Innovative Universities:

Challenges and Perspectives

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INTRODUCTION

This paper is about ‘innovative universities’: universities that wish and try to adapt to changing environmental conditions. It is about universities that want to change, want to adapt their missions to what is happening in their environment.
I shall address two main questions:
− what are these changing environmental conditions?
− how do innovative universities try to react to these changing conditions?

I should add that, when I discuss innovative universities, I have a special group of universities in mind: the universities that Burton Clark has called ‘entrepreneurial universities’ (Clark, 1998) and which have now formed a special consortium: the European Consortium of Innovative Universities (ECIU) (see note).

SOME BASIS CONCEPTS

In order to understand what innovative universities are, let us briefly have a look at the literature.
According to Clark, successful innovative universities appear to have five basic characteristics (Clark 1998):

− a strong steering core: universities that want to change, cannot depend on traditional (weak) control or steering. They need to become quicker, more flexible, more focused in reacting to demands from their environments;
− a developmental periphery: universities that want to change, need to have mechanisms to relate to the outside world. They have to reach across their traditional boundaries. They need to set up special organisational units to do so;
− a diversified funding base: universities that want to change, need the resources to do so. They especially need discretionary funds. So they have to widen their financial base (and become less dependent of government);
− a strong academic heartland: universities that want to change, need basic academic units that accept an entrepreneurial culture. These basic units have to be stimulated to react positively to change;
− an integrated entrepreneurial culture: universities that want to change, need a culture ‘that embraces change’; a work ethic and a set of beliefs that is university-wide and that become the very base of the institution’s identity;

Another set of relevant concepts regarding ‘innovative universities’ is to be found in the work by Gibbons et al. On the important changes taking place in the field of research. According to Gibbons and colleagues during recent decades the context of scientific research has developed from a so called Mode 1 to a Mode 2 (Gibbons, 1994).
I shall not repeat their arguments in full detail, but simply present their two modes of research in my own words (see Figure 1).

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*Figure 1. Two modes of research, by Gibbons et al. (1994)*

Both Clark and Gibbons argue (and rightly so, I think) that the world is changing rapidly and that universities need to try to adapt to these changes. Clark states: ‘Universities have entered an age of turmoil. Demands on universities outrun their capacity to respond’ (Clark 1998, p. 129). During a seminar (when Clark’s book was launched) Guy Neave spoke of a ‘demand overload’ (Neave 1998): Universities are confronted with many pressures to which they find it difficult to react. Clark refers to a citation by Charles Vest, the president of MIT: ‘the modern university has become overextended, underfocused, overstressed, underfunded’ (Clark 1998, p. 46).

Through the centuries, universities have shown that they are able to adapt. Exactly because of this capability, universities have been able to survive as institutions of knowledge and learning. Presently, universities are faced with a number of crucial challenges. Only if they are able to adapt to these challenges, will universities be able to keep a relevant place and role in society.

So, what are these challenges?

**MAJOR CHALLENGES**

Several authors have discussed the challenges that are now confronting universities. I refer especially to: Gibbons (1998), Kennedy (1997) and Trow (1996).

Universities are first of all being challenged by other knowledge producers. Whether they like it or not, universities have to accept that they are no longer the only producers of knowledge. Knowledge is now produced in a variety of organisations: universities, but also think tanks, business firms, government laboratories.

Especially for modern business firms, knowledge has become the most important mechanism to create value-added. The business firms in the knowledge industry compete with one another in terms of the creativity with which they configure knowledge. Knowledge has become the most important production factor, says the OECD (1998). Several actors in the knowledge industry have created their own
centres for knowledge production and/or top-level teaching and learning... so universities are being challenged!

Universities are challenged by *students and employers*. Higher education systems in the Western world have become mass-systems, which is an enormous achievement. But this implies that most graduates will *not* become academics who will pursue an academic career in a university. They will have professional careers and they demand from their universities that these are able to offer them effective training for such a career. Employers underline this argument by claiming that they can only support universities of these institutions will offer them the right (professionally trained) graduates.

Universities are being challenged by *other education providers*. New, usually commercial, education-providers have entered the higher education market, usually with a strong vocational dimension and eager to compete with universities.

Universities are being challenged by *new technologies*. Information and communication technology (and especially telecommunication technology) may well have a dramatic impact on higher education systems. In the USA the Western Governors Virtual University initiative appears to have become quite successful; in Western Europe initiatives like Virtue (Virtual University of Europe) is attracting attention. Many courses and modules will be available electronically in the next 5-10 years. Thus the 'supply side' of education may change dramatically; students will have a larger variety to choose from. Universities will have to come up with an answer. They will have to adapt to these technologies or they will become marginalised.

**UNIVERSITIES NEED TO ADAPT**

The challenges just presented are large but not necessarily problematic. Universities should not close their eyes for them; they should try to adapt. Universities need to innovate, which implies that they need to rethink their roles and positions (i.e. become innovative and more entrepreneurial) in at least three areas:

- research,
- teaching and learning, and
- knowledge transfer.

Referring to the ways innovative universities react to the challenges, I shall now address each of these three areas.

*Research*

With respect to research, universities need to understand that they are no longer the remote source and wellspring of invention and creativity. If universities continue to play their 19th and early 20th centuries’ role in research, they will become marginalised. In the world of knowledge there are many new producers of knowledge, often with very large budgets, that all try to create a niche for themselves in the ecology of the global knowledge infrastructure. Universities can become parts of broader problem identification and problem-solving networks, and develop strategic relationships with other producers of knowledge.
Research is less and less a self-contained activity. Because of the complexities of the questions being addressed in many present-day research programmes, and because of the costs involved, research is increasingly becoming a matter of sharing resources (intellectual, financial and physical resources). ‘Sharing’ with a broad range of organisations: certainly other universities, but also business firms, laboratories, and think tanks. This implies that universities need to change their view of intellectual capital... and become less protective of their own resources (including their academic specialists!).

Universities need to look for strategic partnerships. Universities should interact more closely with other knowledge producers. They should learn to configure their resources (especially their intellectual capital) around different problem contexts, not just once or occasionally ... but again and again, according to the dynamics of the problem contexts in which they want to operate.

This implies a completely new approach to research management, with emphases on: strategic partnership, sharing of resources, looking for new problem contexts. The successful universities of the future will be those that are competent in creating a presence for themselves in changing problem contexts, and in collaborating with other organisations (by sharing resources).

Innovative universities are able to develop value systems that are oriented towards collaboration and dynamics. In this sense innovative universities are close to Robert Reich’s famous concept of ‘the high-value enterprise’. According to Reich, the next phase of the development of capitalist society will give the rise of this high-value enterprise, which is a network or a web in which there is no place for hierarchy and bureaucracy, where coordination is basically horizontal and in which knowledge is shared. Reich states: ‘The high-value enterprise … needs not be organised like the old pyramids that characterised standardised production … messages must flow quickly and clearly … There is no place for bureaucracy … Creative teams solve and identify problems. More coordination is horizontal rather than vertical… Mutual learning occurs … as insight, experiences, puzzles, and solutions are shared… Instead of a pyramid… the high-value enterprise looks more like a spider’s web’ (Reich 1991, pp. 87-89).

Innovative universities sit like strategic elements in high-value spider’s webs!

Teaching and learning

It cannot be denied that both students and employers increasingly ask for ‘professional skills’ rather than for the transmission of past knowledge. They are more interested in process skills than in the content of knowledge fields (which develop far too rapidly to keep up with). In addition, the conditions at the labour market outside the university ask for sets of skills that are not traditional skills. So … universities are confronted with the challenge to redefining the very idea of academic learning. Which is not easy.

How are they to do this? Not by simply focusing on vocational training, but by combining the traditional values of liberal education and good Humboldtian scholarship with a set of professional process skills. Innovative universities no longer only educate traditional academic intellectuals (described by Cardinal John Newman in 1896 as the ‘academic gentleman’ formed by both the ‘expansion and the cultivation of the mind’) (Newman, 1896). They add a set of new skills to this traditional academic training process. Important new skills like: willingness to change, multi-disciplinarity, IT-skills, learning capabilities and social intelligence.
It seems to me that, given the changing environmental conditions, universities have to rethink and redefine their educational roles. Both Gibbons and Reich argue that universities have to make the jump from ‘training disciplinary specialists’ to training ‘professional knowledge workers’. Innovative universities have set themselves the task of doing this.

Knowledge transfer

Clark argues that innovative universities have been shown to be especially successful in this generally accepted third task for universities, with instruments and mechanism like science-parks, technology transfer centres, incubator programmes and venture capital funds. Innovative universities have learned an important lesson from this.

This is described best by the former president of Stanford University, Donald Kennedy, when he argues that ‘Technology transfer is accomplished most effectively by the movement of people’ (Kennedy 1997, p. 241).

Knowledge transfer appears to work best when it is seen not so much as a relay race, but rather as a team sport. Knowledge transfer is not so much a process in which - during the first few rounds of the race - the knowledge-baton is kept inside the university, while only during the last rounds it is passed on to the outside world. Knowledge transfer, rather, is a game during which the ball moves continually between the players, and during which all players have to collaborate to be able to win. So again, the emphasis is on collaboration and sharing of resources.

Innovative universities have proved to be successful in knowledge transfer because they keep these values in mind.

GOVERNANCE AND MANAGEMENT

Innovative universities rethink and redefine their roles and positions. They accept the challenges with which they are being confronted. They are able to cooperate in new ‘knowledge networks’; they are willing to share resources; they set themselves the task to train ‘professional knowledge workers’; and they collaborate fully in modern processes of knowledge transfer.

Innovative universities are different from traditional institutions with their emphasis on academic values of scholarship and isolationism. Innovative universities combine scholarship with professionalism and they reach out into their environments.

A crucial question of course is how innovative universities should manage themselves in order to be able to accept the new challenges and to redefine their roles and positions.

One thing that is clear to innovative universities is that they are not business firms and, thus that they are not to be managed like industrial organisations. Innovative universities are still universities, characterised by the professional autonomy of academic experts, by ‘loosely coupled’ organisational systems (Weick, 1976) and by a decentralisation of the decision-making power (Van Vught, 1992). Because of these fundamental characteristics universities cannot be managed like (traditional) industrial business firms. Rather, the challenges from their changing environments force innovative universities to find new systems and processes of governance and management. Two dimensions appear to be relevant.
First, the governance and management of innovative universities has an important *external dimension*. Reaching out, networking, sharing of resources; all these concepts involve a governance system and a management style that are extravert. Innovative universities need as many windows to their outside world as they can create. They need the flexibility to be able to react to new opportunities when these show up. They need to be able to accept a large variety of patterns of relationships with their environment.

This external dimension implies a heavy emphasis on ‘the strategy of self-regulation’. In this governance and management strategy emphasis is put on the self-organising capabilities of decentralised organisational units. A large autonomy for these self-organising units allows them to react in a specialised and concentrated way to their own environmental conditions and thus creates a large and varied reaction capacity to the outside world for the university as a whole (Van Vught, 1992).

The second relevant dimension of governance and management systems of innovative universities concerns the internal processes of the university. This *internal dimension* addresses the crucial need for innovative universities to create an ‘integrated entrepreneurial culture’ (Clark, 1998), an overall culture in which change and innovative behaviour are accepted as the very work ethic of the university.

An innovative academic culture is not easily created. But innovative universities have found ways to do so. Innovative universities have installed interactive planning and control cycles in which the various self-organising organisational units communicate with the university leadership. They have designed systems of shared performance indicators to support these processes of communication. They use ‘activity based costing systems’ and ‘responsibility based budgeting models’, keeping their innovative missions in mind (Massy et al., 1996). They even use internal contracting as an instrument to underline the shared, integrated entrepreneurial culture. Because innovative universities know that a coherent culture is a crucial factor with respect to their success as innovative organisations.

**ENVOI**

Having explored the ways by which innovative universities are adapting to changing conditions, let us not forget the critique at the address of innovative universities. Using a term originally coined by the famous sociologist Nisbet (without acknowledging it), in their book *Academic Capitalism*, (1997) Slaughter and Leslie argue that innovative entrepreneurial universities are doing the wrong things. According to these authors, innovative universities betray traditional academic values, are opportunistic in teaching and research, are only interested in making money and are therefore undertaking all kinds of unnecessary external activities. As you can imagine, I do not agree with this point of view. In my view, Slaughter and Leslie underestimate the environmental conditions with which the modern university is being confronted, and they deny the new concepts and processes by which innovative universities react to these conditions. I also think they overvalue the traditional academic culture of the elite universities of the 1950s and early 1960s, which we still recognise in, for instance, David Attenborough’s movie *Shadowlands* (with Anthony Hopkins in the role of C.S. Lewis).
‘Higher education cannot escape history’, argues Clark Kerr (1994). Innovative universities do not want to escape history. They want to adapt to their changing environmental conditions… and they have found successful ways of doing so.

NOTE

The following universities have formed ECIU: Aalborg Universitet (Denmark), Universidade de Aveiro (Portugal), Universitat Autònoma de Barcelona (Spain), Chalmers University (Sweden), Université de Compiègne (France), Universität Dortmund (Germany), Universität Hamburg-Harburg (Germany), Joensuu Yliopisto (Finland), University of Strathclyde (United Kingdom), Universiteit Twente (the Netherlands), University of Warwick (United Kingdom).

REFERENCES


