ABSTRACT. Burton Clark, in Creating Entrepreneurial Universities, defined the characteristics of what he named ‘innovative universities’. The paper considers these characteristics – particularly such universities’ willingness to adapt to changing environments and how they seek to do so. It identifies the challenges facing universities and considers why universities need to adapt their research, teaching and learning, and knowledge transfer. Innovative universities do seek to escape history – they adapt to change.

‘Knowledge is of no real value if all you can tell me is what happened yesterday. It is necessary to tell what will happen tomorrow ... You must be willing to stick your neck out’. Richard Feynman, The Meaning of It All, London, 1998, p. 25.

INTRODUCTION

This paper is based on a presentation during the EAIR Forum in San Sebastian in September 1998. It addressed the concept of ‘innovative universities’ as well as some of the aspects that are closely related to the capacity of universities for change.

My discussion of ‘innovative universities’ is from a particular point of view. As you may know, I have been involved in higher education research for a number of years at the Center for Higher Education Policy Studies (CHEPS) at the University of Twente. However, I now have the privilege of being a university administrator (the Rector of the University); this implies that I look at universities from different angles. To be honest, this has somewhat changed my views. I still try to keep up with the literature on higher education research; but I now also have some practical experience in really trying to actually change a university. Please forgive me if I incorporate some personal and practical experience into the paper. However, I shall also present some relevant literature.

The article is about ‘innovative universities’: universities that wish and try to adapt to changing environmental conditions. So, 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 my colleague Professor Burton Clark has called ‘entrepreneurial universities’ and which have now formed a special consortium: the European Consortium of Innovative Universities (ECIU) (see Note).

**Some Basis Concepts**

The topic of this article relates very well (I think) to the discussions in EAIR during the last four years. First there is the evolving work by Clark, presented at various EAIR Forums in 1995, 1996 and 1997, on entrepreneurial universities. Secondly, there has been a keynote address at an EAIR conference some years ago by Michael Gibbons, evaluating changes in the field of research, which I believe is also quite central for our discussion of innovative universities.

Let me remind you what the main results were of the study by Clark. 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 focussed in reacting to demands from their environments;
- **a development 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 basis of the institution’s identity.
You will perhaps also remember what the argument by Gibbons and his colleagues was with respect to developments in the world of research during recent decades (Gibbons 1984).

I shall not repeat their arguments in full detail, but simply present their two modes of research in my own words (see Figure 1).

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 recent 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 (in his books) refers to a citation by Charles Vest, the president of MIT: ‘the modern university has become overextended, underfocussed, 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

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*Figure 1. Two modes of research, by Gibbons et al. (1994).*
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 (Microsoft!), 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, according to the OECD (1998). Several actors in the knowledge industry have created their own centre 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 the most graduates will not become academics working in a university. They will have professional careers and they demand from their universities that they are able to offer them effective training for such a career. Employers underline this argument by claiming that they can only support universities if 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 communications 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 to 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 (adapt to these new technologies) or it might become marginalised.

Universities Need to Adapt

The challenges just presented are large but not necessarily problematic. Universities should not close their eyes to them; they should try to adapt. Universities need to innovate, which implies that they need to rethink their roles and positions (ie become innovative and more entrepreneurial) in at least three areas:
Innovative 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 question 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’ is 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 also 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 dynamic 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, and looking for new problem contexts. The successful universities of the future (I think) 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. This point is very 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 rise to 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 ... need 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 web!

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 (I think) with the challenge of 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 scholarship (Newman; Von Humboldt) with a set of professional process skills. Innovative universities no longer only educate traditional academic intellectuals (described by Newman as the ‘academic gentleman’ formed by both the ‘expansion and the cultivation of the mind’). They add a set of new skills to this traditional academic training process.

Figure 2 gives an overview of these new skills.

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 ‘train-
ing disciplinary specialists’ to training ‘professional knowledge workers’. Innovative universities have set themselves the task of doing this.

**Knowledge transfer**

Clark argues that entrepreneurial 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 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 have kept these values in mind.

**Envoi**

Having explored the three main areas in which innovative universities are adapting to changing conditions, let us not forget the critique at the address of entrepreneurial universities. Using a term originally coined by the famous sociologist Nisbet (without acknowledging it), in their recent book *Academic Capitalism*, Slaughter and Leslie (1997) argue that entrepreneurial universities are doing the wrong things. According to these authors, entrepreneurial 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.

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 Hop-
kins 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), Universität Dortmund (Germany), Joensuu Yliopisto (Finland), University of Strathclyde (United Kingdom), Universiteit Twente (the Netherlands), University of Warwick (United Kingdom).

**References**


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