant programme open to teachers in all sectors of higher education.

Evaluation

With the introduction of a system for evaluating the functioning of institutions by third parties, NUCs have generally established a university evaluation committee to assess the effectiveness of their activities. In some universities, a centralised information system on the output of teaching staff has been set up to collect data on teachers systematically, the data including the number of publications (including those in high-quality journals), the number of papers presented at international seminars and the total number of grants received. However, the committee often finds it difficult to agree on how to evaluate teachers' output, for example, with regard to the use of the impact factor and citation databases. Pedagogical activities and non-research activities also raise further problems.

Education

When the study on the incorporation of national universities was being conducted, many academics expressed great concern about whether the new national universities would give priority to management and profitability at the expense of traditional disciplinary approaches and programmes such as literature and philosophy courses.

In many national universities, the administration is trying to organise undergraduate programmes into multidisciplinary or general culture modules, but most often it meets with reluctance or rejection on the part of teachers who place the emphasis on disciplinary approaches. Courses and instructors are also increasingly subject to evaluation by students.

Student services

In Japan, student services have traditionally not been highly developed in universities, especially in national universities. The Act lays down that NUCs should develop their student services in various ways.[12] Many NUCs have given priority to student services in their MTG/MTP, and have set up student guidance centres and other support services.

Growing difficulties in recruiting students

Japan faces the difficult problem of a low birth rate, with a diminishing 18-year old population reaching the age for taking the university entrance examination. MEXT recently presented a forecast of the number of people who will be applying to enter higher education. This indicates that, in 2007, the number of applicants will be equal to the total number of openings in all higher education institutions.

In many private universities the number of students enrolled is already insufficient. In 2003, the share of universities in which student enrolments

were lower than the number of openings was 28%. This figure was much higher for two-year university institutes, standing at 45%. Even national universities are unable to fill all openings in all subjects.

In 2010, there will be an initial evaluation of NUCs and, depending on the findings, they may be reorganised or consolidated or even be reduced in size.

The challenges and the future of national universities

Changing university governance

One of the aims of incorporation is to create the conditions for better decision-making. Although this should give presidents greater latitude for decision-making and strengthen governance, the fact remains that many academics and non-academics fear that this will result in leadership that relies too heavily on business-oriented approaches at the expense of the university's basic mission. Toshiaki Ikoma, former CEO of Texas Instruments Japan and a former professor at Tokyo University, said that there is a risk that the quality of education and research might suffer because of the reform of university governance.[13] He also said that the unit responsible for managing the institution should be as small as possible so as to ensure rapid decision-making.

Furthermore, the management techniques of the private sector, which are to be used for strategic decision-making, have often prompted distrust on the part of academics, who have tended to favour democratic management of universities. As a result, expectations regarding the role of the administrative council, which has a majority of members from outside the university, vary considerably. For example, the president of Kagawa University hopes that the administrative council will focus its discussions on all aspects of university management, including managerial practices, while the president of Kyoto University would like to see these councils adopt a more wide-ranging approach.[14]

A growing disparity between institutions

It is true that there was a ranking, albeit implicit, among national universities, with the former imperial universities being considered the top-ranking institutions. In the future, this hierarchy will disappear and the difference between the universities that perform strongly and those that do not will be clear. It is likely that this disparity will be further widened by the fact that the government is concentrating its budget on competitive funding.

Presidents, especially those of small regional universities, have strongly criticised this policy, arguing that some universities have more resources than others and that, unless this inequality is eliminated, competition between institutions is unfair.

Multiple evaluations

Teacher evaluation

Traditionally, peer evaluation has been the method used to evaluate teachers, primarily on the basis of research criteria. Today, there is a trend towards including pedagogical and other evaluation criteria, and towards involving non-peers in the evaluation process. In addition, as indicated above, increasing use is being made of a centralised information system on teacher output. However, the more multidimensional the evaluation, the less functional it becomes, making it difficult to conduct on the basis of predefined criteria.

Institutional evaluation – the difficulties involved

At the end of the MTG/MTP period, the NUCs will be evaluated as institutions by the Evaluation Committee with the assistance of NIAD-UE. The results of the evaluation will be forwarded to the Ministry, which will decide how funds should be allocated between institutions on the basis of these results.

However, very few people really believe in the possibility of this kind of evaluation. Kaneko (2003) expressed considerable scepticism, arguing that universities were highly complex bodies containing many forms of activity that it was difficult to quantify and virtually impossible to evaluate using the same criteria. If institutional evaluations were required, he continued, this would only compel universities to conform to the criteria imposed so as to achieve better results, sometimes at the expense of the quality of education and research.

As of 2004, moreover, all universities across all sectors must ask an evaluation body to conduct an evaluation (accreditation) every seven years.

Evaluation of national universities as autonomous institutions under public law

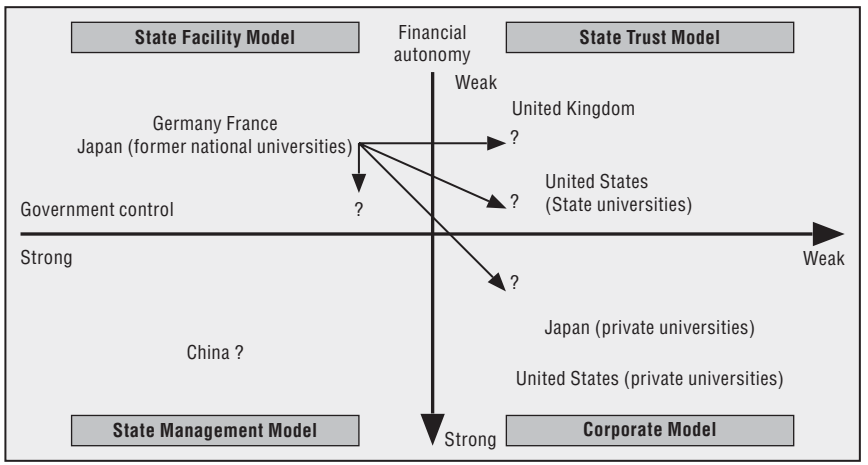
The NUCs will be evaluated as autonomous institutions under public law by the previously mentioned commission of the Ministry of Public Management and Home Affairs. The criteria and methods to be used to evaluate the NUCs are still not known at this point. However, the commission will be invested with the authority to make recommendations to Independent Administrative Institutions (IAI) and their supervisory ministries, including as to whether certain IAI activities should be reorganised or eliminated. It is therefore certainly possible that the commission may be severely critical of certain NUCs, especially those discredited by the Evaluation Committee.

The position of national universities in the Japanese higher education system – greater competition with private institutions[15]

Where are national universities heading?

According to Kaneko (2003), who has suggested a four-quadrant model of the different types of universities, when the process of the incorporation of national universities is analysed, they appear initially to be moving away from the "state facility model", based on the German concept, towards a different type of model. Nevertheless, he concluded that, since the new system is highly ambiguous, they might remain in the same quadrant after incorporation, although he also mentioned political pressures for reform and financial restrictions that could cause national universities to shift to another type of model.

Figure 4. **Control of governance – Financial autonomy according to the analysis of M. Kaneko**



Continuing discussion of the privatisation of national universities

During a parliamentary debate in May 2001, Prime Minister Koizumi responded to a question from a member of the Democratic Party – an opposition party that supported privatising national universities – by acknowledging the need for their privatisation. Later, he ordered the Minister of Education to examine this possibility, even though in April 1999 the Cabinet (Council of Ministers) had already discussed a study on reconstituting national universities as autonomous public institutions under public law, and this study was already under way.[16]

In January 2002, a newspaper reported the results of a questionnaire on the privatisation of national universities sent to the presidents of all universities.

According to the results of this survey, 70% of presidents of all universities acknowledged the need to privatise national universities. Although this questionnaire was later severely criticised on the grounds that what was meant by privatisation had been far from clear, this survey proved that the privatisation of national universities was still a possibility at the time when the study on the incorporation process was already in its final phase.[17]

The discussions on the privatisation of national universities finally seemed to be put to rest when the Act was adopted by Parliament in July 2003. The focus of concern then shifted to the conditions of this incorporation.

The distinction between the public and private sectors of higher education is blurred

National universities and private universities are increasingly competing for the same resources and some of the latter, now rival the best national universities.[18] The incorporation of national universities will further blur the distinction between the two sectors.

National universities now have considerably greater autonomy. In particular, the operating grants provided as block appropriations to NUCs are similar to the subsidies for current expenditures granted by MEXT to private higher education institutions. The NUCs can now keep the tuition fees that they charge and other self-generated resources. In return, the government does not fully cover their operating costs and is not liable for misconduct by NUC staff.

On the other hand, the education corporations[19] through which private universities are established are also subject to certain restrictions, including enrolment numbers, the types of diplomas that they can award, the organisation of their governing board, the amounts that they can borrow and the facilities that they are required to have.

Lastly, the main characteristics specific to the management of NUCs are as follows:

1. the president and auditors are appointed by the Ministry of Education;[20]
2. MTGs are defined and the MTP is approved by the Ministry of Education;
3. a systematic institutional evaluation is conducted by the Evaluation Committee;
4. NUCs are evaluated by the Committee for Policy Evaluation and the Evaluation of Independent Administrative Institutions;
5. major facilities are developed and maintained by the government;
6. there are specific regulations regarding tuition fees and other important regulations;
7. some programmes are restricted to national universities.[21]

However, the degree of autonomy that national universities will really enjoy is not clear at this time. The relationship between the government and NUCs will take shape in the course of the negotiations to prepare MTG/MTP and their evaluation, but it remains to be seen what form it will take.

Greater functional differentiation

As the gap between the public and private sector narrows, the functional distinction between institutions in both sectors will certainly be more important than the sectoral distinction. This should lead to a multiplication of government programmes corresponding to various university functions. The likelihood of this occurring is all the greater in that the government will not be able to alter the amount of the operating grants to NUCs at all significantly because of the difficulty of carrying out an institutional evaluation.

Conclusion

An unpredictable future

In Japan, mass higher education has mainly been developed by private institutions. During this time, the role of national universities has diminished and the distinction between the public and private sectors has become less clear, with this trend still continuing now that neo-liberal policies are being promoted by the government. The new national universities and private universities now have to compete with each other for the same resources, including government financing and the 18-year old population.

Non-competitive government funding to universities is also going to decline. Institutional evaluation will certainly be introduced despite the extreme difficulties involved, although this will not necessarily improve the quality of the institutions and education and research may in fact suffer as a result.

The outcome of the evaluation of the quality of institutions governed under public law is also hard to predict. It is quite possible that the NUCs will come in for criticism, especially since the reform of governance is still under way and is being pushed ahead resolutely.

What directions for national universities?

Implementing a genuine institutional policy

Each NUC will have to develop a relevant institutional policy by defining guidelines and choosing priorities in its main fields of competence, having first conducted a comprehensive institutional analysis. All universities have already initiated this process by forming specialist teams with the assistance of outside participants.

Maximising stakeholder involvement

Within universities, presidents now have a key tool for promoting their priorities and affirming their authority in relation to various institutional units. However, a genuine institutional policy cannot be developed without involving the rank and file of teachers and administrative staff, and sometimes student participation too. A major effort will be needed to involve the largest number of stakeholders in the preparation of institutional policy, without overly rigid guidance on the part of the university leadership.

This is also true for teacher evaluation. This should normally involve peer evaluation, although greater emphasis should be placed on other criteria besides research.

A need to professionalise management

The relevance of institutional policy and its effective implementation is also dependent on the management techniques available to the administration, including those used to involve stakeholders. In Japan, university management used traditionally to be in the hands of teachers, who were rarely management specialists, and the work of administrative staff consisted mainly of providing administrative support.

Training for administrators (including presidents and vice-presidents) and administrative staff in various management fields will be essential. A post-graduate programme in the field of higher education, like the many such programmes found in the United States, will also be useful. Training activities will also have to be organised in the context of human resource management so that training will contribute to staff career development. Professional associations in various fields of competence will also have a key role to play, as will other forms of group initiatives.

A time for learning new practices

Although the future of national universities is unclear, the fact remains that changes are expected. However, a new system cannot be established overnight and time is needed to learn and adjust to new practices and the new planning and evaluation culture. It is interesting to note in this regard, to mention one example, that the contractualisation policy[22] introduced in France took nearly 20 years to become truly functional (Frémont *et al*., 2004).

Redefining the role of government and building the university community

As functional differentiation is becoming more important, the role of government should consist of supporting universities' initiatives rather than regulating or co-ordinating their activities. It is hoped that the government

will provide various support programmes that reflect both universities' needs and the government's policy orientations. It is essential to develop a culture of dialogue between universities and government.

Furthermore, in the Japanese higher education system, certain types of parallel activities and services are not really developed, these including staff training centres, professional associations, the staff career development system, scholarships and other types of support for students. The government also needs to invest in these activities.

Lastly, universities in both sectors must build a community aimed at organising co-operation among all its members in order to facilitate the realisation of their missions, rather working against each other.[23] This is especially important given that governmental reform will certainly have an impact on higher education as a whole at a time when student enrolments are declining and central government is facing financial difficulties.

The author:

Professor Jun Oba
Associate Professor
Research Institute for Higher Education
Hiroshima University
739-8512 Higashi
Japan
E-mail: oba@hiroshima u.ac.jp.

Notes

1. The official name of the Ministry is "Ministry of Education, Culture, Sports, Science and Technology (MEXT)". In this document, we shall use the term "Ministry of Education" to refer to the Ministry responsible for MEXT.
2. To gain a fuller understanding of the incorporation of national universities, readers should refer to Oba (2002) and Oba (2004a).
3. Strictly speaking, National University Corporations have been incorporated as legal persons under the Act separately from the national universities, which have been founded by these corporations.
4. This is the ultimate decision-making body after the president. With regard to the powers of each council, see Oba (2004a).
5. The special account was established in 1964 to finance the educational institutions under the jurisdiction of the Ministry of Education (essentially the national universities) and to separate their budgets from the general account budget in order to monitor their revenues and expenditures.
6. *Nippon Keizai Shinbun* (Nikkei Journal) dated 5 August 2004. The serving President was ultimately selected following this vote.
7. *Nippon Keizai Shinbun* (Nikkei Journal) dated 27 March 2004.

8. The appointment was made by the university president, but the final decision was made *de facto* by the faculty council.
9. *Nippon Keizai Shinbun* (Nikkei Journal) dated 3 August 2004.
10. In Japan, the regions do not constitute territorial governments, but are groups of geographically close administrative units.
11. *www.casti.co.jp/*.
12. Article 22 of the Act concerning the functions of NUCs specifies that national universities must provide students with counselling sessions on subjects such as their studies, career planning and their physical and mental health, and other forms of support.
13. *Nippon Keizai Shinbun* (Nikkei Journal) dated 27 March 2004.
14. (Nikkei Journal) dated 5 August 2005.
15. Competition between the public and private sectors is addressed in Oba (2004b).
16. Although the Prime Minister's injunction did not result in the privatisation of national universities, it did lead to *Policies for the structural reform of universities (national university)* in June 2001 (see Oba 2004a) and considerably accelerated the incorporation process.
17. The study group on the incorporation of national universities, established by MEXT, presented the final report on 26 March 2002.
18. See Oba (2004b).
19. This is a type of public utility foundation with legal status.
20. The fact that the president is appointed by the Minister may not have a great deal of significance, given that presidents had always been appointed on the basis of a decision made in national universities until they were incorporated. On the other hand, the actual role of the auditors is still unclear.
21. These types of programmes have been opened increasingly to other sectors.
22. The incorporation of national universities and contractualisation policy have much in common.
23. Japan has the lowest percentage of public funds allocated to higher education in terms of percentage of GDP of all the OECD countries. See Oba (2004b).

References

Frémont, A. *et al.* (2004), *Les universités françaises en mutation (1984-2002)*, Documentation française, Paris.

Kaneko, M. (2003), "Kokuritsudaigakuhojin to daigakuunei – Kotokyoiku niokeru seifu no yakuwari" [The autonomous status of national universities and the university administration – The role of government in higher education] (in Japanese), The 31st annual symposium of the Research Institute for Higher Education (RIHE), Hiroshima University, 21-22 November, Hiroshima.

Oba, J. (2002), "La réorganisation des universités nationales au Japon – sur les plans du gouvernement, de la gestion du personnel et du financement", OECD/IMHE General Conference 2002, Paris.

Oba, J. (2004a), "L'évolution de l'université d'État au Japon – le renforcement de l'autonomie institutionnelle et la garantie de la qualité de l'enseignement supérieur", *Higher Education* seminar of the *Institut des Sciences Politique*, 29 January, Paris.

Oba, J. (2004b), "Towards privatisation? Restructuring of the national universities in Japan", The second international seminar "Reform of Higher Education in Six Countries", 8-9 July, organised by IFF Wien of the University of Klagenfurt, Vienna.

* The aforementioned documents by J. Oba can be downloaded at: *http://home.hiroshima-u.ac.jp/oba/index-f.html*.

ISSN 1682-3451
Higher Education Management and Policy
Volume 17, No. 2
© OECD 2005

Managing Relations with Industry: The Case of Brazilian Universities

by

Maria Alice Lahorgue
Universidade Federal do Rio Grande do Sul, Brazil

For a long time, university-business relations were a matter of individual, informal and intermittent contacts. Once the innovation process picked up speed, businesses began asking more from universities (longer-term co-operative research, for example), and governments placed university-business interaction at the centre of their innovation strategies, with the universities having to organise interface structures as well as developing internal standards for the agendas of teachers-researchers, industrial property, etc.

In Brazil, universities started to do this during the 1990s. The Brazilian experience shows that the success of interface structures depends not only on the national innovation policy but above all on the conditions specific to each establishment. This article discusses the results of three surveys conducted by the Universidade Federal do Rio Grande do Sul concerning the technology transfer and intellectual property offices of Brazilian universities, and is set out as follows: 1) the background to university-business relations in Brazil; 2) the characteristics, strong points and weaknesses of university offices, based on their development over the last decade; and 3) benchmarks for the development of internal strategies.

Introduction

Nearly 40 years ago, two Latin American scientists, Sábato and Botana, described an economic development model for Latin America based on co-operation between enterprises, governments and universities (Etzkowitz and Carvalho de Mello, 2004). Their proposal consisted of a top-down approach with the government being responsible for implementing the model. This proposal has to be understood in the context of South American countries, which at the time were in the middle of a process of industrial development based on import substitution, in accordance with the recommendations of ECLA (Economic Commission for Latin America). The development models aimed above all at self-sufficiency (improving the input-output ratio), without making the creation of new products and new technologies a priority. In fact, the new technologies, which transformed the world after 1975, were not really taken into account, and the goal pursued was still convergence between countries with regard to development. Sábato and Botana understood that more was needed and that this would not be possible until there was synergy between the three sectors, under the direction of governments, which at the time in Latin America were mostly military dictatorships and highly nationalistic.

It was necessary to wait nearly 20 years before the model proposed by the two scientists had any chance of being implemented. The world following globalisation is very different from that of the 1960s. Improving the input-output ratio by protecting domestic markets has become the exception in view of the new WTO rules. Moreover, new technologies (especially information and communication technologies) have redefined production methods and relations between national territories. Increasingly, innovation is now becoming the most important condition for competitiveness, and policy-makers are realising that the science and technology infrastructure plays an important role in promoting innovation. Thus, the universities, responsible for an important part of scientific production, are taking their place in development strategies as key elements in the innovation system. In the past, it was commonly thought that excellent research would naturally lead straight on to technological innovation and economic growth. In fact, between 1945 and the 1980s, science developed in accordance with the "rules" of Vannevar Bush (author of the 1945 report *Science – The Endless Frontier*). Under this "social contract", governments as a rule financed scientific research with the expectation that its results would be

beneficial to the economy and society, without making a more detailed evaluation. Reality proved to be somewhat different, however, obliging policy-makers to think again. Demonstrating the relevance of future science and technology as a means of reducing the risk of bad policies, B. Martin (2000) argues that the last decade has produced an important change in the relationship between science and society (Lahorgue, 2003).

The new "social contract", which is still in the process of development, emphasises the vocation and strategic role of research, as well as the new forms of university governance. In "emerging" countries, the research conducted by national institutions and the subsequent transfer to independent enterprises has become one of the strategic bases of competitiveness, given that technology transfers by means of the relocation of large transnational firms has proven to be disappointing as regards the construction of internal innovation capacity (Cassiolato, Elias, 2003). Research funding has followed this strategic approach, backing innovation and, therefore, applied research. Such policies have important implications everywhere for the management of universities, which must now undertake new activities involving interaction with business, the protection and marketing of their intellectual property, the creation of new technology-based enterprises, the management of technology parks, and so forth. In Brazil, where most scientific staff and engineers are employed by public institutions (in particular by universities), these new factors are in the process of generating important changes to university management.

For Brazilian universities, the 1990s saw a consolidation of the new approach. The Brazilian experience shows that the success of interface structures depends not only on the national innovation policy but above all on the conditions specific to each establishment. This article discusses the results of the two surveys conducted by the Universidade Federal do Rio Grande du Sul on the technology transfer and intellectual property offices of Brazilian universities, and is set out as follows: 1) the background to university-business relations in Brazil; 2) the characteristics, strong points and weaknesses of university offices, based on their development over the last decade; and 3) benchmarks for the development of internal strategies.

The Brazilian context

In Brazil, the public sector is responsible for almost all research and development (R&D). Within the public sector, it is the universities which are mainly responsible for producing knowledge. The importance of the universities with regard to research is reflected in the distribution of scientists and engineers in Brazil. Some 71% of such staff are employed by higher education institutions, 17% by the private sector and 12% by the government (MCT, 2001).

In the 1970s, under the military regime, the Brazilian Government made a concentrated effort to ensure that Brazilian nationals acquired scientific and technological knowledge, with the goal of controlling the bases of the development of new procedures and new industrial products. The public universities were the only institutions that could be the object of such an effort, on the one hand because they had qualified staff and, on the other, because the industrial sector, given the total protection of the national market, had no incentive to innovate. This explains why there was a process of institutionalisation of research on the basis of a policy targeting the all-important goal of economic development – a process that gave pride of place to the universities.

The systems for PhD education and for research are thus entirely interwoven in Brazil. Research is carried out by the same institutions and the same professors as those responsible for giving PhD training. In 2002, Brazil had some 15 000 research groups as listed by the CNPq (National Research Council attached to the Ministry for Science and Technology – MCT). Nearly 90% of these belong to universities, other colleges and research institutes. Sixteen establishments, nearly all public, 7% of the total number, possess half of the groups listed (MCT, 2001). Table 1 shows how these variables have evolved over the last decade, in which the growth in the number of institutions, for example, is remarkable.

Table 1. **Number of institutions, research groups, researchers and PhDs, Brazil, 1993, 1995, 1997, 2000, 2002**

	1993	1995	1997	2000	2002
Institutions	99	158	181	224	268
Groups	4 404	7 271	8 632	11 760	15 158
Researchers (R)	21 541	26 799	34 040	48 781	56 891
PhDs (D)	10 994	14 308	18 724	27 662	33 947
(D)/(R) in %	51.04	53.39	55.01	56.71	59.67

Source: CNPq, 2004, *www.cnpq.br*.

However, while there has been a remarkable increase in the number of research groups and PhDs over the decade, comparison with other countries (Table 2) shows that the situation in Brazil is far from being comfortable. In 2001, 6 042 students graduated as PhDs, representing 3.5 per 100 000 inhabitants (for a population of 172 million), while the same proportion was 12 in Korea (1998), 15.1 in the United States and 19.1 in the United Kingdom (1999 for both).

Governments (federal and state together) are responsible for 60% of R&D funding. Nearly half of public funding is for masters and PhD courses, and therefore benefits higher education institutions. In 2000, expenditure on R&D

Table 2. **PhD graduates, for selected years and countries**

		New PhDs	New PhDs/100 000 inhabitants
Brazil	2001	6 042	3.5
South Korea	1998	5 586	12.0
United States	1999	41 140	15.1
United Kingdom	1999	11 338	19.1

Source: Carneiro Jr., Lourenco (2003).

represented 1.05% of Brazilian GDP, the figures for Korea and the United States being 2.47% and 2.65% respectively.

The new Brazilian industrial policy, launched in 2004 (*www.desenvolvimento.gov.br*), focuses on promoting business innovative capacity and the development of promising technologies for the future (biotechnology, computer science, nanotechnology, etc.) as one of the strategies for consolidating national competitiveness. The measures announced by the federal government include several that affect universities and their dealings with industry. Examples include the development of targeted research, the promotion of local production and innovation systems, support for the introduction of innovative measures in small and medium-sized enterprises (SMEs), and an Innovation Act (similar to the French Act). The process, begun in the 1990s by universities and aimed at speeding up and organising interaction with business, has thus reached a new level.

Before addressing the current situation and emerging trends with regard to the management of university-business interaction, it is interesting to note two characteristics of research funding in Brazil. First, for at least ten years, against the background of a fiscal crisis, the Brazilian policy for funding research has to a certain extent radicalised the global trend towards "control" and S&T policies based on economic development strategies (Lahorgue, 2003). Secondly, the government has traditionally financed researchers and their partners (whether non-profit organisations or not) directly, without seeking to know what impact this would have on university institutions. Over the years, this approach to funding has established a culture of individualism in which most decisions are taken at the level of the research group and very often by a single researcher. These two characteristics have led to a difference in the way teaching and research units in universities have evolved (with units included in the strategy choices of economic development policy being given many more resources than the others) and in a trend towards informal, individual and very intermittent interaction.

New missions, new instruments

H. Etzkowitz (2002, p. 143) states that the *triple helix* theory can be described by means of seven hypotheses. One of these is represented by the new interactive channels used by the different institutional bodies and which speed up innovation:

> "The linear model of transfer of knowledge generated in academia is supplemented with the transfer of technology both as intellectual property and through the formation of firms by alumni and staff. The reverse linear model starting from industrial and social problems provides starting points for new research programs and discipline formation. The interaction between these two dynamics results in the emergence of an interactive mode of innovation."

This section analyses how Brazilian universities have organised themselves over the last 15-20 years to take on the challenges of these new missions, by showing the successive institutional reorganisations that have taken place to avoid internal fragmentation, reduce risks and interact better with society.

In the early 1990s, universities began to define institutional rules for the provision of services, based essentially on the American "one-fifth rule", *i.e.* dedicating one eight-hour day to activities related to the third mission. Establishments concentrating particularly on research, as is the case for the universities of São Paulo, Campinas and Rio Grande do Sul, formalised the one-fifth rule in the first half of the 1990s, and were followed subsequently by several other institutions.

This "flexibilisation" of the rules on how teachers-researchers spend their time has opened the way for an increase in interaction on the basis of an individualistic culture in which exchanges take place essentially between individuals and business. In 1994, a federal Act provided for the creation of private-law foundations to support public universities in their dealings – other than relating to education *stricto sensu* – with society. There are several legal obstacles that prevent public universities in Brazil from negotiating with enterprises in a flexible and "fluid" manner, and the foundations were designed to help universities overcome these obstacles. In some respects, these foundations have been beneficial because they do help to make interactions more meaningful. They have also, however, given yet more scope for "uncontrolled" interaction, *i.e.* without institutional supervision.

As part of their restructuring effort to improve interaction management, Brazilian universities have set up Technology Transfer Offices (TTOs) with the following goals (Santos, Solleiro, Lahorgue, 2004):

- Contact enterprises to discuss transfer opportunities.
- Identify the technologies available in the university that could be transferred.

- Assist in the negotiation and drafting of technology transfer contracts.
- Prepare economic viability studies of university inventions, as an aid to decisions about the taking out of patents.
- Lend support in carrying out contracts.
- Explore funding sources for R&D projects.
- Conduct institutional marketing.
- Protect the university's intellectual property (patents, marketing, etc.).

In 2003, a research project funded by Finep (the MCT's research financing agency) identified 25 TTOs in Brazil, most (68%) of which were at public universities. It is interesting to note that the names of Brazilian TTOs are not uniform: while some are in fact called "TTOs", others label themselves "agency", "group" and so forth. This stems from the fact that when universities decided to set up the bodies there was no nation-wide standard that might have suggested a single term, as was the case in the United States or Spain, for example.

From an organisation-chart standpoint, TTOs are generally overseen by vice-presidents for research, doctoral studies or outreach (*i.e.* activities consisting of services to society). Only rarely do they report directly to a university president.

In 60% of the institutions taking part in the survey, TTOs are not the only sector responsible for interaction. This finding is similar to the case of the OECD (2003, p. 39):

> "Results of the OECD survey [on patenting and marketing in public research organisations] found that by and large in the Netherlands and Korea university-based TTOs are quite institutionalised in their organisation of IP. In Italy, in contrast, only 35.7% of universities rely on a dedicated technology transfer or licensing office, while 46.4% delegate such activities to other offices for which technology transfer is not the main mission. In Germany, in both Danish universities and research labs, as well as in Russia, TTOs in non-university-based PROs (public research organisations) tend to be organised as a division of the PRO that is not dedicated to TTO."

The creation of TTOs has not diminished the role of foundations: 76% of institutions use those organisations to administer contracts and financial income. TTOs have not in fact been substituted for foundations; they were created for the purpose of transforming an individual-to-business relationship into genuine university-business interaction. The role of foundations will be dispensable only when the legalities have been changed in such a way as to allow universities and other public research organisations to enter into contracts, hold equity stakes in spin-off firms and pay their staff more than the salaries dictated by civil service status, for example.

Brazilian TTOs are small in terms of their full-time equivalent (FTE) staff. On average, they employ 3.5 people, which is close to the numbers found elsewhere in the world. It must be noted, however, that a significant proportion of the people working in TTOs are temporary staff – either students or professionals – who receive stipends and, as a result, cannot stay in the TTO for longer than two or three years.

Table 3 shows the activities carried out by the 25 TTOs covered by the research. Analysis of the activities shows that Brazilian TTOs are very similar. The main differences between them involve functions related to the protection of intellectual property: patenting, registration of trade marks and designs, and marketing. The table also shows that TTOs take on a portion of interface activities. There is another group of activities involving the creation of technology-based firms which is handled by other sectors in the institutions.

Table 3. **Activities reported by Brazilian TTOs**

Activities	TTOs	% of total (25 TTOs)
Technological/administrative services	18	72
Management of technological services	18	72
Project negotiations	19	76
Preparation of contracts/conventions	22	88
IP registration	17	68
Marketing of technologies	16[1]	64
HR training	20	80
Dissemination of technology	19	76

1. Of which only 5 institutions had had at least one marketing experience.

Source: Santos, Solleiro, Lahorgue (2004).

In 1984, the CNPq launched a programme of support for the creation of technology parks in Brazil. The goal had been to foster the creation of research spin-offs – an acknowledgement of the role of innovative small businesses. The initiative was taken too soon, however, since the country lacked both critical mass from a scientific standpoint and high-tech entrepreneurs. The programme's planned parks would have to wait 15 years before being viable. But the idea had been launched, triggering a powerful movement that created technological incubators.

A majority of Brazil's incubators and technology parks are affiliated with institutions of higher education. In 2003, there were 207 incubators and 10 technology parks operating in Brazil. Of the 207 incubators, 107 were technology-based, and of those 80% had formal ties with universities. All ten of the technology parks had formal and informal ties with universities (Anprotec, 2003).

The creation of university incubators dates back to the late 1980s. In the last decade, the number of incubators rose continuously. Unlike TTOs, incubators are to be found in all institutions, public and private alike. They are managed by small structures headed by vice-presidents for research, doctoral studies or outreach, *i.e.* they have the same hierarchy as TTOs. But this does not mean that there is necessarily convergence at any given institution: it is frequently the case that a TTO will be tied in with research, and an incubator or technology park with outreach.

In a recently completed research project on incubators and technology parks in Brazil, which was financed by Anprotec (the national association of incubators and technology parks) and Sebrae (the Brazilian Micro and Small Business Support Service), it could be seen that institutions are only just beginning to incorporate the incubation process into their institutional development strategies. The following trends can be observed:

- Dissemination of entrepreneurship at all levels of education.
- Prospecting of technologies that can be developed by businesses spun off from university research, in incubators and technology parks.
- Clustering of providers of technological and administrative services to small businesses present in the local productive fabric, harnessing experience acquired helping incubator businesses.

Thus there is a convergence between the activities of TTOs and those of incubators/technology parks, the speed of the process appearing to depend on the maturity of each institution's technological development activities.

In this movement, universities are beginning to centralise all technological development activities into a single internal structure under the authority of the institution's president. Examples are still rare, yet their numbers are increasing substantially. During the research on incubators and technology parks, seven such structures were observed. One of the oldest is that of the University of Brasília, which has been in existence for 15 years, all of the others having been set up less than ten years ago. As a rule, these structures centralise activities involving enterprise creation, interaction with the productive sector, protection of intellectual property, technology park management and co-ordination of junior firms (set up by students, especially to deliver consulting services). Table 4 shows the main activities of these structures, which go by a variety of different names, such as institute, centre or secretariat.

Not only do these new structures centralise activities typical of university-business interaction, but they incorporate other activities concerning the interaction between universities and society. Regional development projects and incubators of popular or craft co-operatives are just a few examples of these new activities which make Henry Etzkowitz's "two dynamics" even more concrete, with the dialogue between institutional strategies and local society.

Table 4. **New interface management structures at selected institutions**

Structure	Ownership	Activities							
		Incubator	Park	Entrepre-neurship	Junior firms	Intellectual property	Interaction contracts	Regional develop-ment	Social incubator
AGT	Private	Yes	Yes	No	No	Yes	Yes	Yes	No
CDT	Public	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Centev	Public	Yes	Yes	No	Yes	No	No	Yes	Yes
Inst. Gene	Private	Yes	No	No	No	Yes	Yes	Yes	Yes
I. Gênesis	Private	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Sedetec RS	Public	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Sedetec JF	Public	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Source: Author's research.

Conclusion

Brazilian universities have already made substantial efforts to acquire an organisational structure capable of overcoming the trend towards institutional fragmentation, by reclaiming control over interaction. But the job is far from finished. Problems with regulatory aspects are still the same as at the beginning of the period under study. The Innovation Act, which has been adopted by the Chamber of Deputies and as of July 2004 was under discussion at the Senate, may eliminate a large portion of the obstacles cited above. This Act lays down important rules for university-business relations: use of laboratories by businesses, exchanges of staff between universities and businesses, payment of university staff involved in interaction without recourse to foundations, creation of spin-offs by teacher-researchers, marketing of patents with exclusivity, tax incentives for businesses engaging in co-operative research with universities and research centres, and support for small technology firms.

The new activities relating to the third mission are far more complex and require staff that in many cases are unavailable in the institutions. The most common solution is to hire fellowship holders and hope to keep them as long as possible. This in fact poses a substantial problem, given that the professionals working in the units in charge of interface possess abilities acquired on the job. Familiarity with laboratories, partners, the institution's idiosyncrasies and the market, *inter alia*, is vital to proper development of interactions and cannot be acquired overnight. Thus to build up and retain a small and highly qualified team is a challenge that must be met, especially in public universities.

The incorporation of relations with industry into institutional strategy remains somewhat fragile, and it still hinges far more on the political will of the top officials than on the university's culture. Thus, to consolidate the internal

organisation of interactions depends not only on eliminating legal obstacles, and on stable and qualified staff, but also – and above all – on the commitment of a substantial share of the institutional community to the new missions.

The author:

Professor Maria Alice Lahorgue
Vice President for Planning
Universidade Federal do Rio Grande do Sul
Rua Henrique Dias 41/03
90035-100 Porto Alegre, RS
Brazil
E-mail: lahorgfue@ufrgs.br.

References

Anprotec (2003), *Panorama 2003*, Brasília: Anprotec.

Carneiro, J.R.S. and R. Lourenço (2003), "Pós-graduação e pesquisa na universidade", Viotti, E., Macedo, M., *Indicadores de ciência, tecnologia e inovação no Brasil*, Campinas: Unicamp, pp. 169-227.

Cassiolato, J. and L. Elias (2003), "O balanço de pagamentos tecnológicos brasileiro: evolução do controle governamental e alguns indicadores", in Viotti, E. and M. Macedo, *Indicadores de ciência, tecnologia e inovação no Brasil*, Campinas: Unicamp, pp. 269-328.

Etzkowitz, H. (2002), *MIT and the Rise of Entrepreneurial Science*, London: Routledge.

Etzkowitz, H. and J. Carvalho de Mello (2004), "The Rise of a Triple Helix Culture: Innovation in Brazilian Economic and Social Development", *International Journal of Technology Management and Sustainable Development*, Vol. 2, No. 3, pp. 159-171.

Lahorgue, M.A. (2004a), "Response to Changes in research funding at the Universidade Federal do Rio Grande do Sul", OECD, *University Research Management: Meeting the Institutional Challenge*, IMHE/OECD, pp. 105-120.

Lahorgue, M.A. (2004b), *Polos, parques e incubadoras, instrumentos de desinvolvimento do Seculo XXI*, Brasília, Anprotec, Sabrae.

Martin, B. (2000), *Matching Societal Needs and Technological Capabilities: Research Foresight and the Implications for Social Sciences*, Sussex: SPRU, Electronic WP No. 60.

MCT (2001), *Ciência, tecnologia e inovação*, Brasília: MCT.

OECD (2003), *Turning Science into Business – Patenting and Licensing at Public Research Organisations*, Paris: OECD.

Santos, M.E.R., J.L. Solleiro and M.A. Lahorgue (2004), *Boas práticas de gestão em escritórios de transferência de tecnologia*. Paper prepared for the 23rd Simpósio da Inovação Tecnológica, PGT/USP, October 2004.

Information for authors

Contributions to the *Higher Education Management and Policy* Journal should be submitted in either English or French and all articles are received on the understanding that they have not appeared in print elsewhere.

Selection criteria

The Journal is primarily devoted to the needs of those involved with the administration and study of institutional management in higher education. Articles should be concerned, therefore, with issues bearing on the practical working and policy direction of higher education. Contributions should, however, go beyond mere description of what is, or prescription of what ought to be, although both descriptive and prescriptive accounts are acceptable if they offer generalisations of use in contexts beyond those being described. Whilst articles devoted to the development of theory for is own sake will normally find a place in other and more academically based journals, theoretical treatments of direct use to practitioners will be considered.

Other criteria include clarity of expression and thought. *Titles of articles should be as brief as possible.*

Presentation

** Electronic submission is preferred. ***Three copies*** of each article should be sent if the article is submitted on paper only.

Length: should not exceed 15 pages (single spaced) including figures and references (about 5 000 words).

The first page: before the text itself should appear centred on the page in this order the title of the article and the name(s), affiliation(s) and country/countries of the author(s).

Abstract: the main text should be preceded by *an abstract of 100 to 200 words* summarising the article.

Quotations: long quotations should be single-spaced and each line should be indented 7 spaces.

Footnotes: authors should avoid using footnotes and incorporate any explanatory material in the text itself. If notes cannot be avoided, they should be endnotes, at the end of the article.

Tables and illustrations: tabular material should bear a centred heading "Table". Presentations of non-tabular material should bear a centred heading "Figure". The source should always be cited.

Addresses of author(s), including email, should be typed at the end of the article.

References in the text: Vidal and Mora (2003) or Bleiklie *et al.* (2000) in the case of three or more authors. However, the names of all authors should appear in the bibliography at the end of the article.

Bibliography at the end of the article: references should be listed in alphabetical order under the heading "References". Examples of the reference style used in the Journal are:

- For periodicals: Kogan, M. (2004), "Teaching and Research: Some Framework Issues", *Higher Education Management and Policy*, Vol. 16, No. 2, pp. 9-18.
- For books: Helen Connell (ed.) (2004), *University Research Management – Meeting the Institutional Challenge* OECD, Paris.

The covering letter

This should give full addresses and telephone numbers and, in the case of multi-authored papers, indicate the author to whom all correspondence should be sent.

Complimentary copies

Each author will receive two complimentary copies of the Journal issue in which his article appears, in the original language.

Articles submitted for publication should be sent to:

The Editor
Higher Education Management and Policy
OECD/IMHE
2 rue André-Pascal
75775 Paris Cedex 16
France
imhe@oecd.org

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(89 2005 02 1 P) ISSN 1682-3451 – No. 54225 2005

Journal of the Programme on Institutional Management in Higher Education

Higher Education Management and Policy

Volume 17, No. 2

CONTENTS

What is a University in the 21st Century?
Brian D. Denman 9

Rethinking or Hollowing out the University? External Engagement and Internal Transformation in the Knowledge Economy
Michael Harloe and Beth Perry 29

Institutional Mission vs. Policy Constraint? Unlocking Potential
Ellen Hazelkorn 43

Reorganising the Teaching-research Tension
Anne-Marie de Jonghe 61

Political Instruments Employed by Governments to Enhance University Research and Knowledge Transfer Capacity
Grant Harman 75

New IDEAs for Internationalisation Within the Knowledge Society
H.G. Büttner 91

The Incorporation of National Universities in Japan: Initial Reactions of the New National University Corporations
Jun Oba 105

Managing Relations with Industry: The Case of Brazilian Universities
Maria Alice Lahorgue 127

Subscribers to this printed periodical are entitled to free online access. If you do not yet have online access via your institution's network contact your librarian or, if you subscribe personally, send an email to

SourceOECD@oecd.org

www.oecd.org

OECD

OECDPUBLISHING

ISSN 1682-3451
2005 SUBSCRIPTION
(3 ISSUES)

89 2005 02 1 P

9 771682 345000

imhe

Volume 17, No. 2