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University Futures: the Direction, Shape and Provision of Higher Education in the University of the Future

Arlene Finn
Dublin City University

John Ratcliffe
Technological University Dublin

Lorcan Sirr
Technological University Dublin, lorcan.sirr@tudublin.ie

THE FUTURES ACADEMY

University Futures:

THE DIRECTION, SHAPE, AND PROVISION OF HIGHER EDUCATION IN THE UNIVERSITY OF THE FUTURE

MS ARLENE FINN, MSc
PROFESSOR JOHN S RATCLIFFE
DR LORCAN SIRR

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Foreword

It is exactly forty years since I embarked on a career in higher education, interspersed by several refreshing periods in consultancy, and pursued across a number of different parts of the world. When, in reflective mode, I view what has happened during that time, what is occurring now and what lies ahead, I find myself torn in two quite opposing directions. One, the inveterate reactionary, where I yearn for a return to the overriding principle that universities and their like have a primary responsibility towards identifying, promoting, disseminating, protecting, and monitoring a preferred set of pre-eminent values which will govern attitudes and guide actions in society. Echoing Eliot's plaintive cry "Where is the wisdom we have lost in the knowledge", I bemoan the stultifying corporate managerialism that besets the modern university level institution, where yesterday's models, mindsets and methods are harnessed to tackle today's turmoils and prepare us for tomorrow's complex challenges. The other, the radical futurist who sees the role of the university as confronting the current accelerating pace of change across all sectors of society, with a futures orientation that provides leadership through holism, integration, and multi-disciplinary, task-based organisation, resulting in creative and innovative problem solving and decision-making. In this way, it should be possible to move from the present era of information and regulation, through one of knowledge and awareness, ultimately to one of wisdom and responsibility. High hopes.

Anyway, to clarify my own thinking, stimulate that of my colleagues in The Futures Academy and support the strategic thinking and planning by DIT for the development of the Grangegorman Campus this document was commissioned. My thanks for its publication lie first with Arlene Finn, the research officer responsible for most of the work, my colleague Dr. Lorcan Sirr for bringing the products to publication, Mr Lloyd Scott for his pedagogical insights and input, and finally to Professor Brian Norton, President of DIT for his fund of ideas – and his idea for funds.

My final reflection lies with the words of Ashis Nandy (2000) from the Centre for the Study of Developing Societies in Delhi: *The main responsibility of a University is to pluralise the future by pluralising the present. To produce a better, more honest, and wider range of options – material, ideational and normative – for humans and society.*

Professor John Ratcliffe, October, 2007.

The Authors

Arlene Finn

Arlene Finn has an MSc Sustainable Development from DIT. She has been a Green Schools Officer with An Taisce, the national trust for Ireland, and is currently a Research Officer in Dublin City University.

John Ratcliffe

John Ratcliffe is Director and Dean of the Faculty of the Built Environment at DIT; Visiting Professor at the Universities of Salford and Lincoln; and has been Secretary-General of the World Futures Studies Federation.

Lorcan Sirr

Lorcan Sirr is Head of Research in the Faculty of the Built Environment at DIT, where he was formerly a Lecturer in real estate, and Head of the Futures Academy.

Aims and Objectives of the Study:

The aim of this study is to help create an awareness of the changing milieu within which Higher Education (HE) will operate over coming decades, while concurrently exploring its possible alternative forms.

The specific objectives of the study are to review literature relevant to the University of the Future in a global, European and Irish context. We have sought to determine key trends which have the potential to affect the future of Higher Education (and the institutions charged with its delivery), under the headings of Demography, Society, Technology, Governance, Economy and Environment, and to identify different possible formats for the University of the Future.

Executive Summary

This study examines key drivers affecting the University of the Future under the headings of Demography, Society, Technology, Governance, Economy and Environment, with the objective of identifying key trends impacting on higher education (HE) in the future. This is a futures study, and it aims to raise issues for discussion and debate in HE policy, so that universities can create robust strategies for their preferred future.

Changes in the demographic profile of societies, and changes in society and the economy in general, have led to an increased demand for, and participation in, higher education on a global scale. Technology is assisting changes in innovation and increasing communication, as well as facilitating entry into the market by new HE providers. Demands from government, funders and stakeholders are leading to heightened calls for greater transparency and fiscal accountability in universities. This in turn leads to changes in governance as Higher Education Institutions (HEIs) begin to approach the organisation and management of HE with more of a business model, while simultaneously seeking to preserve the autonomy traditionally accorded to the university. There is currently less literature available on the impact of environmental drivers on HE directly. However, this may change as environmental crises are brought to the fore and awareness of environmental issues grows over future decades.

Overall, the literature predicts two opposing theses – the ascendant thesis, where the knowledge economy thrives and is dependent on a strong university system, and the declinist thesis, as universities are no longer the only authoritative provider of knowledge, and more capable competitors move into the market to meet unmet demands in Higher Education. In twenty years time, it is likely that both scenarios will co-exist to different degrees. Universities and policy-makers who engage in short-term planning are more likely to be threatened than those forward-thinking institutions identifying strategies to navigate a course towards their preferred future.

Abbreviations

AAUP - American Association of University Professors

CAO – Central Applications Office

CPD - Continuing Professional Development

DESD – Decade of Education for Sustainable Development

DETE - Department of Enterprise, Trade and Employment

DGB – Degree Granting Body

DIT – Dublin Institute of Technology

EE – Environmental Education

EGFSN - Expert Group on Future Skills Needs

EHEA – European Higher Education Area

ENQA – European Association for Quality Assurance in Higher Education

ESD – Education for Sustainable Development

ESRI - Economic and Social Research Institute

FDI – Foreign Direct Investment

GBN – Global Business Network

HE – Higher Education

HEA – Higher Education Authority

HEEPI - Higher Education Environmental Performance Improvement

HEI – Higher Education Institution

ICT – Information and Communication Technology

IFSC – Irish Financial Services Centre

ILO – Irish Labour Organisation

ITT – Institute of Technology, Tallaght

IUA – Irish Universities Association

IUCN – International Union for the Conservation of Nature and Natural Resources

IUT – *Instituts Universitaires de Technologie*

IUTN – Irish Universities Training Network

LLE – Life Long Education

LLL – Life Long Learning

LTRS - League Tables and Ranking Systems

M&S – Marks and Spencer

MIT - Massachusetts Institute of Technology

NCPP – National Centre for Partnership and Performance

NGO – Non-governmental Organisation

OCW - Open Courseware

OECD – Organisation for Economic Cooperation and Development

PCE - Parliamentary Commissioner for the Environment (PCE)

PhD – Doctor of Philosophy

PLC – Post-Leaving Certificate

R&D – Research and Development

RCUK – Research Councils United Kingdom

SMG – Space Management Group

SSTI – Strategy for Science, Technology and Innovation

STS – S*ections de Techniciens Supérieurs*

TUI – Teachers Union of Ireland

UCU – University and College Union

UK – United Kingdom

UN ECOSOC – United Nations Economic and Social Council

UNCED – United Nations Conference on Environment and Development

UNEP – United Nations Environment Programme

UNESCO – United Nations Educational, Social and Cultural Organisation

USDVA – United States Department of Veterans Affairs

USM – Universiti Sains Malaysia

VPT – Vocational Preparation Training

WCED - World Commission on Environment and Development Education

WGU – Western Governors University

WHO – World Health Organisation

CONTENTS

List of Exhibits

CHAPTER 1- INTRODUCTION

1.1 Introduction

The roots of higher education (HE) can be traced back thousands of years in many different cultures. Despite this long history and apparent resilience of form, however, modern universities are increasingly finding themselves beset with threats to their autonomy, their curricula, their funding and even to their very existence. The function of the university is being questioned, as institutions are challenged to deliver their missions in the face of increasing competition and demands from governments and regulatory bodies for transparency and accountability. Over twenty years ago, Mc Loughlin (cited by Knapper 1983 p13) believed that the future of the university was "a topic of debate for theorists, politicians, employers and parents for many years". This same debate continues to rage in the 21st century.

As alternative providers of knowledge and learning are moving into what was once the sole domain of the university, universities are progressively having to think and act now "to ensure a place in the increasingly crowded market for learning which is likely to exist in 2025" (Cormack 1999 p127). By approaching this process from a Futures perspective, institutions can integrate futures approaches into their strategy development processes, and thus build more robust strategy through innovation and far-sightedness (University Futures 2007a). Alternative possible futures can be outlined, debated and contested and institutions can act now to avoid a future scenario which is unappealing for them.

This study identifies key trends and drivers of interest to the HE sector, under the headings Demography, Society, Technology, Governance, Economy and Environment. It is envisaged that that our conclusions will instigate policy debate and challenge assumptions about the University of the Future.

The primary focus is on HE and HE providers in the developed world, as it is beyond the scope of this study to focus in any meaningful depth on issues facing Higher Education Institutions (HEIs) from the perspective of developing countries. Sperling (1999 p105) describes developed countries as those which are full participants in the global economy, where governments have (to varying degrees) free markets, financial transparency and political democracy.

1.2 Definitions

Throughout this study, the terms 'University' and 'Higher Education Institution' (HEI) are used interchangeably, as many of the threats and opportunities faced by one are also confronted by the other. The EU also uses the term 'Universities' to refer to all HE establishments, including the *Fachhochschulen*, the polytechnic, and the *Grandes Écoles* (EU 2003). These institutions are providers of higher or tertiary education.

Additionally, the term 'Higher Education' in this review is interchangeable with the Organisation for Economic Cooperation and Development (OECD) definition of 'Tertiary Education', which is all formal education undertaken after secondary education, "whether or not it is immediately sequential, on condition that it is of a level which presupposes the successful completion of secondary education or an equivalent level of competence".

The OECD uses the term 'tertiary' in preference to higher, as HE is often associated with universities, but much of the development taking place in HE is in "the so-called 'alternatives to universities'", for example, Germany's *Fachhochschulen*, or Norway's reconstructed colleges, where courses are usually shorter but are closely linked to the labour market, and which offer limited or more practice-oriented research roles (*ibid*).

The OECD is a group of thirty member countries, of which Ireland is one, "sharing a commitment to democratic government and the market economy" (OECD 2007a). As a body involved in policy formation in education, among other topics, the OECD has significant influence on education systems in member countries.

1.3 The Function of Education

Education and education systems throughout the world reflect a mix of aims and objectives, depending on the nature of the society of which they form part.

We are reminded that the earliest roots of the university as an educational institution lie in the *paideia* of the classical Greek Sophists around 2,400 years ago, with the Academy of Plato and the Lyceum of Aristotle standing as the fountainheads of formal focused studies in philosophy (Spies 2000 p19). Such a system of education and training aimed at developing the whole person -- physically, emotionally and intellectually -- with the associated objectives, translated into a contemporary context, of fostering a search for:

- welfare (the professions and development);
- truth (inquiry and research);
- order and freedom (leadership);

- what is good (ethics and the development of a moral imperative); and for
- beauty (the promotion of aesthetics in human enterprise).

(Manicas 1989)

The concept then, however, of building character and developing competent citizens, contrasts sharply with the present notion of education, which places more emphasis on the importance of disciplinary thinking and values practical knowledge over an understanding of the interactions and interdependencies between all the aspects of reality. Thus: "rather than producing leaders for a society of leaders, students are being moulded for functional specialisation and line responsibilities" (*op cit*).

Sterling (2001 p25) sees four main functions of education, which at times seem to conflict within the fields of education theory, policy and practice. These are:

1. To replicate society and culture and promote citizenship – the socialisation function;
2. To train people for employment – the vocational function;
3. To develop the individual and his/her potential – the liberal function; and
4. To encourage change towards a fairer society and better world – the transformative function.

Traditionally, in the realm of HE, the function of education was the transmission of knowledge to the privileged élite who could afford to attend such institutions, through teaching and scholarships in a variety of disciplines. These functions evolved over time. Teaching involved realising a student's full potential, or producing trained professionals who were useful to society, while scholarship evolved to include the creation of new knowledge (research), and re-analysis of existing knowledge. A distinction emerged between the two types of knowledge, that which was for its own sake, and knowledge which met societal needs (Martin and Etzkowtiz 2000 p16).

Although discussions on the role of HE have generated many different views, it is now widely agreed that HE should play a role in producing "an informed electorate, cultural tolerance, social justice, a high quality of education and preparation for the workforce", which must be translated into curricula and effective ways of teaching and learning, while trying to balance the provision of a holistic education with the requirements of professions and employers (OECD 1998a p10).

1.4 Futures Studies and the University

The increasing use of Futures Studies by universities is timely, given the pressures they are facing to adapt to demands from stakeholders. Futures concepts, methods and techniques allow universities to explore their potential futures in a systematic manner, and "to begin to understand how external imperatives and challenges may play out for them over time", so that they produce strategies "that are relevant and robust for longer periods of time" (University Futures 2007a).

Surprisingly few universities to date have introduced a formal futures approach towards strategic thinking, operational planning and risk management. Alarmingly, many address the uncertain and complex climate of change facing them with a therapeutic rag-bag of random tools and techniques, eclectically drawn from the realms of corporate management theory, that produce a veritable chimera of visions, mission statements and multifarious goals and objectives. A growing number, however, are finding that some form of structured futures study, invariably through strategic foresight and scenario learning, can create a productive planning process within which university participants can think, plan and act together, to frame their preferred future and establish their present policy themes and action agenda.

As intimated above, probably the most common futures methodology for conducting university strategic planning is 'Foresight', usually in association with the most popular and powerful futures technique, 'Scenarios'. A leading example of how a university decides to both teach and integrate foresight and scenarios into institutional strategic planning can be found at Swinburne University of Technology, where an integrated foresight exercise was conducted at the turn of the millennium with three major aims:

1. To inform strategy development and decision-making, particularly around futures directions, areas of focus and priorities;
2. To build an organisational foresight capacity to encourage strategic thinking throughout the organisation; and
3. To provide opportunities for staff to be involved more directly, if they wish, in university planning processes. (Conway 2001)

Maree Conway, involved in the above exercise, along with Richard Slaughter, who established the Australian Foresight Institute at Swinburne in 1999, has more recently set up the University Futures website (http://universityfutures.org) to provide information and resources for university managers and planners interested in finding out more about integrating futures approaches into existing development and implementation processes.

Most recently, it has been found that 'Causal Layered Analysis' or 'Emerging Issue Analysis' are two other futures techniques universities can use to gain an understanding of, and make forecasts for, the future. Most futurists work with 'trends', where the fate of a problem or opportunity is "most obvious to those who are looking ahead, though still not part of the contemporary policy and popular discourse" (Dator 2002 p13). Graham T.T. Molitor (1977 cited by Dator 2002 p11) describes the observation of these trends as follows:

> All the problems of the present at one time did not exist (as with all opportunities of the present). They each go through a more or less regular life cycle (S curve) of earliest (usually totally unnoticed) emergence, through slow (and barely noticed) growth, then rapid (and more frequently noticed) growth, until they burst, as a full blown (and brimming with popular acclaim or disdain) problem (or opportunity) in the present, whereupon a great deal of time and attention is spent on the problem (or opportunity) until eventually it fades away, either to nothingness, or more likely, until it re-emerges yet again, unnoticed, at some point in the future.

Proponents of futures studies do not claim to 'predict' the future in the sense of saying exactly what is going to happen to an individual, organisation, or country before it actually occurs. Rather, most futurists claim a "reality of 'alternative futures' rather than a single 'the future'", as the future is "fundamentally plural and open, an arena of possibilities, and not of discernible inevitabilities" (Dator 2002 p5-6).

Future outcomes "can be influenced by our choices in the present", thus the future of the university and other providers of HE is not pre-determined or predictable (Voros 2001). There are four classes of potential alternative futures: the possible; the plausible; the probable and the preferable. Our preferable future, or what we would like to see come to pass, is largely emotive rather than cognitive and derives from value judgements. It is overtly more subjective than the previous three classes (*ibid*).

Dator (2002 p10) identifies four major generic images of the future. They are: **Continuation** (usually continued economic growth); **Collapse** (from a variety of reasons, for example, depletion of resources or economic instability); **Disciplined Society** (where future societies are organised around some set of "overarching values or other– usually considered to be ancient, traditional, natural, ideologically correct, or God-given", and **Transformational Society** ("usually either of a 'high tech' or a 'high spirit' variety, which sees the end of current forms, and the emergence of new (rather than the return to older traditional) forms of beliefs, behaviour, organisation and – perhaps – intelligent life forms"). This is deductive forecasting, where the general characteristics in each of the four alternative futures are predicted.

By exploring alternative futures, an individual or group can invent their 'preferred future' and try to move towards achieving it, by monitoring their progress and reconsidering their choice as new information or experiences are gained. Since the future is the area of preferred or possible outcomes, "it is also the arena of dreams and values" (Dator 2002 p6).

In order to make dreams a reality, 'appropriate action' is necessary. As futures thinking is concerned with the achievement or prevention of a particular kind of future, present actions or inactions themselves can impact on the future achieved (Dator 2002 p7). This depends on the individual, but also upon environmental factors or drivers over which the individual may have no control, but which must be dealt with. This is "surfing the tsunamis of change" (Dator 1992), as there is an "interactive, dynamic relationship between subjective and objective factors" (Dator 2002 p7).

Inayatullah and Gidley (2002 p2) describe the undetected future as "a future given to us, and thus taken away from us", and therefore universities can choose to ignore trends and resist thinking about the future. Instead, futures studies allow universities to shape their future more thoughtfully, creatively and with more urgency (*ibid*). Universities which engage "in 'bottom up' planning, 'roadmapping', and foresight exercises are more likely to reap future rewards than their peers focused on the short term" (Etzkowitz *et al* 2000 cited by Georghiou and Cassingena Harper 2006 p2). Potential alternative futures facing HEIs are further outlined in Chapter Eight.

1.5 The Modern University in Context

It might seem to academics or other observers that the university "is stable, looking back in history and forward to the future", but in fact the university is "far more malleable" (Inayatullah and Gidley 2000 p1). HEIs are now "operating in a world marked by both the speed and permanency of change" (Neave 2003 cited by Hazelkorn 2007a p1).

Even in the oldest and most prestigious universities in the developed world, a chimera exists where once stood a seemingly untouchable institution. Cambridge University, for example, is in a position where it attracts the finest students, leads every league table, has the UK's most successful science park, and has contributed significantly to local and regional development. It is a wealthy and old institution. Yet even in such a venerable institution as Cambridge, the "operating budget was forecasting a deficit due to mismanagement", and the university was "unable to move funds around flexibly". The central steering committee was "pitiful" and relationships between academics and administrators at the level of university management were "the worst that could be imagined" (Shattock 2002 cited by Clark 2005 p172-173). All

the while, Cambridge was pitching itself to compete with other genuinely world-class institutions, and presenting a convincing front of untouchability to the unknowing.

The institution that is the university has traditionally played a very important role in society, by "providing access to knowledge, creating knowledge and fostering learning in students to enable them to use knowledge" (Coaldrake and Stedman 1998 p1), producing some of the greatest minds and leaders in society, and contributing to significant change in the process.

Attending university can be a transformative experience in a person's life, where identities can be shaped and friendships and associations are formed (Pascarella and Terenzini 1991). University can provide a basis for "the cultivation of independent thought, which underpins a healthy democracy" (Smith and Webster 1997 p29), while also providing learners with the opportunity to develop "the skills of practical reason" (Anderson 1993 p4). Clearly universities have played a key role in developing and producing great minds and knowledge since their formation. So why is the future of the university seemingly under threat? Why are universities and other HEIs preparing themselves for a crisis?

With changes in society, the missions of the university (teaching, research, and services to their community) are increasingly being provided by other organisations. The traditional command of the university as an authoritative provider of information and knowledge is being challenged, particularly in light of advancements in Information and Communication Technology (ICT) and the proliferation of the media. Industry is increasingly becoming a threat to the title of the university as producer of knowledge, as several global corporations are employing more PhDs than the average-sized university (Thorne 1999 p5).

The university's other traditional monopoly was its credentialing function, as it recognised students' learning through the awarding of undergraduate and postgraduate degrees. This role made the university a very important filter of talent for employers and industry as the attainment of HE served as an indicator of a person's potential 'human capital' (Becker 1964).

However, universities are also losing their monopoly on awarding powers. In the UK, Thorne remarked in 1999 (p9) that the credentialing monopoly was the only remaining feature of UK institutions which commercial organisations were not in a position to carry out. It was predicted that this unique power may disappear by 2025, but already there is evidence that this hold is loosening. In 2006, the UK further education colleges were awarded powers to issue their own foundation degrees (Kingston 2006). Prior to this, colleges taught the two year

qualifications, but the universities actually awarded and validated them. Universities still hold the power to award full honours degrees, but demand for foundation degrees is increasing and is predicted to continue to rise (*ibid*).

The forms of knowledge which learners are being credited for are also undergoing change, with awarding bodies starting to give credit for competence-based awards, attained outside the university. All the while, employers are placing increasing value on non-formal forms of learning and knowledge, such as practical work experience.

In the area of research, the university's awarding monopoly is also under threat. In countries such as New Zealand, it had been envisaged that degree awarding powers will be licensed to corporations with strong research infrastructure and capability (Thorne 1999 p9).

All of these changes are occurring in a new context, where employees' skills and ability to be flexible in the workplace are seen as the key to reducing their chances of unemployment, and to improving economic performance, as described in the OECD Jobs Study (OECD 1994). With the OECD predicting even higher levels of participation in HE in the future, universities have been seen as needing to cater for this demand in a manner which will reflect the "diverse interests of the clients rather than the supply-led, institution-directed expansion witnessed previously" (OECD 1998a p3). For governments, the education system, in particular universities, has become "society's principal weapon in ensuring that we master change, rather than surrendering to it… in this increasingly competitive economic world" (UK Government cited by OECD 2007 p12).

1.6 Conclusion

Although HEIs have existed for many hundreds of years, they are under pressure to change and evolve in both form and function. These changes will affect curricula, governance, funding and appointments, as the university is charged with enabling "direct and easy social leverage" for learners (Smith and Webster 1997 p17), through the provision of 'useful' learning. The traditional 'community of scholars' must adapt to pressures from society if they wish to exist in a viable format as a University of the Future, as other providers are now moving into the educational market.

Although there are pressures for change, there are also opportunities for HEIs. The forces changing the university are often "more than any particular university or nation can address", yet there are still "spaces for agency – whether it be ensuring that content is more multi-cultural, finding ways for faculty to show solidarity, better meeting the changing needs of

students, or creating alternative universities" (Inayatullah and Gidley 2000 p2). By engaging Futures strategies now, institutions can plan for the long-term, and influence the future by their choices and actions in the present. This study discusses the trends and drivers of interest to institutions wishing to act in this manner and also examines the 'spaces for agency' and potential formats for the University of the Future.

CHAPTER 2 – DEMOGRAPHIC DRIVERS

2.1 Introduction

Demographic drivers are those pertaining to the "characteristics of human populations, including their size, composition and dynamics" (Giddens 2001 p687). As the profile of human populations change, by growing for example, the potential 'audience' for HE also changes.

Demographic changes, in the recent past, have been shown to alter HE systems significantly. For example, in the United States after World War II, large numbers of young men who had served in the army found themselves without work. This demographic change led to the introduction of the GI Bill of Rights (later The Servicemen's Readjustment Act of 1944), providing a college or vocational education for veterans in an attempt to thwart "a looming social and economic crisis" (United States Department of Veterans Affairs (USDVA) 2007), thus changing the student profile of HE in America. In Australia in the 1960s, a 'demographic explosion' saw the expansion of the Australian HE system, which resulted in increased teaching loads for non-professional staff brought in to cater for demand (Cowen 1996 p17), and an unbalancing in the 'ecology of academia' as the traditional course of socialisation into academia was disrupted, and non-professorial positions increased faster than professorial posts (Neave and Rhodes 1987 cited by Cowen 1996 p17).

This chapter outlines some potentially influential demographic trends, from the point of HE systems.

2.2 Demographic Changes and HE

2.2.1 Birth Rates

One significant demographic factor affecting participation rates in HE is the birth rate in a country. A high birth rate means a potentially larger student cohort qualifying and competing for HE places in future decades, particularly where there is high participation in secondary and tertiary education.

Where there is either a sudden boom or drop in the birth rate, universities must plan for the future by expanding, reorienting, or rationalising, or by attracting international students from countries with an unmet demand for HE. As international students generally pay higher fees than their native counterparts, they can potentially be seen as an important funding stream in HE. Internationalism is also seen as an enriching feature of a university. The effect of a high

birth rate on HE could be compromised somewhat by issues such as high infant mortality or the cost of HE, so a high birth rate does not automatically translate into high demand for, or participation in, HE.

In OECD member countries, a 17 year old student can expect to receive 2.5 years of tertiary education (Vincent-Lancrin 2004 p247). On average, in the OECD, almost every second young person (47%) will undertake general HE programmes during their lifetime, assuming that current entry rates are maintained. The OECD considers 'universal' participation in HE to be realised when participation rates exceeds 50% (Vincent-Lancrin 2004 p247), and it is believed that there is a huge 'social demand' for higher education, which has not yet been met (OECD 1998a).

In Ireland, the late 1980s and early 1990s saw a decline in births, with the result that the Department of Education predicted that about 300,000 students will be in the secondary school system until 2011 (Department of Education cited by Flynn 2006a). From about 1997 onwards, birth rates began to increase, with part of the rise attributed to immigration, raising the number of students forecast to be studying at second-level to 400,000 by 2020 (*ibid*). This in turn may lead to a significant demand for places in third-level education in the future in Ireland.

2.2.2 Growth Rates

Demand for HE is also influenced by the overall growth rate in a population, defined as "the annual changes, and are the result of births, deaths, and net migration during the year" (OECD 2006a p2). In all OECD countries, the natural increase in population has slowed, and the average age of populations is rising. Across the OECD area, the 'traditional' age of the university population is expected to decrease until about 2030, but an increase in participation in HE, or increased demand from non-traditional students, would compensate for this decline. These non-traditional students could be mature students, retired people or students from the transition and developing worlds (*ibid*). Ireland is one of several countries where the school-age population will continue growing until 2030 (Vincent-Lancrin 2004 p246-247).

Figures from both Northern Ireland and the Republic of Ireland indicate rapid growth in the population of the island of Ireland on both sides of the border, possibly seeing Ireland return to a population of eight million people in the first quarter of the century, a level last seen just before the Great Famine in 1841 (O'Brien 2006). In 2006, the population of the Republic of Ireland was 4,239,848 according to the Central Statistics Office (CSO 2007). In 2005 it was

predicted that the population would rise to 5,070,000 by 2021. Regional increases will vary however, as illustrated in Exhibit 2.1.

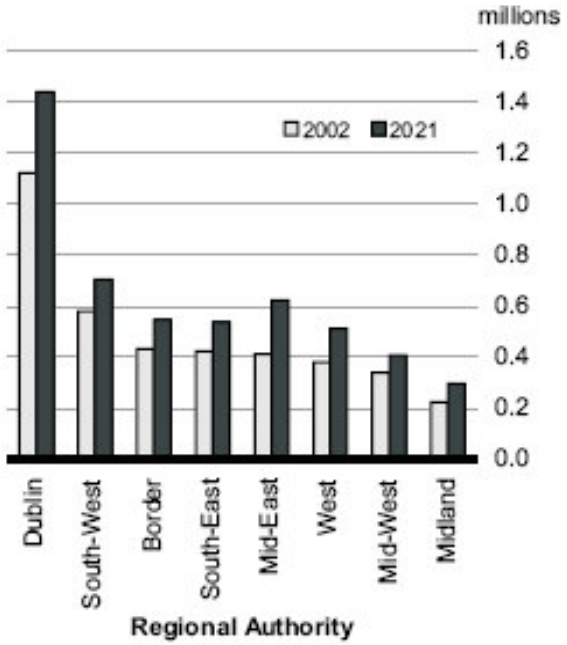


Exhibit 2.1- Regional Population Projections 2002-2021 (Source: CSO 2005 p1)

The knowledge that the potential student cohort seeking places in Irish HEIs in 2020 will be significantly higher than in 2011, gives the Irish government the opportunity to address this demand in time. This situation is viewed by Tim O'Meara, TUI president, as a "golden opportunity…(to) provide routes to non-traditional students furthering their education" before the number of 'traditional' students rises (Flynn 2006a). Currently in Ireland more than 75% of students secure one of their top three CAO choices and CAO points are expected to remain stable for the next five years, reducing competition for high point places (*ibid*).

2.2.3 Dependency Ratios

Dependency ratios are the number of persons aged 65 years or older, as a ratio of the number of people in the labour force (OECD 2006a). As the dependency ratio increases, more strain is placed on available resources. Dependency ratios may also influence HE systems in the future, particularly in countries which are funded to a large extent by the government.

The percentage of the population that is sixty-five or older is predicted to rise in all OECD countries due to improvements in nutrition, hygiene and health care (OECD 2006a p2). This is illustrated in Britain: in 1850, the proportion of the population over sixty-five was around 5 percent, but by 2001, this figure had increased to 15 percent, and is expected to continue to grow (Giddens 2001 p162-3). There are currently more men and women in the UK aged 70 and 80 than ever before.

Where dependency ratios increase, this will present challenges for governments funding pensions, leisure services and healthcare, alongside HE. Governments may be faced with a scenario where they will have to choose whether to prioritise investment in the health-care of an aging population over free third-level education for younger students who can expect to

earn more than their lesser educated counterparts. In an ideal society, both demands would be accommodated, but in the future, as issues associated with an ageing society become more pressing, universities may find themselves being forced to raise a greater proportion of their funds from private sources, including through fees (Vincent-Lancrin 2004 p249). In ageing societies, HEIs will have to take their place in the funding queue (Newby 2007).

In Ireland, the number of people aged 65+ is predicted to increase from 369,000 in 1981, to 741,000 in 2021 (CSO 2005 p4). At 30% Ireland has one of the lowest dependency rates in the OECD (OECD 2006a p3). This does not mean, however, that Ireland is immune from the effects of an aging population. The breakdown of the Irish population in Exhibit 2.2 illustrates the population profile in Ireland in terms of age.

Exhibit 2.2 - Breakdown of Population by Age 2006, Republic of Ireland (Source: CSO 2007)

Age Group	Age Group as % of Overall Population
0-14	20%
15-24	15%
25-44	32%
45-64	22%
65 years and over	11%
Total PERSONS	**4,239,848**

2.2.4 Life Expectancy

The World Health Organisation defines Life Expectancy as "the average number of years of life that a person can expect to live if they experience the current mortality rate of the population at each age". At present in Ireland, life expectancy at birth for females is 81.0 years, and for males, 75.0 years (WHO 2007).

Life expectancy is likely to increase in Ireland, in keeping with projections made by the UK Government. In 2002, life expectancy for females born in the UK was 81 years, with life expectancy for males 76 years. In 1901, these figures were considerably lower, at 49 years for females, and 46 years for males (UK Government 2004). Projections by the UK Government suggest that by 2020, life expectancies for UK males and females will increase by a further three years or so (*ibid*).

As life expectancy increases in developed societies, it is expected that the student profile will change, from young school leavers to mature students returning to education or seeking to upskill. Other mature students, retired people for example, may seek learning for the sake of learning itself. This change in profile in the student population will increase the demand for

Life Long Learning (LLL), which may or may not be provided through the university system in the future. The prospect for Life Long Learning is discussed further in Chapter Three.

2.3 Conclusion

Demography and the natural changes in characteristics of human populations have the potential to impact significantly on HE systems, as populations rise, fall, and otherwise change in profile. This chapter focuses on demographics in developed countries, but changes in developing or transition countries have the potential to impact on HE internationally, as students in countries with unmet HE needs become more mobile, or HEIs from developed countries expand internationally with branch campuses to meet this demand. It is beyond the scope of this study to examine these issues in depth, but this may be an area for further study.

Demographic factors are also closely linked with societal demands, and the values placed on HE by society in general. These issues are also discussed in Chapter Three.

CHAPTER 3 – SOCIETAL DRIVERS

3.1 Introduction

The majority of citizens in industrialised societies assume that they will attend primary school, second-level institutions, and possibly third-level institutions. However, formal education delivered in specific premises on a large scale took a long time to become established, and was not available to society in general. This chapter discusses changes in society which have lead to the 'massification' of HE in many countries.

3.2 Demand for HE

In Cardinal Newman's *Idea of a University* the 'idea' proposed was "unashamedly an élite institution which was attended by at most a twentieth of the population". The job of the upper middle-class Dons as described by Matthew Arnold, was exposing this advantaged cohort to "the best that has been thought and known in the world", in the pursuit of true judgement. When the graduate had finished his education (as it was usually males attending university), he was expected to display certain characteristics which distinguished him from the 'uneducated' (1987 cited by Thorne 1999 p20).

Graduates were then assimilated into the civil service, the church, or depending on time and place, into politics. The élite HEIs were also "breeders and feeders" of suitable candidates for academic research and teaching (Cowen 1996 p1). The extent to which HE was a closed system is illustrated by the experience of the London University (later University College London) when it was first established in 1827. The University was initially denied a charter, and thus the right to award degrees, because it admitted "Jews, Roman Catholics and Non-conformists" (Graham 2002 p7), clearly breaching the prerequisite of exclusivity in HE.

The lack of access to HE was not a problem for the population as a whole at this time. Generally, people could adapt to the pace of change occurring in society, as it was slow relative to their life expectancy, and they could expect a set of conditions to remain "more or less constant during their lifetimes" (Knowles 1975 cited by Knapper 1985 p22). Skills and trades were passed down from generation to generation, so generally people did not need access to HE to work. However, as society became more industrialised and work moved outside the home, people did not have the same opportunities to acquire skills from older generations as they did previously. With the invention of the printing press, skills such as reading, writing and abstract thought became more important for employers seeking an educated and capable workforce (Knapper *ibid*).

Today, as the nature of work changes, manufacturing techniques are developed and new products emerge, some jobs have simply ceased to exist. In other areas, basic skills have changed so much that Knapper (1985 p23) believes it is no longer feasible to learn them "once during an initial education, and then apply them for the rest of one's career". As new knowledge is produced, the 'half-life' of knowledge diminishes (*ibid*). The type of knowledge needed by society has also changed, as has people's desire for quality of life.

Hobsbawm (1994 cited in OECD 1998a p19) documents changes in society globally, and sees the thirty years following the 1950s as a period of unforeseen expansion of "aspirations and material advancement". The OECD sees participation in education as an indicator of this, as increasing numbers of families want their children to attain higher education and training levels than they themselves were able to reach. This is attributed to the fact that parents can see the value of education or competence "in cultural and social terms", but also because they perceive education and qualifications as the "way to social mobility or to more secure and rewarding positions in employment" (*ibid*). In particular where students have to pay for their tuition, their level of expectation is raised in terms of prospects of employment or career opportunities upon completion of their studies (Coaldrake and Stedman 1998 p3).

The value placed on skills, learning and qualifications in the knowledge economy, which relies "primarily on the use of ideas rather than physical abilities, and on the application of technology rather than the transformation of raw materials or the exploitation of cheap labour" (World Bank 2003 p1), is encouraging society to demand access to HE at a mass level. In Germany, for example, between 1980 and 1990, HE participation for first year students grew by 46% (OECD 2007b p11). In Sweden and Ireland, between 1990 and 2000, the number of students undertaking HE doubled (*ibid*). Over two decades ago, 'universal' HE referred to participation rates of 50 percent of the age cohort, but this term may now mean 80 percent or more participation (OECD 1998a p9). Traditional students are demanding access to HE, but so too are workers seeking to adapt to new technologies, to prepare for promotion or to avoid being unemployed. Thus, society in general is seeing the need to achieve higher levels of competence and qualifications.

In all countries, participation rates in HE have increased, with wider segments of the population accessing HE, notably mature students and women (OECD 1998a p3), however, "a broader customer base brings new external scrutiny and new risks" which the HE sector will have to manage as massification of HE continues (OECD 2007b p13). The OECD (1998a p9) sees a new paradigm emerging:

> …whereby participation in some form of tertiary education may be expected to become the norm in our societies. Tertiary education is already or will eventually become 'the place to be – an experience for all, not the selected few'.

Global enrolments are predicted to increase, with the Australian Review of Higher Education Financing and Policy (1998 cited by Sperling 1999 p119) projecting figures of 159million learners, with 87million of these in Asia, by 2025. In China, in an attempt to close the educational gap between the rich and the poor, the government is waiving tuition fees for 150million rural children to attend school in 2007 (Watts 2006b). Over the past 25 years, China has invested in the economy as a priority over social development, but if China invests more in education, this is potentially a huge market for HE in the future. Already significant increases in HE participation numbers are evident, as in 2004 alone, China had 17million students enrolled in university and advanced vocational learning programmes – this was three times the number of students enrolled in 1999 (Chapman 2006 p85).

Public policies have underpinned these attitudes towards education and training, particularly in OECD countries, as "if progress is a delusion and education its handmaiden, the OECD countries have nevertheless embraced them, conferring upon tertiary education unprecedented expectations and demands" (OECD 1998a p20).

3.2.1 Increased Demand for HE in Ireland

In Ireland, times have changed since the establishment of the University of Dublin, modelled on the Oxford/Cambridge models, with just one college (Trinity) in 1591. For the first 300 years, the University of Dublin would only admit Anglican students, so although it was Ireland's only university for 250 years, until very recently "it was never really an Irish one" (Graham 2002 p6). Many Irish students seeking third-level education were forced to go to Scotland, where their religion was not a cause to prohibit their attendance (Graham 2002). However, the situation in Ireland has now changed, with access to HE becoming more inclusive, and with a significant increase in the number of third-level institutions in Ireland.

This increase in participation is illustrated by recent figures produced by the Higher Education Authority (HEA) in Ireland which recorded the number of full- and part-time students in Ireland passing the 170,000 mark for the first time in 2006 (HEA 2006b). In HEA-funded institutions alone (universities, NCAD and some colleges of education), the number of enrolments stood in excess of 80,000 (*ibid*), reflecting an increase of 17% over the period 2000/2001 to 2004/2005

(HEA 2006a). The rate of increase in enrolments is slowing however, as the increase from 2000/2001 to 2005/2006 stands at 12% (HEA 2007b p5).

Despite a decline in the school leaving age cohort, the number of undergraduate new entrants is increasing, but again at a slowing pace – from a 7% increase in 2004/2005 (HEA 2006a p5), dropping to a 5% increase in 2005/2006 (HEA 2007a p5). Undergraduate and postgraduate output has increased by 19% from 2001/2002 to 2005/2006 in HEA-designated institutions. The HEA also indicates that Institutes of Technology and Dublin Institute of Technology have seen a rapid increase in the number of post-graduate enrolments, not deemed to be traditionally "a large part of Institute enrolment cohorts" (*ibid*).

The increase in participation in HE compares with the situation as recently as the mid-1960s, where only 22% of school students qualified for a place in university by finishing second-level education. Less than one-third of these – 7% of each age cohort – actually took a place, as their parents could afford to pay fees which covered about a third of the cost of the student's education (Fitzgerald 2006).

There is diversity of demand in those now accessing HE in Ireland. In HEA-funded institutions in 2004/2005, 82% of undergraduate new entrants were aged between 17 and 19, so almost one-fifth of the cohort entering university did not fit the traditional profile of young school-leavers (HEA 2006a p31). Mature undergraduate new entrants (those aged 23 years plus) increased by 47% over the period 2000/2001 to 2004/2005 (HEA *ibid*), increasing again by 4% from 2004/2005 to 2005/2006 in HEA-designated institutions (HEA 2007b p29). Female participation in HE is also notable, at 60% of undergraduate enrolment in HEA-designated institutions in the period 2005/2006 (HEA 2007b p19). Of those achieving a first-class honours bachelor degree in 2005, 56% were female, an increase from 54.7% in 2004 (HEA 2007b p38).

The Expert Group on Future Skills Needs (EGFSN 2007) predicts that by 2020, 93% of the Irish labour force will have qualifications at or above Leaving Certificate level, with 48% having attained third- or fourth-level qualifications.

Enrolments by students from outside Ireland are also a feature of HEA-funded institutions in the period 2004/2005, at 11% (HEA 2006a p31), increasing by a further 2% in 2005/2006 (HEA 2007b p47). The greatest proportion of overseas students was Asian in HEA-designated institutions, and European in IoTs and DIT (*ibid*). The IoTs and DITs have lower numbers of overseas students compared to universities (4.4% compared to 10% respectively) (ibid).

However, the Irish Universities Association (IUA) believes that without significant investment in Irish universities, talented and fee-paying international students, who contribute €335m to the economy in fees and living expenses, will not be attracted to study in Ireland in the future (IUA cited by Walshe 2006).

Hess (2006) questions if catering for mass HE in Ireland will allow an under-financed university sector to "initiate and socialise all these newcomers so that they can recognise and digest an intellectual argument"; or will universities have to 'dumb down' their offerings to deal with "the dead weight of numbers by lowering intellectual standards and turning lecturing into a branch of the entertainment industry". For Hess (2006), it is a complete illusion that "genuine advances in intellectual and scientific inquiries can be easily combined with democracy's demand for undergraduate mass intake and teaching".

Today, learning new skills is essential for a citizen to participate fully in society, as well as being a prerequisite for advancement in many careers and professions. According to Duderstadt (2002 p4) a college degree is a necessity for most careers, with a graduate education becoming "desirable for an increasing number" in order to adapt and participate in a high performance workplace. Another profound feature of change in society today is, of course, that it is truly becoming global (Knapper 1985 p22).

3.3 Globalisation

Modern societies are undergoing changes which are bringing about the globalisation of economies, cultures and societies, as "social, political and technological forces are combining to create a world economy where more countries and regions are taking part in international trade and investment" (Cormack 1999 p121).

Organisations are now finding finance, markets and competitors almost anywhere in the world, as society transforms from the Industrial Age to the Information Age (Dolence and Norris 1995 cited by Skolnik 1998 p638). Knowledge societies are replacing heavy industry and manufacturing in many parts of the world, so the number of people processing data of some sort in their job has increased significantly. In the future, a country's economic advantage will lie in their ability to "mobilize, attract and retain human creative talent", as "wherever talent goes, innovation, creativity and economic growth are sure to follow", replacing the traditional advantages of "natural resources, manufacturing excellence, military dominance, or even scientific or technological excellence" (Florida 2005 p13). Globalisation in the marketplace has lead to an increase in competition in all industries, with the learning industry not escaping this trend (Cormack 1999 p121). Marginson (1999 cited by Farrell and Fenwick

2007 p6) believes that the learning industry has in fact been a "primary medium of globalisation, and an incubator of its agents" as education is "embedded in particular spaces and cultural practices at every level". At present, it is estimated that the number of students studying in a country other than their own ranges between 1.5 and 2 million people (Chapman 2006 p82).

With increasing internationalisation of students, staff and funding, universities have to compete on a global scale for *good* minds, money, faculty and researchers (Hazelkorn 2007a), with the notion of 'brain circulation' gaining currency as a 'brain drain' and a 'brain gain' occurs internationally (Hatakenaka 2004 p3). In the United States, for example, there is a fear that a 'brain drain' is about to occur, as the EU science ministers have reached an agreement on research on human embryonic stem cells (Watt 2006). Increasingly researchers are paying no attention to national boundaries when seeking out peers or funds to assist them with their endeavours (Newby 2007).

The European Forum on University-based Research (Georghiou and Cassingena Harper 2006 p6) sees globalisation as a strategic challenge for HEIs in Europe, as they try to strike a balance between cooperation and competition with other European HEIs, while "India and China represent new sources and destinations for the best researchers". In the past four years, institutions in the European Higher Education Area (EHEA) have been developing stronger relationships with Asian, Arab and African institutions, leading to HE reforms in Europe now becoming of interest to the global arena and not just Europeans (EUA 2007 p11).

An example of how globalisation can threaten a country's HEIs is illustrated by the experience of Japan. In the past, the 'HE conveyor belt' produced students from the 'right' university, who progressed into the 'right' job as a reward for studying diligently in the highly effective school system and for undertaking private tuition. However, with increased opportunities for mobility of students and staff, the learning outcomes of students going through the Japanese HE system has been questioned and is being compared unfavourably to international HE competitors). Japanese students are being attracted to international HEIs perceived to deliver greater learner outcomes, thus representing a serious threat to Japanese institutions (Newby 2007).

In Australia, the HE sector is increasingly finding that students want to "sample the world's best courses and go overseas for part of their education" (Global Alliance Ltd in Thorne 1999 p76). Universities in the UK are increasingly looking to attract Irish students, where they are told they will have "greater scope…to find a course which has the vacancies to allow people to follow

their chosen dreams, rather than being herded into a career that does not really suit, simply because of a lack of availability of places within Ireland" (Anon 2006b). Of the 1.8million full-time and part-time students in higher education in the UK, there are about 300,000 international students from 180 countries (*ibid*).

Where students have greater choice globally in their choice of study location, 'dropping out' of courses may be less an indication of the students' poor performance, and more a reflection of their choice to leave a programme as it was poorly suited to their "particular needs, interests and backgrounds" (OECD 1998a p3).

World league rankings for universities are becoming more common, and Hazelkorn (2007a) predicts that a 'superleague' of institutions will form, which will be in the best position to attract the best minds, both students and staff. Universities are already under pressure to achieve high places in League Tables and Ranking Systems (LTRS), as this is a 'Winner-Takes-All' scenario, where no one remembers who came second in the Nobel peace prize, or who was the second to discover DNA (Newby 2007). Gurdgiev (2007 p4) believes that currently only two Irish universities are competitive internationally in terms of research and teaching (Trinity and UCD), and the OECD (2004) warns that in Ireland, there is weak internationalisation of both students and staff, which could lead to problems for Irish academics competing for funding, jobs and resources in the future. To address this, the OECD recommended that institutions in Ireland be given greater flexibility to attract and retain the best minds. The HEA is working to address the issue of internationalisation, with the proposal of setting up a new "Strategy Board for International Education" (OECD 2007b p19).

3.3.1 Diversity

Diversity in HE systems is generally perceived as a positive characteristic; a diverse system offers a diverse range of learners the chance to pursue their course of study at a level or institution that suits them. However, there is evidence that moves underway in HE to compete in a global HE system could in fact reduce the diversity of HE. League Tables and Ranking Systems (LTRS) in particular can have a negative impact on diversity.

Rankings are intended to increase competition and performance, but in fact they have been shown to lead to 'uniformity' in the HE sector. With pressure being exerted on HEIs by stakeholders and governments to achieve higher positions in LTRS, for example the Shanghai Rankings or the Times University League Tables; HEIs alter their programmes, structures, funding, and missions to suit the rankings. Institutions in binary systems question if unitary systems are more progressive, and vice versa. They attempt to develop their research

missions at the cost of teaching and learning (Hazelkorn 2007b), while also trying to get involved in nanotechnology and biotechnology, in spite of the fact that these areas need critical mass to be successful. This homogenisation of institutions may lead to diversity, or the "level of variety in a system at a specific point in time" (van Vught 2007) being lost, as institutions focus only on those criteria that are ranked.

Although rankings have their difficulties in terms of the information used and their usefulness as 'consumer' information, in a snapshot study of HEIs perceptions of LRTS, Hazelkorn (2007b) found that 93% of responding HEIs wanted to improve their national ranking, and 82% wanted to improve their international ranking. 40% of respondents indicated that they would consider another HEI's rank before engaging in discussions about international collaborations, academic programmes, research or student exchanges, indicating the implicit importance of LTRS.

Public HEIs find competing at this level difficult (Chronicle HE cited by Hazelkorn 2007b), and more élite institutions are succeeding and being created, with the 'accumulation of advantage' giving certain institutions an obvious lead (Hazelkorn 2007b). Unless universities can raise the profile of the other activities they are engaged in that do not contribute to their rankings (for example, adult learning) can they receive any recognition for this work and be ranked more appropriately? (*ibid*).

Decreasing diversity has also been linked with increasing government regulation, (Birnbaum 1983 cited by van Vught 2007), 'imitating behaviour' and academic drift (Riesman 1956 cited by van Vught 2007). 'Academic drift' is the move in academia away from practical or vocational studies, either by students or institutions. It can result in "more emphasis on academic study and a decrease in the appreciation of vocational qualifications" (Learning and Skills Council 2007).

This pressure to achieve higher rankings internationally, while responding to the needs of society regionally, is also impacting on traditional forms of governance in universities. They are now being challenged to react to the economic pressures of globalisation in a manner similar to how a large corporation would react, by "freeing themselves from uni-dimensional, hierarchical structures which are unresponsive and non-interactive with environmental change" (Hagen 2002 p2).

3.4 Demand for 'Local' HE

As the student profile changes, so too may students' choice of location for study, particularly where a student has a family or job to attend to, or if the financial burden of moving to a distant university is too onerous.

The ability of potential students to take advantage of access to HE is limited by both direct costs (for example, tuition fees) and indirect costs (for example, loss of earnings over the study period) (Knapper 1985 p83). Even where there are no fees or there is a student loan or grants system, this may still not be enough to entice some students to participate in HE, as they would face significant disruption to their standard of living, careers and so on (*ibid*), and they may still face financial constraints. In the UK for example, students are finding themselves faced with rising living costs, with accommodation costs rising by 23% in three years, as private suppliers offer more luxurious halls of residence. The impact of these rising costs could increasingly influence a student's choice of location to study (Smith 2006a). In this instance, locally-provided HE may be a more appealing option.

Demand for locally-provided HE is not a new phenomenon. The OECD (1998b p33) outlines how in France in the late 1960s, the *Instituts Universitaires de Technologie* (IUTs) were created, with the intention that the *Sections de Techniciens Supérieurs* (STS), belonging to the vocational administration would eventually be phased out. However, enrolment in the STS grew at a much faster rate than that of the IUTs, with a major reason being that attendance in the STS meant staying in the same town or even institution. This prompted the OECD to comment that "despite the onward march of cosmopolitanism and globalisation, localism and regionalism remain potent cultural and economic forces" (*ibid*).

In the UK, as the profile of the cohort entering HE changes, Smith and Webster (1997 p35) predicted that a significant demand for local HE will be created, and that universities may develop branch campuses to cater for this demand, along the lines of the large-scale French or German institutions. More options for local study allow mature students, disadvantaged students or ethnic minorities access to HE, which they could not previously afford because of the costs involved in attending a residential HEI. As UK colleges have recently been given their own awarding powers, staying at home to study at third-level may become more common as the prospect of doing a degree "at the college on the doorstep will have considerable appeal" (Kingston 2006).

In Ireland, where a student lives can be correlated with attendance at third-level. According to figures released by the HEA, the counties with the highest participation rates at third-level are Sligo (70.5%), Galway (67.4%), Kerry (67%) and Mayo (66.8%), linked with the presence of an IoT in these counties. This is supported by the Economic and Social Research Institute (ESRI) (O'Connell, Clancy and McCoy 2004) which found that there is a relationship between the presence of IoTs and overall participation rates in HE by school-leavers.

In Ireland, demand for local education may encourage more students to take Vocational Preparation Training (VPT)/Post Leaving Certificate (PLC) courses, particularly those undertaking LLL. As the courses are both locally available, and of one and two years duration, they may be more accessible than traditional HEIs, particularly for non-traditional students. Because of the vocational nature of many PLC courses, the Department of Education and Science found the majority of graduates went directly into employment upon completing their course; for example, in 2004, over 59% of participants who completed the VPT 2/ PLC programme in 2002/2003 were employed. Of this cohort, 84% reported that the skills they acquired in their course were relevant to their employment. PLCs were also found to be a gateway to further study, with over 25% entering third level education in the same year (Department of Education 2005).

For many students, even where they have access to HE locally, there may still be a physical barrier to them attending HEIs at particular times or places where courses are provided. For these students, distance education becomes an attractive means to participate in tertiary education.

3.5 Demand for Distance Learning

The idea of distance learning is not a particularly new idea, and can be traced back at least 170 years to the foundation of the London University system of external qualifications where the university was primarily an examining body (Knapper 1985 p92). The London University allowed students to study both as 'internal' or 'external' students. External students had to have minimum entrance qualifications, pay their fees and then study for a minimum period of time (usually five years) from their homes for a 'London degree' (Graham 2002 p8). Preparation for exams was entirely up to the students (Knapper 1985 p92). This 'federal' structure was "quickly copied in other parts of the British Isles", with the creation of university colleges in Belfast, Dublin, Cork and Galway in Ireland in the 1840s (Graham 2002 p8).

In England, the fact that it was possible to study for degrees in London while living elsewhere also "broke the traditional residential pattern of the ancient universities… and thus extended

higher education to a far wider section of the population", including people in "relatively far-flung parts of the empire" (Graham 2002 p8). This tradition is carried on by Open University systems. The British Open University teaches with a wide variety of media, and provides an integrated and systematic approach to instruction (Knapper 1985 p93). The success of the university has prompted other distance universities to be established, particularly in parts of the world where the geographic layout of a country may mean that this is the most viable option for students not wishing to leave home. For example, the University of the South Pacific offers courses via satellite to students scattered over the vast geographical area of the South Pacific Islands (Knapper 1985 p90). In Ireland, Oscail, the National Distance Education Centre of Ireland, operates from the campus of Dublin City University, with the mission of providing access to HE for adults, working at their own pace, regardless of "location, employment, domestic or personal circumstances, or prior qualifications" (Oscail 2007).

Distance education providers can also take the form of 'virtual' universities. One such provider is the University of Phoenix in the United States, which boasts of being the largest accredited university in the US, with 23,000 faculty and approximately 300,000 adult students (University of Phoenix 2007). Instead of a traditional campus with sports teams and societies, the University of Phoenix is an online campus with more than two hundred and fifty 'learning centres' and campuses in the US. The geographical location of students is irrelevant, as they use 'group mailboxes' instead of classrooms. Reading material is provided through an electronic library, and assignments are submitted electronically. This virtual university reflects the importance of technology as a driver and a facilitator of HE provision in the future. This is further discussed in Chapter Four.

Another significant feature of the University of Phoenix is the profile of its student population – the university will only admit students over the age of 23, who are employed. The structure and the offerings of the university are aimed at these adult professionals who need new skills and qualifications on a regular basis. Thus, courses are run continuously throughout the year, instead of on an academic calendar. Another distinguishing feature of this university is that it is a for-profit institution. In 2001 alone, the institution made an average profit of 12.8million dollars per quarter (Giddens 2001 p491).

The Western Governors University (WGU) is another successful provider of distance education, but is a private, non-profit corporation, whose members consist of the Governors of 18 states and one territory over a wide geographic area in the United States. WGU pools the resources of the members in order to achieve one common goal – an increase in access to higher education and the introduction of a full set of competency-based credentials for students.

Students from anywhere can access credit and competency-based degree granting courses at one online location - www.wgu.edu. This competency-based education is "cost-effective without regard to considerations of time and place" (Farbman 1999 p71). WGU now serves students in all 50 states and several foreign countries, and employs faculty 'mentors' in over 30 states (WGU 2007).

As working adults demand more access to HE, HEIs such as the WGU and the University of Phoenix may become more prolific HE providers, replacing the traditional university, or prompting them to alter their educational offerings to cater for demand.

3.6 Demand for Part-Time Higher Education

As with distance learning and locally provided HE, demand for part-time education is also increasing, as students fit their learning to suit their free time, while continuing to work or meet the demands of their families.

Knapper (1985 p48) outlines how part-time education came about in the US in the late 1970s and early 1980s as the profile of the student body began to change. Part-time students were often older, with full-time jobs, and more likely to be married with children (Maslen 1982 cited by Knapper 1985 p46-48). Part-time education allowed these students to participate in HE with less of a financial burden. For American colleges and universities, the recruitment of 'mature' students eased the impact of declining enrolments in traditional-age students. In 1985, it was predicted that the median age of the US population would be 34 in 1990 (that is, half of the American people would be older and half would be younger than 34 years); and 37 by 2000. This compares with the median of only 27 in 1970 (Knapper 1985 p48). In fact the median age in the US in 2000 reached 35.3 years reflecting the aging of the 'baby boomers' (US Department of Commerce 2001). It is predicted that this median age will rise to 39 by 2010, with the percentage of educated older adults reaching 20% by 2010 (compared to 12% in 2002), and continuing to increase significantly thereafter (Manheimer 1994 cited by Manheimer 2002).

In the US in the 1970s and 1980s, the pressure to "find warm bodies to fill seats" meant that the student body had "substantially different learning needs from the traditional undergraduate", for example, flexibility in times and locations, and courses that allow adults to drop in and out (Knapper 1985 p49). It is predicted that as the profile of the student of the future changes, part-time students and Life Long Learners may only want to study those parts of a qualification which they have not already done, or parts of a qualification which are genuinely different from topics they have already covered "while following the ups and

downs of the qualifications frame" (Thorne 1999 p7). To facilitate this, institutions will have to create flexible curricula to facilitate the movement of learners. This will impact on facilities, on staff and on administrators in HEIs catering to more diverse learners and demand.

In Ireland, demand for part-time enrolment constituted 13% of all undergraduate enrolments in HEA-funded institutions in 2004/2005 (HEA 2006a p13), declining to 11% of undergraduate enrolments in the period 2005/2006 (HEA 2007b p19). At postgraduate level, part-time enrolment constituted 31% of all enrolments over the period 2004/2005 (HEA 2006a p13). However, the OECD (2004) recommends increasing participation in part-time education and Life Long Learning, as it is found to be inadequate at present. This is also the case in many institutions across the EHEA, as there is little evidence that they have "taken strategic action to consider their missions" in this regard (EUA 2007 p10).

3.6.1 Life Long Learning (LLL)

Life Long Learning (LLL) or Life Long Education (LLE) can refer to adult continuing education programmes, mid-career training, internet-based learning, community based 'learning banks', and so on. In Europe, it refers more frequently to linking learning and work, or open-learning (Knapper 1982 p15). If learning is LLL, then it should "occur at all stages of an individual's life, not simply in the formal educational system early in life" (Giddens 2001 p693).

Over thirty years ago, LLL was viewed as "the guiding principle for reforming education at all levels and in all countries" (Faure 1972 cited by Knapper 1982 p15). Over twenty years ago, colleges and universities were realising that LLL was an attractive marketing tool, with the State University of New York using "the lifelong experience" as its advertising slogan (Knapper 1982 p15). Today, Ján Figel, Commissioner for Education, Training, Culture and Multilingualism in the European Union, sees LLL is seen as an answer to some of the challenges posed by globalisation, new technologies and demographic developments (EU 2007b).

As student population profiles change, increasing demands for LLL will result from a workforce meeting the demands of an information/ knowledge/ intelligence based economy (Sperling 1999 p114). In the US in 1999, for example, there were 6.5million students over the age of 25 in HE; 80% of these students were working full-time, as well as pursuing their educational activities (Sperling 1999 p114). Knapper (1985 p44) believes that although universities have an extremely important role in the provision of LLL, they also have to accept that they will be "simply one element in a system of lifelong education", as other providers may be more appropriate for delivery in certain instances.

In Ireland, despite the value of LLL, its potential has yet to be fully realised. The OECD (2004) review of the Irish HE system found that Ireland had inadequate LLL, as well as insufficient mature, part-time, access or international students in Irish third-level institutions. It may be the case that universities in Ireland will find opportunities to realise the potential for LLL in the future.

3.7 Demand for Fourth Level Education

The increase in demand for HE and graduates holding degrees, means there has come a "devaluation in the currency of a degree, with graduates no longer feeling confident of achieving high salaries and high status in later life" (Smith and Webster 1997 p18). Having a degree is no longer exceptional, or a sign of academic or social advancement. Instead it "merely marks a stage in life, requiring no special academic merit, signalling in itself no great likelihood of later worldly success" (*ibid*).

The OECD Jobs Study (1994) and subsequent follow-ups showed that in several OECD member countries, graduate unemployment rates had reached significant levels, with lengthy periods between graduation and first jobs in many cases. Thus, many students are undertaking training and education beyond the degree level, both formally and informally, in an effort to avoid being unemployed. This has lead to greater demand for 'fourth-level' education.

In Ireland, increasing the number of PhD students is a specific target of the Irish government, with enrolment on PhD programmes in HEA-designated institutions increasing by 56% over the period 2000/2001 to 2004/2005 (HEA 2006a p19), and increasing by a further 4.5% between 2004/2005 and 2005/2006 (HEA 2007b p29). The majority of PhD enrolments in HEA-designated institutions are in science disciplines (40%) (HEA 2007b p29). Doctoral programmes are seen to be 'crucial' in achieving Europe's overall research aims (EUA 2007 p28).

3.8 The Student as Consumer

As the profile of university students, and the courses they seek to do, changes, so too does the 'role' of the student in the HEI, as they are now contentiously often referred to as 'consumers', 'clients' or 'customers'.

The shift in education to a consumer-centric model is seen by Skolnik (1998 p643) as the reflection of a "change in the balance of power over content and process of education between institutions and students, but also a fundamental change in the idea of education". Previously educators were guided by an idea of "what students needed to learn", whereas

now students are referred to as 'consumers'. In the consumer-centric model, Skolnik describes how the driving force in the design of learning experiences "is not a particular educational theory or philosophy, but simply what satisfies the consumer" (Skolnik 1998 p643-644). As many students are burdened with significant debt in order to fund their studies, it is no surprise that value for money and relevance to the employment market are key concerns for the student-consumer.

Students are now more likely to access HE throughout their career, reflecting a fundamental move in HE from teaching to LLL. Where previously students had a 'once in a lifetime' opportunity to study at higher level, they were taught a broad range of topics 'Just in Case'. With increasing LLL and Continuing Professional Development (CPD), there is now more 'Just in Time' learning; which itself is being replaced by 'Just for You' learning, to cater for the learning demands of the individual student (Newby 2007). Learners are changing from being passive recipients of learning to 'pro-sumers' (Kelly cited by Cormack 1999 p124). Cormack (1999 p126) believes that more students in the future will seek learning "which builds from their start point, not from some assumed level of knowledge of the group as a whole".

Ultimately the relationship between the institution and the student will change, as students are viewed and referred to as consumers. For Skolnik (1998 p643) the word 'student' carries implications of a relationship with an institution, where the institution would play some part in the general well-being of that student. A 'consumer' on the other hand has "no broader or more enduring ties with an institution than those which surround a particular transaction". The HEI as a vendor has no responsibility to the consumer, other than to provide them with the product they wish to purchase, with no responsibility for why the consumer wants the product, or how they intend to use it (*ibid*).

In turn, there is a change in the type of graduate being produced by universities, as they wish to be able to enter the workplace straight after doing a degree, as opposed to doing a postgraduate course first. This has been a noticeable trend in the US Ivy League universities during the 1990s (Thorne 1999 p5). In the UK also, there is a "clear expression… of a more instrumental understanding of universities as a means to a job" as opposed to students' first loyalty being towards their academic discipline (*ibid*). A "clear link" is being made in the student's mind between learning and earning. This is further reinforced by the OECD study (cited by Thorne 1999 p5) across more than a dozen countries, which demonstrated that higher levels of education were more like to translate into higher wages for individuals.

This change in relationship between learner and institution to a financial transaction may affect the ability of institutions to attract funding from alumni in the future, as the alumni may not have made any enduring emotional connection with the institution.

3.9 Demands on Facilities

Increased student numbers are placing significant pressures on institutions in terms of the level of facilities they are able to provide. Institutions are being called to "accept far more students than ever before" but with very little capital funding from public funds, in spite of notable exceptions (OECD 1998b p1). Routine maintenance and repairs are given less urgency, while at the same time, health and safety requirements are more demanding, as are students, who want longer opening hours and higher standards in study and leisure facilities. This pressure to sustain high volumes of teaching and research is leading to institutions in several countries to 'overtrade', as they find the income they receive to be too low for the volume of work they are endeavouring to deliver (OECD 2007b p38).

Institutions that were designed for the traditional student (school leavers) will also have to change to cope with the demands of working adult students, who want an education, but "want it in the same way the other services they purchase are delivered: efficiently, conveniently as to time and place, courteously, and with a consistent structure yielding a uniform quality" (Sperling 1999 p114).

Institutions seeking to attract a more diverse student profile will have to be in a position to cater for their diverse demands. Contemporary adult learners for example, have different demands compared to the 'traditional' student. They usually come to a learning situation with "clearly developed personal goals, better formulated ideas about what constitutes useful subject matter, and a desire to learn things that they themselves (rather than a teacher) define as worthwhile, usually because these things can be applied in some way to relatively immediate real-life situations" (Knapper 1985 p50).

Mature students may also require more support services than 'traditional' students (for example, counselling or special orientation), as they may have had negative experiences in education previously, or it may have been a long time since they studied (Knapper 1985 p51). Their experience of university life is also likely to be different to that of the 'traditional' student, as they may not be able to spend as much time on campus, due to demands from children or jobs and so on (*ibid*).

International students may need greater levels of support services, and academics may also need institutional support for cultural awareness and development of appropriate learning methodologies. Universities must build in capacities to deal with these demands if they are to attract a diverse student body.

3.10 Conclusion

As with demographic factors, changes in society and in societal values and expectations will impact on demand for HE and on its provision in terms of both format and location. The growth of the Knowledge Economy and the importance of learning and upskilling are placing great demands on universities to produce graduates who are ready for the workforce, while also able to engage with society as citizens.

This increased demand for HE is both an opportunity and a threat to the university. Where the university is in a position to change and accommodate new approaches to learning and demand, they may meet society's expectations. Where a university is resistant to change in its approach, it may risk its demise as the approach taken by universities in the past can not "simply be scaled-up to meet the size and complexity of future needs" (Coaldrake and Stedman 1998 p1).

Many changes demanded by society will be facilitated by developments in technology in particular (for example, virtual universities or the use of media in education). This is discussed further in the following chapter.

CHAPTER 4 – TECHNOLOGICAL DRIVERS

4.1 Introduction

As knowledge-intensive organisations, HEIs have been and will continue to be affected by changes and advances in information and communications technologies (ICT), and technology generally for university teaching, research and management. As technology develops and advances, so too does the nature of work. The work of the university will also be affected in terms of delivery, facilities, provision of courses and so on. This chapter will outline some of the key technological drivers with the potential to impact on HE.

4.2 The Impact of Technology and ICT

In 1967, Marshall McLuhan indicated the potential impact of changes in technology when he said "we shape our tools and thereafter our tools shape us" (cited by Dator 2002 p8). Technology and ICT continue to shape society, societal institutions, and in turn HE, by changing the nature of work, and thus the type of knowledge needed by learners and society.

For Dator (2002 p8) technology is a "major agent of social change" contributing to all other 'tsunamis' of change experienced by people, as their life-cycles are shaped primarily by the life-cycles of technologies. ICTs in particular are a key driver in the knowledge economy, and they have facilitated the expansion of both teaching and research, as more avenues open up for their growth (Vincent-Lancrin 2004 p253). Digital technologies are increasing our capacity to "know and to do things and to communicate and collaborate with others" (Duderstadt 2002 p8), with IT allowing researchers to "engage in more complex and data-intensive areas of research" (OECD 2006a p4). The OECD also believes that innovation has been changed by technology, as greater international cooperation and networking are possible. As the uptake of IT continues, particularly growth in access to broadband, the OECD believes that this process will continue (*Ibid*).

An indication of the growth in ICT can be gauged by the increase in broadband subscriptions in the OECD area in 2005. In June 2005, the number of subscriptions stood at 136million. By December 2005, this had increased to 158million. The US has the largest number of broadband subscriptions in the OECD at 49million, representing 31% of all broadband connections in the OECD (OECD 2006a p9).

Although advances in technology offer great possibilities for collaboration and expansion for universities, they are also being forced to recognise that they are not the only authoritative providers of information or producers of knowledge available to learners. Opportunities for access to technology and information "pervade our society today", with the library moving into the average person's living room (Williams 1999 p135). It is also relevant that the rate of diffusion of knowledge will "only increase as the price of these technologies goes down and technology's power to deliver information in increasingly more understandable pieces will continue" (*ibid*). Duderstadt (cited by Chapman 2006 p62) questions the relevance of the university as a physical place in the future when the "constraints of time and space – and perhaps even reality itself – are relieved by information technology", so students no longer have to travel to a physical place to "participate in a pedagogical process involving tightly integrated studies based mostly on lectures and seminars by recognised experts".

Technology facilitates the entry of new providers to the HE market. Already in the US, Disney Productions is moving into a market called "edutainment" (Abeles 1998 p607). One school in Costa Rica is using the commercial Discovery Channel on television as a supplement to their courses (Abeles *ibid*). Sperling (1999 p109) predicts that by 2025, students will have "a cyber literacy which will enable them to access information on any subject in text, audio or visual format", and in turn they will "demand instruction that is as sophisticated as the TV programming that competes for their time and money". While the ideal of "anytime anywhere education" already exists, the only doubt may be the quality of this education (*Ibid*).

For Sperling (1999 p109), ICT is the driver which will have "the greatest impact and promote the greatest change" in HE, ultimately leading Sperling to conclude that "the consequences of this force are the most difficult to predict". This is supported by Brint (2002 pxiv): "no force has a greater potential to transform higher education" compared to digital learning, it facilitates more creative teaching is delivered through a "mix of visual, aural, and verbal information".

4.3 Changes in the Delivery of HE

Since computers first appeared, predictions were made that they would revolutionise education, but certainly at the start of the 21st century, these predictions had not yet been realised (Skolnik 1998 p644). Dede (cited by Cormack 1999 p120) suggests that if an inhabitant of the 18th century was transported forward to the end of the 1990s, while most modern organisations would seem confusing, they would "instantly recognise the teaching methods and much of the instructional equipment that characterise education". While

institutions such as virtual universities make full use of ICT, in many institutions "transparencies on overhead projectors or static displays on LCD panels represent cutting-edge technology", leading Lucas (cited by Skolnik *ibid*) to conclude that "the potential of the so-called electronic classroom will not be realised any time soon".

Skolnik (*ibid*) does not believe that the delay in introducing the electronic classroom in HEIs up to the year 2000 will continue in the future, as there have been considerable developments in computer technology over the past three decades; differences that mean the impact of IT in HEIs in the future will be "considerably different" Already many primary schools in Ireland are embracing ICT as a means of delivery. St. Joseph's Boys NS in Terenure, for example, operate a Virtual Learning Environment for their pupils at www.stjosephsterenure.ie/moodle, allowing them to study anywhere they have access to the internet (St. Joseph's BNS 2007). School children currently using Virtual Learning Environments, and presenting to their classmates using PowerPoint and laptops may have the expectation that this technology will be the norm at second and third level in the future. At present many HEIs use virtual learning environments to different degrees, for example, WebCT in DIT.

However, the pace at which technology changes may inhibit the ability of some universities to introduce new technology on an on-going basis. If universities are to go down the route of introducing ICT, the costs involved will be significant, particularly if they are introducing new forms of knowledge technologies such as nanotechnology or biotechnology. Experience with "industry-standard technology in programme delivery" is essential for graduates to compete in the global market (EGFSN 2006), and the accompanying investment will be prohibitive for many institutions.

Technology may, however, prove very cost-effective when used for other means in HE. For example, the cost of providing a student with a three or four year course delivered through the labour-intensive teaching method of lectures may encourage universities to invest more in ICT as a means of delivery in teaching (Cormack 1999 p123). Those HEIs which invested heavily in technology for teaching at the turn of the century are seeing "cheaper, more powerful and more functional technology arriving every day… (providing) educators and governments with the capacity to transform radically our whole education system", particularly in the area of flexible and distance learning (Bates 2005 p2). Technology, in this context, would limit the need for creative human input, which would affect the role and number of academics in HEIs (see Section 4.4).

Outside the classroom ICT is enabling growing numbers of students to gain qualifications by distance, be it online, through CD-ROMs delivered to their door, or other media forms such as television programmes or DVDS, through bodies such as the Phoenix University or the Open University. The various technologies employed in HE pre- and post-1980 are outlined in Exhibit 4.1 and Exhibit 4.2.

Exhibit 4.1 - The Development of New Technologies in Teaching up to 1980 (Source: Bates 2005 p42)

Development	*Years in Operation*
Teachers	3,000
Printed book	500
Postal Service	150
Telephone	90
Radio	60
Film	50
Television	20

Exhibit 4.2- The Development of New Technologies in Teaching Since 1980, in approximate order of invention reading left to right (Source: Bates 2005 p43)

Audio Cassettes	Video cassettes
Audio-conferencing	Computer-based learning
Audio-graphics systems	Cable TV
Viewdata/ Teletext/ Teledon/ Minitel	Satellite TV
Laser video-discs	Video-conferencing
Computer conferencing	Compact discs
Internet	Electronic mail
World Wide Web	LCD projectors
Digital Video Discs	Search engines (e.g. Google)
Fibre optics	Mobile Phones
Learning objects	Wireless networks
Portals	e-Portfolios
Simulations	Expert Systems
Virtual Reality	

The conversion of an enormous industry like HE into a high-tech format offers significant opportunities for the sale of products and services by commercial enterprises, such as IBM, Microsoft and Apple (Skolnik 1998 p646). This drive also appears to be supported by administrators, as it offers them an opportunity to cut costs and to gain more control over the educational process, while also generating revenue from the "commercialisation of instruction and development of new markets for courseware" (*ibid*). Accordingly we may be witnessing the early stages of the appearance of "a global knowledge and learning industry, in which the activities of traditional academic institutions converge with other knowledge-

intensive organisations such as telecommunications, entertainment and other information service companies" (Peterson and Dill 1997 cited by Duderstadt 2002 p7).

Skolnik (1998 p644) sees the appearance of relatively low cost personal computers in households as a significant factor in the drive for technology in education. Besides being useful for activities such as word processing, preparing presentations or database management, PCs, through the internet and email, are also a key means of delivery of education, and are accessible to most people with little prior training. In the late 1990s Heterick and Twigg (1997) outlined how Moore's Law[1] would apply to the desktop PC, so that in 2007, it would be 20 to 100 times more powerful than desktop PCs in 1997; They would cost about $500, and would be connected to a network populated by millions of other PCs used daily by nearly a billion people around the world. This prediction is quite accurate, as PCs have reduced in price, access to the internet has increased, and home PCs are capable of carrying out a multiplicity of functions previously unavailable. It is not unreasonable to suggest that this trend will continue into the future with the further development of ICT.

Access to the internet through home PCs offers huge potential for HE, as the internet "removes almost all constraints on time and space - as well as other legal, financial, physical and social constraints, and allows individuals to take (the) courses at their own pace which from all possible courses in the world best meet their learning needs" (Skolnik 1998 p641). For the "non-traditional learner, the mid-life learner seeking to upgrade a technical skill or redefine a career to fit the changing economy, and the learner whose personal or locational circumstances prevent access to a place-based campus", the development of online education with considerable potential for access is a "boon" (Chapman 2006 p62). A situation could arise where a student in Dublin is tutored by a professor in Australia, or could do an entire degree programme through a virtual university in the United States. Skolnik further states that

> …if even a portion of the enthusiasm that consumers have brought to using the internet and email is brought to the idea of taking courses through these means, then the response of learners to 21st Century opportunities for electronically delivered, self-directed learning could be vastly greater than responses to educational technology in the past (1998 p645).

[1] The empirical observation made by Gordon Moore of Intel in 1965, that the unit cost of a silicon chip would fall, while the number of circuits on a single chip would rise (Moore 1965). Moore was indicating that electronics were becoming cheaper to assemble, with yields increasing and cost per transistor decreasing (Intel 2005).

Certainly e-learning is already becoming a more prevalent feature in the HE landscape. For example, the European Commission sees its e-Learning Initiative as playing a part in speeding up changes in the education and training systems in order to facilitate Europe's move to a knowledge-based society (EU 2007b). E-learning is also becoming a major provider of distance learning, whether through the web, mobile or other technologies, and is "increasingly complementing traditional face-to-face education" (Vincent-Lancrin 2004 p253). The proliferation of mobile technology may also lead to fundamental changes in how students are examined, as the ability to perform in a closed-book situation may become completely irrelevant for the student who is always 'connected' to information through mobile phones or laptops in cafes (Norton 2007b).

The delivery of HE through technology, in particular ICT, would require countries to have high levels of access to broadband. In Singapore, for example, every business, school and home is connected to Singapore One, a national broadband network. Ireland by comparison has "an under-developed residential and business broadband market, with poor levels of DSL and cable modem adoption compared with European countries", due to "high wholesale costs, lack of competition, high retail prices, limited coverage in many non-urban areas, and general low market awareness" (Internet World Stats 2007) (see Internet Usage Figures in Exhibit 4.3). In comparison with the OECD area, Ireland falls below average in terms of broadband subscriptions, at 12.5 broadband subscribers per 100 inhabitants (see Exhibit 4.4), or 517,300 subscribers in 2006 (see Exhibit 4.5) (OECD 2006b).

Exhibit 4.3 - Internet Usage and Population Statistics in Ireland (Source: Internet World Stats 2007)

YEAR	Users	Population	% Pop.	Usage Source
2000	784,000	3,755,300	20.9 %	ITU
2002	1,319,608	3,780,600	34.9 %	Nielsen NR
2006	2,060,000	4,104,354	50.2 %	C.I. Almanac

Exhibit 4.4 - OECD Broadband Subscribers per 100 inhabitants, by Technology, December 2006 (Source: OECD 2006b)

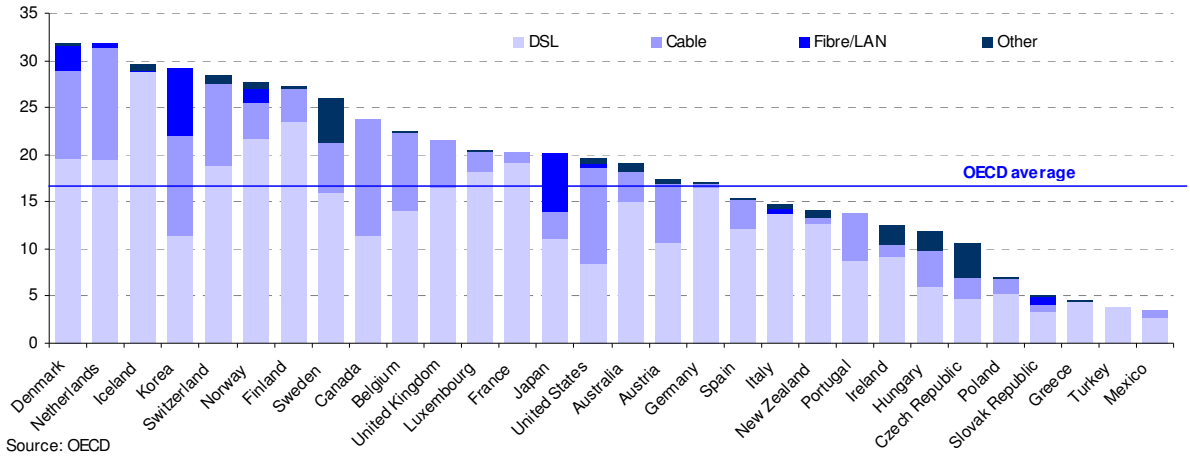


Exhibit 4.5 - Breakdown of broadband technology, Ireland (Source: OECD 2006b)

	DSL	Cable	Fibre/LAN	Other	Total	Total subscribers
Ireland	9.1	1.3	0.0	2.0	12.5	517,300

The delivery of education through technology is not without its critics. Inayatullah and Gidley outline responses from commentators on the commodification process universities are undergoing, and the introduction of the internet. While none of the commentators were 'Luddites', "they are cautiously optimistic about the role of the internet, it may also continue to distance teacher from student, knowledge from ethics". Some commentators are concerned with content, others with the 'the process of education' and others with 'the political economy of knowledge' ("Who gains and loses when structures of education change?")(2002 p2).

Emberley (1996 p269) argues that while an electronic medium might be effective in the transmission of factual information or even to refine skills, such a medium could "only denigrate teaching when it comes to higher order goals like understanding, discerning judgement and cultivated imagination". However, Skolnik (1998 p648) points out that every significant change in education was at first denounced as something that "would ruin education and debase degrees" before being accommodated and assimilated. Every new idea, the adage runs, starts out as a heresy.

Technology in itself is "neither good nor bad", as it is the way in which it is used that is of significance. In order to benefit from technological developments, educators "need to understand the relative education strengths and weaknesses of different technologies, and

what needs to be done to use technologies effectively". For the technology itself to be used effectively in education, HEIs must also take account of "managerial, administrative and operational requirements" (Bates 2005 p2).

Significantly, technology may also offer parents a real chance to reduce the costs involved in sending their children to HE. At the end of the last decade, in the world's 11 mega-universities that carry out distance learning and had at least 100,000 students, the cost per student was about US$350. This compared to an average of US$10,000 and US$12,500 in 'conventional' universities in Britain and the US respectively (Skolnik 1998 p645). Rising accommodation and living costs coupled with outlays such as fees and academic text books may make distance learning through technology the most cost effective HE in certain cases.

4.4 Technology and Academics

Skolnik (1998 p639) believes that the replacement of faculty by technology is likely to be a significant issue facing academics in the 21st century. Lucas (cited by Skolnik 1998 p641) questions why a university would hire six different Shakespeare scholars, when the lectures "of one outstanding teacher can be beamed via television to student audiences on scores of campuses", leading to the creation of 'star academics'. As universities develop "learning objects" for use in the different contexts of e-learning, intellectual property rights may ensue, between academics, universities, software designers and corporate partners (Vincent-Lancrin 2004 p253). Learning objects, digital objects, knowledge objects, educational objects, instructional objects, reusable learning objects and data objects such as images, games, multimedia files or websites have the goal of facilitating flexibility in learning and training design (Eduspecs 2006).

Automation in education is also seen as part of the overall 'deskilling' of the industrial labour force (Braverman cited by Giddens 2001 p381. If Taylorist[2] organisational techniques are introduced into HE, 'industrial' processes would be broken down into simple operations, that can be timed and organised, thus breaking up labour processes into specialised tasks. This breaking-up of the labour process allows managers (or professional administrators) to exert control over the workforce. In a situation where courses are transformed into courseware, the

[2] Frederick Taylor's The Principles of Scientific Management (1911) are known as Taylorist principles. Taylor believed that "the principal object of management should be to secure the maximum prosperity for the employer, coupled with the maximum prosperity for each employee". This could be achieved by developing a "science" for every job, with standardised work implements and appropriate working conditions. Employees should be selected according to their ability to do a particular job, and they should be trained and given incentives, with support given to workers by planning their work appropriately.

activity of instruction itself is turned into "commercially viable proprietary products that can be owned and bought and sold in the market" (Noble in Skolnik 1998 p647).

While academics may protest about their encroaching redundancy, it has been argued that faculty may not have any moral justification for resisting the automation of their jobs. Other trades, crafts and occupations have seen their work change or be eliminated by technology, and "the fact that university teaching has been done essentially the same way for most of this millennium is not a good defence against suggestions that it be done a different way in the next millennium" (Skolnik 1998 p648).

In reaction to the introduction of technology to replace faculty, or to control their time, faculty are attempting to reassert their control. In York University (UK), staff have negotiated a contract with a condition that they will not have to turn one of their courses into an electronic course, without their agreement. Other faculty may follow suit, in an attempt to prevent a struggle between faculty, administrators and their corporate allies over the introduction of instructional technology. The changing role of the academic is discussed further in Chapter Five.

4.5 Space Management

HEIs are complex organisations, performing a variety of tasks for a range of stakeholders, both of which change over time. Space is an important part of the 'technosphere' of an institution, and its effective management a vital input into the production process. But maximising space usage is not an end in itself, for space needs to be considered as one of a number of ingredients to be blended to optimise the desired mix of outputs. A report by the UK HE Space Management Group (SMG 2006) identified the forces driving change in higher education, as shown in Exhibit 4.6.

Exhibit 4.6 - Potential drivers for change in space usage (Source: SMG 2006 p6)

<table>
<tr><th>Reduced Space Use</th><th>Changed use within envelope</th><th>Increased space use</th></tr>
<tr><td>Increased efficiency in space use</td><td colspan="2">Increased student and staff numbers</td></tr>
<tr><td>Increased use of distance learning/ IT</td><td>New teaching methods (including IT use)</td><td>Research needs</td></tr>
<tr><td>'Portfolio' staff, not working in institution</td><td>Lifelong learning, causing new space mix</td><td>Enhanced community use of facilities</td></tr>
<tr><td>Increased student/staff ratios leading to unit space savings</td><td>Move to higher-value activities</td><td>New health and safety or access demands</td></tr>
<tr><td>Workplace-based learning</td><td>Changed approaches to library use</td><td>Better student facilities (for international students)</td></tr>
<tr><td colspan="2">Space redesign/ restructuring of functions</td><td>New central infrastructure demands (marketing, quality)</td></tr>
<tr><td colspan="3">Changed subject requirements</td></tr>
</table>

The key observations of the report can be summarised as follows:

- The HE system is becoming increasingly diverse, so much so that it is almost impossible to claim that a particular set of policy prescriptions can apply across the sector;
- For differing reasons, no institution is likely to experience a significant reduction in overall space needs in the foreseeable future;
- Space will, however, be subject increasingly to remodelling for new needs or to meet new standards;
- `Learning space' will be seen as one of these needs, with more provision being made for student-led and 'blended' learning (face-to-face plus IT-mediated);
- A relatively small increase in research-specific space will require a small net increase in space, concentrated in a small number of institutions. However, many, if not most institutions will want to expand their physical space to accommodate new modes of knowledge production funded by a range of agencies, in which the boundary between research and third-stream activities will be blurred, and they will need capital to achieve this change in the configuration of their estates; and
- The institution's physical facilities will increasingly be seen as a marketing asset, and will attract more resources and more management attention.

The report's conclusions are shown in the summary chart Exhibit 4.7

Exhibit 4.7 - Impact on Space of Future Changes in Higher Education: Summary of Conclusions (SMG 2006 p19)

Driver	***Reduced* space use**	**Changed use *within* envelope**	***Increased* space use**
Institutional planning & management		Changed teaching research mix	
	Extended teaching day/ week/ year	More space for taught postgraduate and research students	
	Staff working away from institution	Increased community use of facilities	New central infrastructure functions
	Better space management techniques		Higher standard/ more extensive student facilities
	Increased student/staff ratios, leading to unit space savings		
	Remodelling and better design of new space		
Changes to teaching and learning	Workplace-based and itinerant learning	Changed approaches to library use	Partnerships with other institutions
		New mix of teaching space sizes	
		IT use leading to more flexible space use	
		Increased social/ group work space for student-led learning	
Disciplinary changes	Size reductions and improvements to equipment	Changed equipment needs	New research fields requiring specialist facilities
		Specialist space for social science and humanities work	

4.6 Conclusion

As technology changes and develops, it has the capacity to reduce work in society generally, and specifically, in HE. Technology will lead to new means of delivery, as well as facilitating the entry of new HE providers in the market. As students become more computer literate, there will be pressure on all HEIs to upgrade their technology, particularly in knowledge-dependent economies and sectors, where industry-level equipment and knowledge will be prerequisites to produce skilled graduates. Those institutions or countries which do not invest sufficiently in new technologies could find themselves falling behind their competitors. Changing technologies will impact on societal expectations, student populations, faculty roles, financing and accreditation. Equally, one of the largest challenges facing each HEI is that of determining how much space, and of what type, it will need in the future. Estates infrastructure decisions are far-reaching and long-lasting.

Dolence and Norris (cited by Skolnik 1998 p638) have a final warning for those HEIs which choose to ignore the impact of technology: "those who realign their practices most effectively to Information Age standards will reap substantial benefits… (*while)* those who do not will be replaced or diminished by more nimble competitors". Similarly, from Harrison and Dugdale (2003), a prediction, in terms of space and the potential of the 'virtual estate', in stating "increasingly organisations (such as universities) will move outside of the physical container of their own buildings".

CHAPTER 5 – GOVERNANCE

5.1 Introduction

Governance refers to "the set of arrangements by which the affairs of an institution are ordered" (Parliamentary Commissioner for the Environment New Zealand 2007) or "the act of affecting government and monitoring (through policy) the long-term strategy and direction of an organisation. In general, governance comprises the traditions, institutions and processes that determine how power is exercised, how citizens are given a voice, and how decisions are made on issues of public concern" (Public Health Agency of Canada 2007).

For several centuries, the best universities in the world have managed to make a "remarkable historical contribution to human understandings and practices", without much management (Cowen 1996 p3). However, it now seems to be widely perceived and known that universities are disordered and in need of professional administrators, together with more transparent and accountable governance.

In an era approaching mass or universal participation in HE (OECD 1998a p10), and with HEIs often being multi-million Euro industries, stakeholders (parents, students, governments, policy makers) are demanding greater fiscal accountability and transparency in the organisational structure and culture in HEIs. This often becomes a source of conflict for such institutions, as they endeavour to preserve their autonomy.

Traditionally universities were self-governing, ruled by a 'community of scholars' working together to their mutual advantage. For Middlehurst (1993 p49), this image carries associations of "census, decision making and academic autonomy, of democracy and cohesion based on a limited hierarchy of seniority and expertise, a common heritage and shared ideals, with the committee system being the chief organ of government in the collegial institution".

The contemporary HEI, however, is witnessing the appointments (as opposed to election) of professional administrators, and the introduction of non-academic staff, changing the historic balance of power. Compounded with the interventions of regulatory and funding bodies, universities are finding themselves being held increasingly accountable to a multitude of vested interests.

Pressure for change is occurring globally, and does not ignore prestigious institutions. Oxford University, for example, has been in the throes of controversy over proposals to modernise the 900-year old institution, with one proposal suggesting that business leaders and politicians take control of the council responsible for running Oxford, ending hundreds of years of self-governance in order to gain a firm financial footing to compete with the world's leading universities. Critics are fearful that 'big business' would have too much power, or that corporate leaders would not understand how to motivate academics. But supporters of the changes see the critics as trying to "protect a 'lost world' where academics are left in charge of institutions which are now multi-million pound businesses", a "nostalgia of a world that we have lost" (Asthana 2006). The pressure to modernise, with outsiders involved in the running of Oxford, is a measure to improve accountability and 'public confidence' (*ibid*).

Institutional change can range from profound change, to the approach of the New Zealand government, which wishes change to be 'seamless', but "no country can be sure of the shape of the garment that is being crafted and the pieces of cloth often fit uneasily together" (OECD 1998a p15). This chapter outlines some of the influences and outcomes of this change in governance.

5.2 Involvement of Government in Universities

Lord Melbourne, a British Prime Minister involved in the reform of Oxford and Cambridge universities in the middle of the 19th century, remarked that "universities never reform themselves" (cited by OECD 1998a p15). Thus, modern governments usually take the view that universities need some 'encouragement' to change.

Until relatively recently in the time span of the university's existence, universities and colleges were positioned in a 'seller's market' (Knapper 1985 p51). The state provided them with funds which they were free to use as they saw fit. Courses were introduced based on what was appropriate to the teaching staff, the 'traditional custodians of the curriculum', instead of actually assessing what were the diverse range of students' 'real learning needs' (Knapper 1985 p51). Although the majority of HEIs were effectively owned and/or funded by the state (excepting private universities which are more numerous in the US and Japan) they remained relatively autonomous bodies (OECD 2007b p13).

This situation was as much a result of the government's approach to HE, as it was about the universities or the colleges, as "most of our institutions were the result of public policy and public investment through actions of governments at the national and regional level" (Zemsky 1997; Zemsky and Wegner 1998 cited by Duderstadt 2002 p7).

However, governments are now increasingly demanding that the university cater for the needs of society and the economy, so policies are developed to ensure this, and funding is provided with 'strings' attached. Where "it was once the role of governments to provide for the purposes of universities; it is now the role of the universities to provide for the purposes of the governments" (Newby 2007). Governments want to see HEIs responding to public interest agendas, at both national and regional levels, while also managing their financial sustainability, institutional missions and funding (OECD 2007b p5). All the while institutions are endeavouring to "differentiate themselves in an increasingly competitive environment; and to protect and maintain academic quality and their ability to deliver over the long term" (*ibid*). These pressures are being exerted in the context of decreasing funding for HE. In Ireland, for example, between 1989/90 and 1999/2000, although the government increased state funding per study by 4%, this was actually a significant decrease in real terms (OECD 2007b p14).

When governments intervene in the HE sector, the outcome of such policy decisions can be dramatic. For example, in Australia, following the Dawkins reforms of 1987, there was a wave of amalgamations in universities. Prior to the report, universities for the most part had freedom to decide course content and structure, despite the state being constitutionally responsible for all education. The state had to approve the introduction of new courses, but they were less concerned with "structure or content or standards of the course" than with "resource implications, potential duplication with other institutions, course length and likely demand for the graduate output of the proposed course" (Sheehan 1996 p19-20).

However, public policy is evident in the current concern in HE for standards, testing, assessment and 'quality control' (Sterling 2001 p24). Increasingly, modern universities are finding themselves in a situation where they are forced to comply with new regulatory requirements, while at the same time being pressed to apply the principles and language of business and industry to their activities (Coaldrake and Stedman 1998 p2). Thorne (1999 p9) sees the change in institutional internal management and administration in the past thirty years as "going from cost-irrelevance through to cost-ignorance through to cost-consciousness".

From a government point of view, in a knowledge economy, universities are often the largest knowledge-based institutions in their regions, and thus governments and policy makers target HEIs as they link education with economic regeneration, "through the dissemination of their knowledge and expertise through industry-linked partnerships" (Hagen 2002 p1). Maskell and Robinson (2002 p4) believe that the charters of universities in the UK approach education

from the point of view that "education is an investment. Education is the same as training: education is useful: education will make us rich". Thus the UK government are inclined to take a special interest in the affairs of HEIs in the UK.

Governments are increasingly looking to other jurisdictions for best-case policies and state of the art practices, through networking, seminars and adapting foreign evaluation policies (Cowen 1996 p3). As a result, universities now have to operate strategically (Thorne 1999 p9), as they are competing on a global scale with other HEIs. By 2024, Thorne (1999 p9) predicts that a comparison of the corporate behaviours of universities will resemble a comparison between Microsoft in the late 1990s, and the UK car companies of the 1960s.

Many academics, however, see a danger in a government-centred approach, as the "focus becomes too much centred on universities as an economic good, losing the social and cultural dimensions of our work" (Scottish academic cited by Clark 2005 p181).

This scale of intervention of government in HE is in disaccord with the view of the Council of Europe, which supports autonomy in HEIs as:

> …the academic mission to meet the requirements and needs of the modern world and contemporary societies can be best performed when universities are morally and intellectually independent of all political and religious power, authority and economic power… the academic freedom of researchers…and the institutional autonomy of universities…should also be reaffirmed and legislatively, preferably constitutionally guaranteed (cited by Fitzgerald 2006).

This conflict between stakeholders and institutions can be traced back to the issue of what a university education is for, and who should fund it.

Nevertheless, there is an argument for state intrusion in academic life, as academics are often criticised for not applying the standards of rigorous inquiry to their self-understanding as teachers (Barnett 1996 p152). Self-evaluation by academics is a dominant form of evaluation, but this form of evaluation is criticised, as academics are seen as "slow to evaluate, seriously and collectively, their teaching activities" (Barnett 1996 p157). Many academics believe that loyalty to their discipline is of more importance than teaching it (Hefferlin 1969 cited by Knapper 1985 p73).

Some academics in the UK see the government's demand for clear learning outcomes and accountability as a loss in a "significant degree of trust in their work as professionals" (Barnett

1996 p144). It is questioned if this loss of control over conditions of work is the proletarianisation of academics, as they lose esteem, as opposed to the means of self-production.

Ironically, Barnett (1996 p155-6) believes that greater intrusion by the state and third parties in the evaluation of academics may lead to "greater collegial and self-evaluative professionalism" towards teaching among some academics, as they are spurred into self-critical, self-reflective dialogue with other academics. This may be a very timely intervention, as universities begin to treat students as consumers, who in turn start to blame their teachers for their failures, and even sue them (Smith and Webster 1997 p17).

5.2.1. Funding

As governments are seeking increased accountability and transparency from HEIs receiving funding from them, universities are being forced to diversify their income in an effort to remain economically viable and to ensure a degree of autonomy. The issue of funding, and sources of funding, can impact on governance in institutions, as familiarly he who pays the piper calls the tune. It is beyond the scope of this text to investigate fully the impact of funding on HE systems, but this section outlines some relevant issues pertaining to funding.

HEIs can receive funding in a variety of ways, although they generally prefer "longer-term block grants, which they can use at their discretion and which provide a stable basis for planning" (OECD 2007b p15). On the other hand, governments are more oriented towards "targeted and short-term initiatives and mechanisms that require institutions to make matching financial contributions or to deliver specific outputs". This funding can be delivered in a number of ways including (ibid):

- Targeted initiatives/ incentive funding
- Capital grants
- Performance related/ contingent funding
- Benchmark funding
- Competitive bids
- Marginal-cost funding

Relationships between institutions and government can take a variety of forms, for example; owner, core funder, planner, partner, customer or regulator, or a combination of these roles (OECD 2007b p21). Depending on the relationship, the funding arrangements also vary. Many governments would like HEIs to be more active in taking "greater responsibility for their own future and to generate alternative sources of income" in order to avoid a 'dependency culture' between government and individual institutions who avoid taking control of their

financial viability (*ibid*). Within OECD member countries, HE systems vary considerably in terms of funding, with varying degrees of public and private funding (Vincent-Lancrin 2004 p249). Only six OECD countries are in a situation where more than 30% of their income comes from a private source. These are Korea (77%), the US (66%), Japan (55%), Australia (49%), Canada (39%) and the UK (32%) (Vincent-Lancrin 2004 p249).

Heavy dependence on state assistance for funding puts HEIs in a vulnerable position, as they are "much more dependent on changes over which the university has no control" (Shattock 2000 cited by Smith 2005 p17). In the UK, for example, the structure for applying for public funding for research was recently changed to allow private companies to compete with universities and other institutions for funding (Kingston 2006), putting pressure on HEIs relying on the government to award this funding to their institution.

As the state has such varied interests and mandates, its support is seen as undependable (Smith 2007 p19). For example, although GDP increased between 1995 and 2000 in all OECD countries, public expenditures per student on tertiary educational institutions decreased in almost half of the OECD countries for which there is information available for both years (Vincent-Lancrin 2004 p249), indicating that HE might not occupy the priority position HEIs would like, when it comes to government investment. Funding for education can also be given by the government with stipulations for its use. For example, in the UK, when the Labour government invested in adult learning after 1997, this learning had to be "economically useful and formally accredited", as government-funded education was deemed not sufficiently justified by the "pleasure of learning itself" (Cushman 2006).

In the UK, universities are encouraged to address shortfalls by seeking assistance from their alumni and philanthropists, drawing on the US experience where institutions can raise significant sums in this way. Harvard, for example, is one of 207 universities in the US which regularly raises more than £100million per year in donations (Anushka 2007). The UK government will give £1 for every £2 donated to English universities in a recently-announced plan, in an effort to embed a "culture of charitable giving" across higher education and to facilitate the attendance of 50% of 18 to 30 year olds in HE by 2010, through funds sourced from beneficiaries (Taylor 2007). However, with the change in the profile of students to customers, it is questionable if students in the future will have enough social capital built up with their HE provider to feel the need to contribute towards its upkeep after they have left.

Also in the UK, plans have recently been announced for 'employer demand-led funding', which is expected to generate an extra 15,000 student places between 2008 and 2011, in an

attempt to meet the "high skill needs of employers and staff" (Smith 2007). HE providers can work effectively with employers to provide educational skills, as demonstrated in a Universities UK (UUK) report (2006 cited by Smith 2007), which found that degrees in computer games technology, golf management, brewing and distilling and cosmetic science were among those degrees flourishing. However, the financial contribution of the employers is not indicated.

University research remains largely government funded, despite a decrease in research being carried out by government itself, and an increase in research conducted and financed by the private sector (Vincent-Lancrin 2004 p251). Where Research and Development (R&D) is funded primarily by the state, a 'social contract' exists between science, the university, society and the state (Martin and Etzkowitz 2000 p14). The current social contract attaches strings to the research process, as scientists must "seek to establish a new contract with policy makers based not on demands for autonomy and ever increasing funds, but on the implementation of an explicit research agenda rooted in (social) goals" (Brown 1992 cited by Guston and Keniston 1994 p6). The OECD (2007b p5) suggests that 'a new form of partnership' is required between the State and HEI. This partnership should support "increasingly autonomous universities in taking a more strategic view of their role", while institutions must remain effective and "adopt some of the strategic financial management skills seen in the commercial sector".

5.3 The Irish Government

The Irish government views education as the key to Ireland's "future social and economic prosperity" (Hanafin 2006), and wishes for the Irish HE system and it's twenty-one HEIs to be in the top 10% of OECD countries in terms of both quality and levels of participation (OECD 2004), indicating that their view of education has changed from being investment in a 'non-productive' to a 'productive' part of the Irish economy (Hazelkorn 2007a).

Despite the fact that the 1997 Universities bill explicitly guarantees the autonomy of Irish universities (Fitzgerald 2006), through bodies such as the HEA, the Irish government can instruct institutions to rationalise, to be more socially inclusive, to reduce the unit cost of educating an individual student, and to play a part in the economic performance of the region surrounding the institution. With the signing into law of the Institutes of Technology Act 2006, the HEA now include IoTs within their remit.

The influence of the Irish government in Irish HEIs is significant, particularly because Irish institutions are so heavily dependent on state funding (OECD 2004), compared, for example,

to countries such as Australia. Over 90% of third-level students in Ireland are in institutions of a public nature, in a binary public system, with a university sector and an IoT sector (HEA 2006d p2). Hess (2006) believes that Irish HEIs were never completely autonomous - "universities were never fully free of politics, State and church intervention". The challenges faced by Irish HEIs, however, are not particular to Ireland. Hazelkorn (2007a) suggests that these are challenges faced by HEIs worldwide. The OECD (2004) recommends the diversification of income streams in Irish HEIs, with the re-introduction of third-level fees and the establishment of a new funding model linking strategic investment with national priorities. If implemented, these recommendations have implications for curriculum development and course offerings in Irish HEIs, as funding becomes potentially market-oriented. OECD reports can have significant impact, as demonstrated by the outcome of the publication of the OECD report Investment in Education in 1965, commissioned by Patrick Hillery as Minister for Education in 1962. This report advocated free second-level education, which was duly implemented (Hanafin 2006).

The recommendations of the OECD (2004) report, however, have not been accepted unquestioningly. Bodies such as the Teachers Union of Ireland (TUI) reacted against the "negative effects of free market ideology inherent in the OECD's report… particularly with regard to delaying of tenure or encroachment on academic freedom" (TUI 2005). The TUI objected to the fact that education was no longer valued as a 'social good' as the "widespread marketisation and privitisation" of education occurred. Instead, the TUI viewed education as "a human right and not a commodity in the marketplace" (TUI 2005).

In spite of the push from the Irish government, policies do not always translate into success, as exemplified by the shortage of science graduates at present. In HEA-funded institutions in the period 2004/2005 and 2005/2006, arts and humanities disciplines attracted the greatest proportion of new entrants - 28% in 2004/2005 (HEA 2006a p9), and 27% in 2005/2006 (HEA 2007b p11). New entrants to overall Science disciplines were recorded as declining 'slightly' (by 4.5%) in HEA-designated institutions between 2004/2005 and 2005/2006 (HEA 2007b p11), in particular in the field of Computer Science, where demand declined by 19% (HEA 2007b p19).

5.3.1 Research

In terms of research, over the coming years the Irish government has indicated its intention to create "a world class research, development and innovation capacity and infrastructure in Ireland as part of the wider EU objective for becoming the world's most competitive and dynamic knowledge-based economy and society, as agreed in Lisbon" (OECD 2004 p5). This is further re-enforced in the Strategy for Science, Technology and Innovation (DETE 2006 p8)

which wants Ireland to be "internationally renowned for the excellence of its research" and "to be to the forefront in generating and using new knowledge for economic and social progress, within an innovation driven culture", all by 2012. The government intends to invest significantly in (R&D), doubling PhD students, expanding researcher numbers and advancing industry collaboration (Hanafin 2006), as the government links investment in third- and fourth-level education with success in "today's highly competitive global knowledge economy" (Hanafin cited by Downes 2006).

Investment in R&D is currently comparatively weak compared to other OECD countries, with the 2004 OECD report recommending higher levels of investment. The National Development Plan 2007-2013 aims to address this by developing Ireland's HE and research sector "into one of the leading systems internationally" according to the HEA Chairman, Michael Kelly (HEA 2007a), by "providing the essential resources to increase the levels of graduate output that are vital for future social, economic and cultural progress" and by playing a "critical role in growing the vital fourth-level sector" (HEA 2007a). However, given the geographical spread of the country, with a population of 4million, it is questioned if Ireland has the critical mass to 'grow' an adequate research environment (Hazelkorn 2007a).

5.4 University Partnerships

Partnerships in universities are seen to have "boomed" over the past decade (Vincent-Lancrin 2004 p254). As HE costs money, and mass HE demands even more money, university administrators are under pressure to find resources to cater for this demand. One way of finding these resources is to form partnerships with suitable organisations and institutions for the purpose of mutual benefits. Partnerships in themselves are not a new feature of HE, but what is different in contemporary universities is the variety and number of potential partners, and the shift to partnerships with commercial elements (Beerkens 2004 cited by Vincent-Lancrin 2004 p254).

Partnerships in universities can take the form of local partnerships with other universities to provide courses or to secure research funding, or partnerships on a global scale with international universities or corporations, allowing universities to expand on limited resources. As partnerships become a more common occurrence in universities, this will affect governance, as those involved in the partnerships wish to have a greater say in the use of resources.

5.4.1 Inter-University Partnerships

Inter-university partnerships, while requiring co-ordination between institutions, can promote mutually beneficial and effective synergies, or increase resources through sharing. For example, when Leeds, Sheffield, Southampton and York Universities linked up with four research-led American counterparts, the UK Minister for Education indicated at the time that global alliances in HE were needed to "secure new forms of diversity with excellence for an expanded student population… *(as)* no institution can offer real excellence in teaching or research across the full range of disciplines – the resources on the required scale are not there" (The Guardian 2000 cited by Hagen 2002 p206).

There is a strong argument to say that alliances between universities can have many benefits, as institutions have an insider's position in each others regions while sharing associated costs and risks. These alliances can facilitate new product and programme development by linking expert bases in teaching, technology and R&D, while also decreasing the length of time between innovation and the marketplace. Partners can also benefit from "internationalisation of knowledge", while challenging a "national-regional myopia" (Hagen 2002 p3).

Regional partnerships can also be mutually beneficial, as demonstrated by the University of Glasgow and the University of Strathclyde, which formally agreed a partnership in 1998. Within two to three years, the alliance had joint research centres, four joint graduate programmes, some unification of departments, a joint e-systems institution and increased income "that would not have been won by the two universities acting alone" (Clark 2005 p32). This was achieved amid a previous history of antagonism between the two universities, with the founder of Strathclyde, which was originally a small private mechanics' institute, stating in his will that no one associated with 'the other place' should ever be give a job at his institution in order to escape the stuffiness of the ancient university (*ibid*).

In Ireland, DCU President Professor Ferdinand von Prondzynski sees inter-university partnerships as essential if Ireland "wants to develop a knowledge-intensive university system that is world class", meaning that individual competition between universities is "no longer an option". Cooperation between universities will be necessary to show that Ireland has "a critical mass of researchers, the capacity to educate a sufficient number of people to the required level (now often a PhD), cutting-edge facilities and laboratories, and an entrepreneurial spirit". The means of doing this was "close collaboration between government, industry and the universities" (von Prondzynski 2006 p2). In DCU, such collaboration is exemplified in the university's partnership with Arizona State University in areas such as sensor research and

nursing (Crow 2006); or the 'Midlands Accord', a strategic collaboration agreement between DCU and Athlone IT to establish an industry-linked research centre and new degree programmes. Although collaborations have their own difficulties, it is better for an institution to have "20% of something than 100% of nothing" (Norton 2007a).

5.4.2 Industry/ Commercial Partnerships

Synergies between HEIs and commercial organisations are becoming a more common feature in the contemporary HE landscape. As a producer of knowledge, universities often carry out research of commercial value, which can be capitalised on, through patents or through linking with commercial organisations to bring innovations to the market place. For industry, collaboration with a university offers them interdisciplinarity which they would otherwise find extremely expensive. Universities for their part can benefit from commercial liaisons through patents and potential income streams (Thorne 1999 p9). Vincent-Lancrin (2004 p253) points out that the involvement of commercial interests in the production of knowledge in HEIs could lead to intellectual property rights issues, as patenting of knowledge conflicts with its teaching.

Students also benefit from industry partnerships, as in smaller institutions, both urban and rural, industry partnerships are seen as a key element of success by the OECD (1998a). Students spend part of their time in enterprises under the supervision of their teachers, with enterprises contributing to instructions through their staff teaching in them. This mutually beneficial relationship is 'Service Learning', which is "a form of experiential education that uses community service experiences to enrich and expand academic scholarship" (Martin & Haque 2001p5). A good example of this is seen in the German *Fachhochschulen* (OECD 1998a p34). Student learning has also been shown to be more relevant to society's needs when they are learning from academics who are engaged and working with "real world issues" (Hatakenaka 2005 p3). As universities are forced to find more diverse streams of income, professionally-oriented postgraduate degrees, where students earn their qualification while working in a company, with the company paying part of the cost as the student addresses some problem they face, may play a greater part in the HE landscape of the future (Lindqvist 2007). However, service learning has been found to be very time-consuming, where it is not administered and organised effectively (Martin & Haque p8).

Well-developed, profitable partnerships between universities and publishers can be very beneficial to both parties. For example, the partnership between the Pearson Group and the Heriot-Watt University. The Heriot-Watt University has developed an MBA course in a print-based distance learning format, and the Pearson Group sells and distributes the course

through its publishing network around the world. This type of 'global branding' through corporations may encourage universities to reposition themselves in the education market (Thorne 1999 p8). In Twente in the Netherlands, the university made itself a test-bed for innovative ICT applications through the introduction of a wireless campus project, in which students and staff tested wireless application protocols (WAP) with the latest generation mobile phones in a two-way knowledge transfer between the university and industrial partners (Clark 2005 p44).

One university of the future, exemplifying the trend for linkages between industry and education for the purposes of research, is the proposed European Institute of Technology, as part of the revised Lisbon Strategy in the EU. The EU intends for the EIT to contribute to the innovation gap between the EU and its competitors, and to provide the EU with the critical mass it needs to compete in terms of innovation. A key facet of the EIT would be innovation through trans- and inter-disciplinary strategic research and education, with partnerships seen as crucial to its success. These partnerships should be "excellence-driven strategic long-term partnerships in critical areas", so that European companies are offered a new relationship with education and research (EU 2007d).

Governance of the EIT would also exemplify the trend of linking business with academe, as governance would be through a Governing Board, made up of high-profile individuals from business and academia, supported by a small team of administrators in a combined bottom-up and top-down approach. The EU intends for the EIT to become operational in 2008, with the first two Knowledge and Innovation Communities (joint-ventures of partner organisations representing universities, research organisations and businesses) in place by 2010-2011 (EU 2007d).

5.4.3 Research Partnerships

Research partnerships are becoming a more common feature in HE, as institutions and organisations work together to achieve critical mass to attract funding and to pool resources. These partnerships are increasingly becoming international partnerships. For example, the British Research Councils UK (RCUK), which is the strategic partnership of the UK's seven Research Councils (RCUK 2007), has recently established an office in China to take advantage of increasing science investment, so that Britain would be "the partner of choice" for Chinese companies, according to the Trade and Industry Secretary Alasdair Darling (cited by Smith 2006d). The RCUK already has an office in Brussels to benefit from collaborative activity in the EU, and the UK also intends to make stronger international ties with India in a similar manner.

In Ireland, Institute of Technology, Tallaght (ITT) is engaging in a partnership with the Stevens Institute of Technology in New Jersey, to allow the ITT to delivery courses in pharmaceuticals in the US, in order to increase the number of students studying in the area. The ITT also aims to attract international students to undertake pharmaceutical education and training in the new International Centre for Pharmaceutical Education in Tallaght (Brophy 2006).

Research partnerships are also becoming a condition of certain funding streams, so that institutions must partner with another institution in order to secure funding. For example, the Strategic Innovation Fund (SIF), a new €42million research fund in Ireland, actively aims to enhance collaboration between HEIs, in a move designed to "identify creative approaches that build on the collective strengths of our institutions working together as a cohesive system" to attain world-class standards, according to the Minister for Education, Mary Hanafin (cited by Flynn 2006c). Just under one-quarter of all projects recently approved for funding through the SIF are being led by Institutes of Technology in Athlone, Dublin, Cork, Galway/ Mayo, Tallaght, Sligo and Limerick, working in partnerships with universities and other institutes (HEA 2006c). IoTs are Partner Institutions in just over 80% of awarded funds under this scheme (*ibid*).

5.5 Evaluation Systems, Standards and Quality Assurance

The credentialing function of universities and HEIs for student learning is an important feature, and the awards they bestow can impact on a student's career and potential earnings, as well as on the capacity of a country to keep pace in a global knowledge-economy. For this reason, there has been a strong movement in HE towards the development of evaluation systems to provide quality assurance about standards and to allay stakeholders' concerns about transparency, accountability, learning outcomes and quality control.

Evaluation systems also allow administrators a degree of control, which can be an issue of conflict for universities which have hitherto enjoyed the principle of autonomy, acting as 'self-critical' communities. Different HE systems have varying degrees of evaluation. For example, traditionally in the US, HE was self-regulated, with no direct form of centralised governmental control. This lead to a wide diversity in form and function in HE providers, and in turn varying missions and standards. In spite of this, there was a strong sense of public confidence and institutional achievement (Franzosa 1996 p126). However, in the 1980s, a period of "unprecedented legislative scrutiny and public criticism" occurred during which demands were made for providers of HE to be more accountable, with a "centralised form of systematic assessment to link evaluation and accreditation with nationally determined

standards for institutional effectiveness" (*ibid*). In the Flemish community in Belgium, universities are obliged to carry out internal self-evaluations and external discipline-based reviews with the Inspectorate monitoring programmes, through extensive data collection and analysis and the publication of comprehensive reports for all programmes in a particular field (OECD1998a p115). By comparison, Japan's 552 universities (including the University of the Air) traditionally have no external third parties involved in assessments, as professors evaluate themselves within their own departments, at seminars and through research circles. Traditionally the autonomy of the university professor is highly respected and their evaluation is not customary (Baba 1996 p105-6). However, governments globally are making efforts to make professors more accountable to students, universities and society at large.

5.5.1 The European Union: The Bologna Process

The EU has over 4,000 institutions, over 17million students and 1.5million staff, of whom 435,000 are researchers (EU 2006c). In 1999, the Bologna Process was established with the aim of streamlining standards of HE in member countries, in an effort to establish a "European area of higher education" by 2010 to facilitate the "mobility of people, transparency and recognition of qualifications, quality and European dimension in higher education, as well as attractiveness of European institutions for third country students" (EU 2007a). 45 countries are now involved in the process.

Quality assurance and qualifications systems were two of the key action lines agreed on as part of the Bologna Process. Ministers adopted the Standards and Guidelines for the European Higher Education Area (EHEA) and the Framework for Qualifications of the EHEA. HE programmes are to be fitted into a framework in terms of learning outcomes, under the Bologna Process (European Association for Quality Assurance in Higher Education (ENQA) 2007b), so that national frameworks of qualifications can be compared to each other. Every EHEA member state is committed to developing a national framework of qualifications, which must be aligned into the overarching Bologna frameworks by 2010. Countries self-certify according to criteria adopted in Bergen (ENQA 2007b). Currently many countries are establishing their frameworks, with only Denmark, Ireland and the UK having frameworks in place (EUA 2007 p36). In Ireland, the National Framework for Qualifications was launched in 2003, to promote "a nationwide culture of lifelong learning across the country, based on the principles of opportunity, access, transfer and progression throughout the education sector" (von Prondzynski 2005). Through mobility in the education sector, the framework aims to contribute to the "ongoing development of human capital as the essential component of our knowledge-based economy" (*Ibid*).

Outlining the progress of Europe's universities implementing the Bologna reforms to date, the EUA (2007 P5) found that the 'cultural impact' of the reforms was often underestimated, and that 'much work' remained to be done, with the EHEA continuing to be a 'work in progress' beyond the target year of 2010. However, support for the ideas of student-centred and problem-based learning was found to be strong, with the majority of the 908 institutions taking part in the EUA study saying that it was "vital to move rapidly towards a European Higher Education Area". Mobility is also becoming a more feasible feature of European HE, as the European Credit, Transfer and Accumulation System (ECTS) is being adopted in an increasing number of institutions in the EHEA, although much work remains to ensure that institutions use the system in a correct manner (*ibid* p8). National funding systems in the EHEA also need to be addressed if mobility is to increase, as many act as a disincentive to mobility, as institutions are encouraged to retain students (*ibid* p10).

5.6 Change in the role of academics

Changes in governance and management of universities will inevitably lead to change in the role of academics, often potentially dramatic changes, as they struggle to balance the demands of teaching with research and publishing, all within a framework of significant institutional change. 'Learning Outcomes' are becoming a deliverable of HE, requiring restructuring of programmes and teaching methods by academics.

The measurement of learning outcomes can be seen as "both a source of strength and an Achilles heel of the learning paradigm", for there is "something both refreshing and naïve about the idea of having to justify every single educational practice and regulation on the basis of resultant learning outcomes" (Skolnik 1998 p640). Skolnik finds the idea of 'learning outcomes' naïve, because of the inherent assumption that "all things that are worth doing in education can be justified on the basis of their measured contribution to learning" (*ibid*).

5.6.1 Delivery of Education

The dominant form of instruction in many HEIs is the professorial lecture (Klem 1999), although many HEIs have introduced other methods such as distance education, or online tuition. As the lecture is invariably the way the instructors were taught themselves, it is not surprising that this is the model that they also use (Knapper 1986 p70). The lecture is one of the oldest types of teaching, and was used in HE long before the development of the printed book. From an administrative point of view, the lecture method can prove cost-effective in terms of demands on an instructor's time, as there is less one-on-one interaction occurring than in other types of teaching, such as project-based learning, or distance education (Knapper

1985 p69; Klem 1999), as several hundred students can be instructed at the one time in a lecture hall.

Critics of the lecture, however, say that it is a passive approach to learning and largely out of control of the student (Knapper 1985 p68). Smith and Webster (1997 p23) believe that many institutions have lost the "sense of intimacy with their students" as it has become increasingly difficult to build this relationship in lectures with large groups. This may affect the ability of an institution to draw on its alumni for support in later years.

As students' 'roles' change, and they become more consumerist in their expectations for the delivery of HE, they may demand new forms of teaching which will impact on academics both in terms of teaching styles, and career progression. In 1999 the University of Nottingham was progressive in having students fill out questionnaires evaluating lecturers' performance which then influenced promotion (Cormack 1999 p125). This is now common in many academic institutions.

The demands of students are leading to what Sperling (1999 p115) calls the 'unbundling' of roles in education, as faculty's conventional roles in determining the content of programmes, creating curricula, delivering instruction, maintaining quality, conducting research and performing community service are "slowly but inexorably" changing. Degree content is being drawn-up with the input of industry and employers. Curricula are being created by professional developers, instructional designers, editors and media consultants. Quality is monitored by external bodies and third parties. Large research universities are being assigned scholarships, and services to the local community are being divided between all employees in the university. Sperling (1999 p115) believes that the academy, "whose form remained largely intact for seven hundred years, will come to resemble a company engaged in the assembly and dissemination of information, skills and knowledge".

5.6.2 Research and Academic Careers

Society sees the "overwhelming percentage" of faculty research as career advancement, as opposed to benefiting society in general (Sperling 1999 p114-115). It is believed that there is a mounting consensus outside HE that research should be confined to large research universities, with other institutions focusing solely on teaching. If this were to be realised, it would be a "profound blow" to faculty members who expected to have a life of research and scholarship with as little teaching as possible in reward for achieving a doctorate, particularly because most faculty members are simply not able to make the change from

"their traditional roles as self-directed scholars to teaching demanding and assertive students" (Sperling 1999 p114-115).

5.6.3 Academics and Administrators

Relationships between academics and professional administrators are often characterised as being problematic, as "academics are generally very confident about their knowledge and their abilities and, hence, sometimes don't take kindly to suggestions that their frame of reference and their thinking might need to change and broaden out" (University Futures 2007b).

While academics can train to do the role of professional administrators, Huntley-Moore and Panter (2003) found that the literature on HE had few examples of situations where management development programmes for heads in HEIs were successfully implemented. Middlehurst (1993 cited by Huntley-Moore and Panter 2003) found that 'seven cults' impede this professional development. These are – the gifted amateur; heredity (natural talent would surface); deficiency (training is remedial); inadequacy (once an academic is qualified, they risk losing face by admitting shortcomings in knowledge or competence); implicit (learning by osmosis); selection (selection of superior staff would guarantee their performance and get rid of the need for training); and intellectual (there is no scientific basis to management, and therefore, no need to take it seriously) (*ibid*). It is also questionable whether the concept of leadership is even appropriate or useful for non-profit, professional organisations, such as universities.

To remedy this discord between professional administrators and academics, University Futures (2007b) is of the opinion that university staff who are not employed as academics, should endeavour to understand the nature of academic work and how it evolved, in order to communicate effectively with academics and to reduce the potential for conflict within institutions grappling with pressures to change.

5.6.4 Conditions

With mass education, institutions are also introducing new kinds of faculty members to deliver HE – working professionals who teach part-time. As the working professional links theory with the realities of the workplace, compared to traditional academics, they provide an "enlightening and useful education…*(and)* they truly meet the expectations of the three million working adult students in America's institutions of HE", as they aim to deliver their educational services in an efficient and convenient manner, with consistent quality (Sperling 1999 p115). These new faculty members are often hired on short-term contracts, leading to

the notion of tenure changing from being a professorial privilege to an "industrial condition to which most academics aspire" (Coaldrake and Stedman 1998 p3).

Increasing competition world-wide for the best academics will present opportunities for those who are willing to relocate to institutions with better conditions for research, or to corporations willing to fund a research career. Where short-term contracts are offered for lecturers and researchers, an institution may not be able to attract the best research minds, who will naturally be more interested in security and ample pay and conditions elsewhere. This is a concern of the head of a research staff group in Trinity College Dublin, Dr Alison Donnelly, as she fears that researchers in Ireland lack any real research career path, and it is impossible to build a knowledge economy on short-term contracts. Dr Donnelly felt that there is a need to improve "the recognition, remuneration, conditions of employment and career development opportunities for Ireland's thousands of contract workers", or else leading researchers from overseas would not be interested in conducting their research in Ireland (cited by Murray 2006). This is at a time when the government wishes to double the number of researchers in Ireland through the Strategy for Science Technology and Innovation (SSTI) (DETE 2006). Already in Ireland, competition for the best minds has lead to university Presidents having to sign an agreement on the poaching of staff in order to avoid a potentially bitter and damaging dispute (Flynn 2006b). This agreement commits signatory universities to open and transparent recruitment of staff, on the basis of best international practice.

Short-term contracts also impact on the type of research conducted. Universities UK, an umbrella group representing universities, recently highlighted the achievements of their universities with the publication of EurekaUK in a bid to illustrate to funders the importance of longer-term contracts and security for researchers. Through the publication, the group wished to demonstrate the unpredictable nature of research, and the length of time it can take for researchers actually to achieve success (Smith 2006b). The discoveries included test-tube babies, unlocking DNA, the discovery of pulsars and the first programmable computers (Smith 2006b). Sally Hunt, the joint general secretary with the University and College Union (UCU) in the UK also points out that many academics "stay in their area of expertise despite the fact that they could be earning much higher salaries in other jobs they are more than qualified to do" (cited by Smith 2006b). Hunt fears that discoveries such as the unlocking of DNA might not have happened if the researchers involved had been "moved on for failing to come up with the goods demanded" by their funders (cited by Smith 2006b).

5.6.5 Changing Knowledge

The rate at which knowledge changes in a particular profession or discipline will have a significant impact on the role of the academic. As the half-life of information decreases, academics are being forced to consider to what extent their own learning "is greater than or equal to the rate of change" (Cormack 1999 p125), as "today's advanced knowledge is tomorrow's ignorance, and the knowledge that matters is subject to rapid and abrupt shifts" (Drucker cited by Cormack 1999 p125). For example, over recent decades there has been a shift from pharmacology to genetics in healthcare, and from PCs to the internet in the computer industry. Many professors are not ready to change their method of instruction to adapt to new technologies, and they will need to upgrade both teaching skills and attitudes, with support from HEIs (Klem 1999). Even the 'super-educated' need to re-skill, even if this is simply engaging with new software such as Power Point (Newby 2007).

It is also believed by some that academics may have to accept that subjects taught and validated outside the university, by capable professionals, are equivalent in academic quality to their own teachings and services (Williams 1999 p137).

5.7 Conclusion

Changes in society generally are bringing about changes in the governance of HEIs, and in turn in the role of academics. Where institutions are dependent on state funding, or where the state wishes to develop or maintain an innovative knowledge economy, the autonomy of the university is threatened, as they are expected to behave in the same manner as a corporation faced with different threats.

Hazelkorn (2007a) sees the market becoming the regulator in HEIs, where greater efficiency is demanded of them, alongside a responsiveness to the social and economic needs of the region they serve. The impact of the economy on HE is outlined further in Chapter Six.

CHAPTER 6 – ECONOMIC DRIVERS

6.1 Introduction

Knapper (1985 p45) outlines how until relatively recently, HE was restricted to a narrow spectrum of the population in almost all cultures. However, as developed economies become more dependent on innovation for their success, HE became an increasingly important factor for economic development. Universities are finding themselves part of a "knowledge-intensive industry", where the boundaries between classical and technological education are gone, and interdisciplinarity is now required (Hazelkorn 2007a). As markets become increasingly globalised, individuals are finding themselves under pressure to have a HE qualification to compete in a global economy, leading to HE becoming universal and compulsory (*ibid*), which in turn impacts on HEIs in terms of form and function. This chapter outlines key economic drivers affecting HE in the future.

6.2 HE and Economic Development

Governments and universities seek to enhance their share of knowledge production, innovation and outputs, so HE is fast becoming a crucial ingredient in the 'productive economy' (Hazelkorn 2007), as a "major weapon in…(the) battle for global competitiveness, supplying technological breakthroughs with the promise of big commercial payoffs" (Florida and Kenney 1991 cited by Hazelkorn 2007a).

This thesis is supported by the World Bank (2002 cited by Vincent-Lancrin 2004 p249), which believes that upper secondary and tertiary level education is essential for economic development. The experience is borne out by South Korea, for example, where investment in education has delivered significant benefits to the country's economy since the 1960s, as outlined in Exhibit 6.1. On examining these results, it is no surprise that governments equate investment in education with economic returns.

Exhibit 6.1 Results of Investment in Education in South Korea 1960s to present (Source: Puukka & Marmolejo 2007)

1960s	Beginning of the 21st Century
Wealth	
Below all South American countries, around level of Afghanistan	20th in OCED
Educational Expenditure	
	1st in OECD in % of GDP
Educational Attainment	
Completing secondary – 24th in OECD, Completing tertiary – 20th in OECD	Completing secondary – 1st in OECD, Completing tertiary – 3rd in OECD
Educational Quality	
	4th in reading, 1st in mathematics, 1st in science in OECD
Educational Equity	
	1st in OECD

As the aim of universal primary education is achieved in transition and developing economies in the coming decades, there is likely to be a significant unmet demand for secondary and tertiary education in these countries, as they try to develop their economies (Vincent-Lancrin 2004 p249).

In Ireland, the Expert Group on Future Skills Needs (EGFSN), which advises the Government on skills and labour supply issues, recently investigated the strategic goal of "making the transition from an *investment*-driven economy to an *innovation*-driven economy" (emphasis authors own) in its submission to the National Centre for Partnership and Performance (NCPP) Forum on the Workplace of the Future to 2010 (EGFSN 2004 p1). The EGFSN stated that the ability of Irish business to respond to change in the global economy was essential through upskilling and reskilling of the workforce. Ireland's competitive advantage, faced with rising costs and global competition, was based on "innovation and creativity", which would require "flexible and adaptable education and training systems" (EGFSN 2004 p1). This is supported by the government, as "if Ireland is to achieve a knowledge-based, innovation-driven, participative and inclusive economy in 2020 with a highly skilled workforce, over 500,000 people within the labour force will need to be upskilled" (Department of Enterprise, Trade and Employment 2006).

Both the EGFSN (2004 p2) and the OECD (2004) recommend further provision of part-time education, with the EGFSN also recommending that inflexibilities in universities and IoTs be addressed so that programmes have more portability between the different institutions. The EGFSN also prioritised the role of LLL, as according to the Irish Labour Organisation (ILO)(cited by EGFSN 2004 p2), "80% of all persons working 10 years from now are already in the workplace; meanwhile 80% of today's technology will have been replaced by that time". The Irish record of participation in LLL is relatively poor, ranking 13th out of 15 countries for the proportion of 25-64 year olds who participated in some form of continuing education and training (EGFSN 2004 p2). The OECD (2004) also believes that Ireland has insufficient numbers of mature, access or international students.

With the increased demand for HE, it is becoming a big business. Many analysts believe that education will emerge as one of the leading investment sectors of the next twenty five years, in response to the changing demands for skills in the economy (Cormack 1999 p123). The 2005 World Report on Knowledge Societies (cited by Georghiou and Cassingena Harper 2006 p3) outlines how changes in society are now putting HE at risk of 'commoditisation', particularly in countries lacking a university tradition, as knowledge societies lead to the emergence of full-scale markets in HE.

6.3 HE and the European Union

Although HE is not subject to a common European policy in member countries, article 149 of the Treaty of Nice, states that the Community "shall contribute to the development of quality education by encouraging cooperation between Member States, through a wide range of actions, such as promoting the mobility of citizens, designing joint study programmes, establishing networks, exchanging information or teaching languages of the European Union" (EU 2006b).

Within the European Union, there is an agreement among member states to promote education and knowledge societies through the Lisbon Strategy or Agenda and also through the Bologna Process. The Lisbon Agenda is an action and development plan intended to deal with the stagnation of economic growth in member countries, by making Europe, "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" (EU 2003). This process intends to drive job creation and a stronger economy, while also advancing environmental protection and social inclusion.

According to the European Commission, the knowledge society depends on the "production of new knowledge, its transmission through education and training, its dissemination through information and communication technologies, and on its use through new industrial processes or services". Because universities take part in all of these processes, the European Commission sees them as unique, with excellence in universities underpinning the knowledge society and the Lisbon Agenda (EU 2003).

At the same time, European universities generally have lower financial resources than their counterparts in other developed countries, so they may not be in a position to compete at the same level. The European Commission (EU 2006a) believes that Europe's universities need "in-depth restructuring and modernisation if Europe is not to lose out in the global competition in education, research and innovation". As a member of the European Union, Ireland's economy and education system is heavily influenced by policies and regulations emanating from the EU.

European citizens concur that a knowledge-based economy is important, with 63% responding to a Eurobarometer survey that "improving education and professional training" is the top priority to improve the performance of the European economy. "Invest in research and innovation" follows at 49%. One worker in two was found to be aware of the need for training for career progression, but only 38% of EU citizens believed that the EU could become the world's top economic power within the time frame of the Lisbon Agenda (EU 2005a).

However, the innovation gap between the US and the EU is decreasing for the fourth consecutive year, according to the findings of the European Innovation Scoreboard 2006. This report presents a comparative analysis of the innovation performance of the EU countries with the US and Japan (EU 2007c). According to this report, Ireland is an 'Innovation Follower', along with the UK, France, the Netherlands, Belgium, Austria, Iceland and the US. Sweden, Finland, Denmark, Germany, Japan and Switzerland are defined as 'Innovation Leaders', with many new Member States catching up with the EU average. Performance is based on a country's economy, with a wide range of indicators, from education to expenditure on ICT, R&D investment or number of patents (EU 2007c).

6.4 The Demands of Employers

While universities may seek to provide a well-rounded education and produce balanced graduates capable of abstract thought and possessing key skills, policy-makers and employers are concerned that education and training programmes correspond with a country's economic profile and employment demands. In times of rapid social and technical

change, actually achieving a match between the priorities of educators on one hand, and employers on the other, is very difficult (Giddens 2001 p492). With the reform of curricula and degree cycles in the EHEA as part of the Bologna process, institutions recently indicated that employability of graduates was a 'high priority' in deciding content, a concern that transcended "national boundaries and implementation priorities" (EUA 2007 p7). Many employers, however, are uncertain what to expect from a student graduating with a university bachelor degree, with this outcome being compounded by the lack of effort on behalf of governments or HEIs to engage these key stakeholders in debates about HE (EUA 2007 p35).

Employers demand graduates who are capable of filling roles in industry. While traditional educational practices may have succeeded in developing an acquiescent workforce in a stable system, new structures and thinkers are needed to generate new possibilities and views (Hyland 2000). Employers need graduates who are capable of working in interdisciplinary teams, with the full "'personality package'…quite different from the 'organisation man' of yesteryear", and with well-rounded social and educational profiles (Smith and Webster 1997 p33). The EGFSN in Ireland found that employers are increasingly seeking employees with multi-disciplinary skills, with a balance in "the core areas of study, ICT and generic skills" (EGFSN 2004 p3). Students who focus on discipline-based approaches which are becoming increasingly narrow in focus are "no longer being well prepared, to be fully engaged as citizens" (Bringle, Games and Malloy 1999). Those who can collaborate with others from diverse cultures in the global context are also especially needed.

Employers are also demanding graduates who are capable of 'understanding', which is in contrast with the traditional approach to learning and schooling, which aimed to train students to 'reproduce' rather than 'produce' knowledge, and understanding was largely neglected. This model of education views the teacher as the possessor of knowledge, and the pupil as the recipient of knowledge (Dewey 1902, Freire 1970). This is the 'banking' concept of education, where students receive, file and store what is deposited by their teacher (Freire 1970). However, education of this kind is didactic, and it limits exploration and questioning, so the dominant discourse in society perpetuates. This is no longer acceptable in a "fast moving, diverse society" (Hyland 2000). Thinkers such as Dewey, Bruner, Froebel and Herbert asserted that 'understanding' should be the central goal of education (Cleary-Finn 2001), with active learner-centred approaches and an emphasis on 'learning through doing' (Dewey 1902).

At the same time, industry is increasingly seeking to recruit people with "practical work experience and commercial understanding", preferably through the use of internships while in third-level education (EGFSN 2004 p3). Practical skills needs are changing, as illustrated in the UK in the Leitch Review, where respondents indicated that the increase in competition from the global economy may require employers to adjust their business strategies "towards higher value-added, skill-intensive working practices, as the UK would no longer be able to compete on products and processes that rely on low wages" (Leitch 2004 p137). Therefore, employees must be willing to upskill when necessary.

In terms of research meeting employers' needs, universities have to switch from production of Mode I knowledge to a balance between Mode I and Mode II knowledge. Mode I knowledge has little direct connection to societal needs and the results at the end are transferred to users who may or may not take up the results. On the other hand, Mode II knowledge is multi-disciplinary or trans-disciplinary, carried out in a variety of institutions, not just universities, and produced in the 'context of application', that is, with society having a direct influence from an early stage and where there is relatively explicit social accountability for the funding used for the research (Martin and Etzkowitz 2000 p12). A balance between production of Mode I and Mode II knowledge would ensure that universities are in a position to produce solutions for practical problems of economic and social import, while also showing a desire for understanding for its own sake (Martin and Etzkowitz 2000 p12).

As a result of industry and society's demands, Smith and Webster (1997 p21) believe that the modern university has "changed in purpose, perhaps beyond recognition in many cases". They are "so diverse, so fractured and differentiated", that it may have become absurd to seek to express any grand organising principal (*ibid*).

One discourse which is restated is the utility of the university to government and industry (Readings 1996 cited by Thorne 1999 p22). While some academics and staff might welcome this agenda, breaking down the ivory tower and placing the university in the real world, many staff are more likely to resign themselves to entrepreneurialism unenthusiastically (Smith and Webster 1997 p22). This paradigm manifests itself as "stalled careers, job insecurity and the repeated intervention of officialdom (including ministers) in academic matters"; with academic life becoming "much less attractive" than in the past (Halsey 1992 cited by Thorne 1999 p23). Commentators believe that education has already moved too far towards the corporate model to meet the needs of employers. Although the Delors' report (UNESCO 1996) favoured a life-long, holistic and humanistic emphasis in education, Sterling (2001 p77) believes that the common trends indicate that managerialism is favoured over the recommendations.

Within Europe, being responsive to changes in the labour market is a key challenge for institutions trying to meet both graduates and employers expectations. However, this challenge requires significant cultural changes going forward, which in turn will take time to come about (EUA 2007 p8).

6.4.1 The Demands of Employers and Changes in Curricula

When Cardinal Newman articulated the principals of 'liberal education', he was concerned with a type of 'Renaissance Man' who could use "the knowledge, skills and attitudes learned in university to guide him through the rest of his life" (Newman 1973 cited by Knapper 1985 p35). Employers, however, now require graduates who are capable of filling roles in industry, roles which may change dramatically over the lifetime of the employee. In one study of engineering graduates in Britain, 250 graduate mechanical and electrical engineers and 200 of their colleagues in a variety of organisations and industries were interviewed. It was agreed that the working engineers had little understanding of business practice, management skills or company policy. They were also reportedly inept at communicating what they did understand to others in the organisation. This revealed a wide gap in the engineers' capabilities and what they were required to do (Beuret and Webb 1982 cited by Knapper 1985 p58), indicating the importance of integrating subjects and skills, and maintaining an overall perspective, in spite of increasing specialisation in many disciplines. This study also indicated how adept students can be at working out what they actually have to do to succeed in a particular course, based on subtle hints from instructors, or by looking at previous test papers or speaking with former students and so on (Becker, Geer and Hughes 1968; Kuh 1981; Snyder 1971 cited by Knapper 1985 p79). This can lead to high marks, but this is not an indication of the higher level problem-solving and critical-thinking skills that are needed in a fast changing economy.

The call for interdisciplinarity in HE is supported by the recommendations of the Leverhulme Study Programme (Leverhulme 1983 cited by Knapper 1985), which recommended avoiding excessive specialisation in the early years in HE, as individuals would have more of an aptitude for interdisciplinarity in future decades if they had integrated degree courses with methods and concepts from different disciplines.

With the speed at which knowledge changes in the modern global economy, John Cone, vice-president of Dell University in Texas (cited by Cormack 1999 p126) believes that there is going to be a radical shift "from the importance of knowing something to the importance of knowing how to find out". This has implications for the type of curricula being developed in

universities and HEIs, as graduates will need to know how to access information and to achieve 'understanding'.

6.5 Local and Regional Development

HEIs are viewed by many commentators as having a crucial role to play in the local and regional development of an area as their 'third mission'. For example, after UK devolution in 1998, Scottish Universities were encouraged by the new Scottish Parliament and Scottish Executive to "promote regional and national economic progress, and be quick about it" (Smith 2007 p24). In the UK, in the mid 1960s, the government established polytechnics, separate from the universities, to be responsive to wider society, by being more oriented to industry and commerce, with a wider intake of students that were more representative of social classes, and with research that was to be applied in nature (Barnett 1996 p145)[3].

There are many examples of successful engagement between HEIs and organisations in their region, both in terms of study time and in other ways. In Aalborg University in Denmark, for example, students work with outside firms, public organisations or other institutions on identified problems as part of their course work, with up to 50% of their study work being problem-oriented. Between 2000 and 3000 projects are ongoing at any one time (Puukka & Marmolejo 2007). In Mexico, students in Monterrey University must do 480 hours of community work to address the needs of the community, ensuring wider engagement of the university in their region (*ibid*).

In Ireland, the importance of a third-level institute to its region is illustrated by the enrolment-rates-by-county in HEA-funded institutions in 2004/2005 (HEA 2006a p5). Enrolments by county were observed to decline with distance from an institution, with the exception of NUIG, indicating the importance of regional institutions for students who wish to study close to home.

The DIT's own mission statement reflects its undertaking to advance regional development, as it defines itself as a:

> …comprehensive higher education institution, fulfilling a national and international role in providing full-time and part-time programmes across the whole spectrum of higher education, supported by research and scholarship in areas reflective of the Institute's mission…This commitment extends to the provision of teaching, research, *development*

[3] While the polytechnics did not curtail the universities offerings, by calling polytechnics 'responsive', the government may have been indicating that universities were not (Barnett 1999 p145).

and consultancy services for industry and society, with due regard to the technological, commercial, social and cultural needs of the community it serves (DIT 2007).

However, the OECD (1998a) has found that not all rurally or provincially located institutions succeed in their missions, as local ambitions can overrule educational standards. These institutions can offer a proliferation of courses, which may be of poor quality and with few job prospects for graduates. The OECD indicates that institutes in regional centres have to make special efforts to ensure that they are delivering a high quality of education, and that links are maintained with other institutions and the "benefits of academic cosmopolitanism are shared" (OECD 1998a p34).

Universities are also seen to play a role in economic development of a region through alliances with industry. While this is a rational economic strategy, it can fail to recognise that the alliance process "is a very high risk strategy at the level of implementation, with reports of as many as two-thirds failing" (Hagen 2002 p1). When partnerships are successful, the mutual benefits for industry and the HEI are "more than the sum of their parts", as exemplified by the triple helix model (teaching, research and knowledge transfer). However, the direct causal link between universities, industry and economic regeneration in this context is controversial. Cambridge along with Stanford are "probably the only universities that can actually claim to have changed their national economy" – via technology transfer (Shattock 2002 cited by Clarke 2005 p172).

The triple helix model suggests increasingly close links between universities, government and industry, where the university takes on a new third mission (in addition to the traditional missions of teaching and research). The result is the 'entrepreneurial university', which combines teaching, research and contributing to the economy, particularly in the local region (Etzkowitz and Leydesdorff cited by Martin and Etzkowitz 2000 p13). The validity or 'newness' of this model has been questioned, as academic entrepreneurship has been acknowledged as a factor in research for many years, for example, in the German chemical industry, which worked with academic researchers (Gustin 1975 cited by Martin and Etzkowitz 2000 p13).

6.6 Entrepreneurial Universities

'Entrepreneurial' universities are those approaching the administration of the institution from a managerial approach, while allowing the university "to go on changing itself and adapting effectively to a changing society" (Clark 2005 p174), with financial accountability and in many cases corporate governance (Hazelkorn 2007a). Hazelkorn believes that there is

pressure on many universities to become such enterprises, and Clark (2005) sees evidence of the move of the university towards an entrepreneurial infrastructure in the growth of professional education and LLL in the late 1990s. The characteristic evolution from 'Traditional HEI' to 'Business-like' HEI are outlined in Exhibit 6.2 (OCED 2007b p27), indicating the steps some institutions are taking to achieve financial sustainability. An institution is financially sustainable if it is being managed in such a way that "it is recovering its full economic costs and is investing in its infrastructure (physical, human and intellectual) at a rate adequate to maintain the future productive capacity needed to deliver its strategic plan and to serve its students and other customers" (*ibid*). The degree to which an individual institution will embrace all of the characteristics in Exhibit 6.2 will vary depending on the country and institution, but they indicate the evolution of a new approach to financial management in universities.

Exhibit 6.2 - Characteristics of the Evolution of HEIs moving towards Financial Sustainability (Source: OECD 2007b p27)

Traditional HEI	*"Business-like" HEI*
Supply-led	Market-driven
Reactive, resists change	Pro-active, strategic
Depends on state funding	Portfolio financing
Consuming assets	Investing for the future
Administered	Managed
Risk averse	Manages a range of risks

In Strathclyde for example, university governance is becoming a "working compromise between traditional collegiate university management and a full blown business model of executive management" (Arbuthnott cited by Clark 2005 p26). This is in contrast to the traditional mode of university management previously operating in Strathclyde, which tended towards "a proliferation of academic committees… *(with)* widespread and lengthy consultation and consensus to be reached before decisions can be taken". This was leading to "a lack of clear direction for the university as a whole". While the full business model of top-down executive management is not seen as "necessarily desirable or workable in a university, where there is an imperative to preserve both academic autonomy and freedom and where the academic community should be the driver of developments and new ideas". In Strathclyde, this compromise is allowing the university to adapt to financial constraints, but to be proactive in developments of value in the university (Arbuthnott cited by Clark 2005 p26-27).

The business approach to governance is not, however, without its critics. Huntley-Moore and Panter (2003 p4) found from skills development seminars they ran in 1997 that the heads

participating stated a preference for expert input, but still had difficulties relating to the management jargon used. They also found that the heads were very sceptical of the transferability of business models to the world of HE. When Professor Gerard Wrixon introduced a management model that helped to build "some of the greatest universities in the US" in University College Cork, he was "pilloried rather than lauded" for disturbing "those who enjoyed cosy work practices and academic relationships", despite the fact that the changes helped to win the college "disproportionately large slices of public funding, won in competition with the other universities", while attracting international talent and seeing the establishment of new research centres, a medical campus and new departments and degrees (Walsh 2006 p12). Under this management model, four colleges were established, each with an executive college head and a decentralised budget. The faculty and departments were made more accountable for a range of achievements, including undergraduate numbers and research. While most of the leadership welcomed the changes, a small number "were not amused", as the "academic power balance was disrupted, old certainties confounded and academic alliances dislocated" (*ibid*).

A further difficulty in introducing the business model to education is that separate cognitive domains may view their roles and development needs very differently. They may also use very different learning styles, which must be accommodated in the design of management development models (Huntley-Moore and Panter 2003 p6). A compromise for academics and professional administrators may be 'shared governance', where there is an understanding that those who work on policy implementation also participate in policy formation (Clark 2005).

For those institutions choosing to become more-market oriented, they will also need to equip themselves for this task, through developing

> …new skills and approaches that include knowing how to analyse markets; defining appropriate market strategies; pricing their goods and services; managing their portfolio; knowing when to collaborate, when to compete, and when to withdraw from markets that are not viable for the institution (OECD 2007b p31).

6.7. Private and For-Profit Education Providers

As education becomes 'big business', private and for-profit education providers are becoming increasingly prolific, blurring the boundaries between institutions and creating "borderless higher education" (Cunningham *et al* 2000 cited by Vincent-Lancrin 2004 p254). In the US, the education market is crowded with innovators trying to cash-in on the private and public funding available for education. In 1999 alone, this figure was $600billion

(Cormack 1999 p123). These new actors may take the form of corporate universities, consortia, virtual universities, for-profit education providers, and so on. Increasingly, the new actors are applying business approaches to HE with success, in a move that may prompt traditional universities to follow suit to survive.

Private and for-profit education providers are carving a niche for themselves in the HE market because there is a huge unmet demand, which traditional universities are not catering for. In Japan, for example, between 1989 and 1994 the private sector played a significant part in accommodating demand for HE, as the government responded to growing economic demands by providing assistance for science and engineering only. This left private institutions in a position to cater for other demands, so that by 1996, private institutions comprised three-quarters of the total enrolment of students (Baba 1996 p103), although these figures do not indicate the quality of these institutions.

Corporate and for-profit HEIs have some significant advantages over traditional universities, as they are not constrained by committee structures, instead operating with a business approach. In terms of staff, few work full-time, and they do not have tenured or "bureaucratically protected faculty". Where staff do not perform, or if there is a lack of work, contracts can be terminated. Managers in these institutions "can and must measure performance, innovate, pursue efficiency and quality control and give closer attention to customer relations", while divesting themselves of unprofitable operations, acquiring other companies or merging with the competition as they see fit. Location is less of a constraint, as they can move if they need to, providing staff with financial motivation where necessary (Sperling 1999 p107-8).

Corporate Universities, run by companies such as Motorola or McDonalds, are also becoming more common. Traditionally corporate universities provided vocational education for the staff of multi-national companies, of which they were often subsidiaries (Vincent-Lancrin 2004 p254). However, one quarter of these institutions attract students from outside the parent company (Mesiter 1998, Cunningham *et al* 2000 cited by Vincent-Lancrin 2004 p254), as the value of their courses are deemed to be worthwhile by their student customers and employers. In the US alone, the number of corporate universities quadrupled between 1988 and 1998, with 42% offering courses, which in an accredited institution, could have lead to the awarding of a diploma (Densford 1999 in Vincent-Lancrin 2004 p254), leading to speculation that these institutions may thus increasingly become degree-granting institutions (Vincent-Lancrin *op cit*).

There are a range of successful corporate universities in existence, for example, Motorola, which pitches itself as "the corporate equivalent of Harvard or MIT", with "leading-edge thinking…and some of the best faculty in the country" delivering its courses (Motorola 2007). Microsoft also offers learning products, with its Certified Technical Education Centres running courses that are recognised by employers, and attract large numbers of students (Adelman 2000 cited by Vincent-Lancrin 2004 p254). With the move towards granting degrees based on demonstrated competences, Sperling (1999 p116) predicts a rapid growth in the number of corporate universities, as institutions become self-accredited if they can demonstrate that their graduates have the competences specified for a particular award. In the EHEA, instruments are being developed to accredit prior learning and work-based learning, through tools such as Accreditation of Prior Learning (APL), Accreditation of Prior Certified Learning (APCL), Accreditation of Prior Experiential Learning (APEL) and Work-Based Learning (WBL). These tools may be linked with ECTS so that they are linked to the credit system and to qualifications frameworks (EUA 2007 p69). If private or for-profit education providers become the accreditation bodies for such qualifications, this could represent a significant threat to the monopoly of the university, as adult learners would have a wider choice of HE accreditation providers.

In the UK, the American education company Kaplan, intends to become the UK's first for-profit university, taking advantage of the fact that the government has relaxed the law on degree-awarding powers. If successful in its bid, Kaplan could compete with established universities in the areas of law, business, and IT, as these courses attract large numbers of students, but are relatively cheap to provide. There are of course restrictions on the speed at which private providers can move into the UK education market, as the Quality Assurance Agency in the UK insists that HE providers must have four years' experience teaching a degree, validated by an existing university, before being allowed to award its own degrees (MacLeod 2006).

In Ireland, private education providers are also becoming more prolific. Recently Griffith College Dublin, which is the biggest private third-level institution in Ireland with over 10,000 full and part-time students, has expanded into Limerick and Cork, filling a niche evidently left free by traditional universities (Anon 2007b).

These new players in the education market are not without their critics. Questions are raised about the provision of education as a social good, instead of as a product bought by consumers, and about the quality of the education being provided. However, Knapper (1985 p128) does not believe that this criticism is surprising, as "any institution that is perceived as a

direct rival to traditional colleges and universities is likely – for both good and bad reasons – to attract their attention and, on occasion, their criticism".

Whether or not this criticism is merited is debatable, as it can be argued that they are providing students with access to HE which would otherwise be denied to them. Corporate HEIs are surviving as businesses, indicating that they must be providing a product that the consumer is happy to pay for. Private HE providers can also allow 'non-viable' traditional HE providers to continue to exist. Central Queensland University in Australia, for example, is engaged in a unique joint venture and delivery model which is a public/ private partnership. Under pressure to provide mass HE with decreasing funding per student, the university developed this entrepreneurial model with a number of campuses providing regionally-relevant education along Australia's East Coast, and a number of privately-run campuses attracting international students from Asia and other continents. Their student body is made up of 50% domestic students, and 50% International students, with many of their staff in the private venture campuses employed privately. The domestic students' education in geographically-vast areas is being subsidised by fee-paying international students attending the private campuses, thus allowing them to participate in HE (Rickard 2007).

Inayatullah and Gidley (2000 p2) describe how a colleague from an international corporate business degree provider neglected to contribute to a book on HE that they were editing, as "it became evident that they were too busy creating the future to write a reflective chapter". This may be a reflection of academic priorities in private education providers, being less interested in the inconvenience of publishing than providing the consumer with a product with which they are satisfied.

6.8 Economic Return on Education

While education is commonly seen as 'a good thing', it is not always evident for whom it is a good thing. The question of 'what is education for?' is of key importance for universities. While the autonomous university may see "the growth and transmission of knowledge" as legitimate in itself (Becher and Kogan cited by OECD 1998a p1), other commentators believe that there should be an economic return for society.

The Dearing Report (cited by Maskell and Robinson 2002 p3) found that graduates were of great economic benefit to society as a "graduate pays higher taxes, as well as earning a greater amount post-tax". Graduates could also "enhance the productivity of other people in ways not captured in their own incomes (one aspect of so-called externalities)". In a recent study in the UK, while graduates from 2000 to 2005 indicated that they had seen a fast

improvement in their wages since graduation, 84% of respondents also said that their time in university had help them to achieve independence and to develop their life skills, indicating another return on HE (Smith 2006e). In Ireland, in HEA funded institutions, 76% of those graduating with a Higher Degree in 2004 were employed 9 months after graduation, while 68% of those graduating with a Certificate/ Diploma qualification in 2004 continued to further study (HEA 2006a p36).

Conversely, however, commentators such as Smith and Webster (1997 p31) have found that with rising participation in HE, education today no longer leads to a specific source of employment with a guaranteed style of life associated with it. In Australia, the move from élite to mass HE saw an inability to maintain quality staff, equipment and other facilities, with claims that overall educational quality was impaired, according to the Australian Higher Education Council (1992 cited by Sheehan 1996 p25). In China, the government predicts that three out of every five university graduates will fail to get a job, following rapid expansion of HE in recent years (Watts 2006a). Concerns about their ability to find a job, the selling of diplomas and the increasing costs of education caused students in one institution to protest following the broadcast of a TV programme exposing a privately-run college for over-enrolment and recruitment of students for diplomas the school was not in a position to award. In previous months, police had to disperse a protest in Shengda Economics, Trade and Management College in Henan province when the government attempted to downgrade students' qualifications. These problems are seen as increasingly common in the market-oriented education system, as private schools are set up to attract more income as subsidiaries for prestigious state-run institutions (Watts 2006a).

In Ireland, Gurdgiev (2007 p4) questions what the EGFSN's predictions of 48% participation in HE would really achieve, and concludes that it will mean Irish society will have "plumbers and carpenters with advanced degrees in sciences. Our workers will have qualifications, but not necessarily skills….the cost of their labour will be going up without any relation to their productivity". He further questions the value of such high levels of participation by citing research by the OECD, which found that investment in upskilling is "effective only at the higher end of the skills spectrum…it is largely wasteful for lower skilled workers".

Again in Ireland, there is also evidence that growth in the financial services industry is creating jobs for non-graduates. As the country has established itself as a centre for excellence with the building of the Irish Financial Services Centre (IFSC), more opportunities have arisen in the financial sector. While many of the high value sectors require employees to have relevant third-level education, opportunities are also arising in 'back office' positions for non-

graduates. Non-graduates are expected to have some relevant experience, but employers are increasingly looking to attributes such as "attitude and attention to detail, as well as basic numeracy skills", instead of third-level education (Anon 2007a p11).

6.9 Conclusion

As society moves from manufacturing towards knowledge economies, dependent to a considerable degree on innovation, universities have a significant role to play in economic development, with the economy in turn placing pressures and demands on HE systems for graduates with interdisciplinary skills, and industry-relevant knowledge. HEIs are being charged with creating a "sort of democratised managerial élite while training a mass of scientists to underpin the industrial requirements of a nation operating in a competitive global economy" (Smith and Webster 1997 p17). Universities are also being called on to behave in the same manner as a business, a move which often conflicts with the core values of the university in its search for "unfettered, curiosity-driven intellectual inquiry" (OECD 1998a p10).

As technology advances and changes the nature of work, and as industry and the economy demand new skills in all occupations, a flexible workforce will be needed to compete on a global scale, "with emphasis on generic skills such as communication and customer service, on more technical skills such as IT skills, and on maths and science skills" (Leitch 2004 p136). Older workers will also need to upskill, as their skills become outdated in a fast moving economy. In Ireland, the Department of Enterprise, Trade and Employment (2006) predicts that an additional 950,000 positions will need to be filled in the workforce by 2020, with the individuals needed to fill these positions being highly-skilled, with third- or fourth-level education. Some 630,000 of these positions were expected to be filled by young people completing formal education, with the remainder being filled by net immigration and individuals returning to work. This represents a huge challenge to Irish HEIs; as they will be called on to meet the economy's educational demand.

CHAPTER 7 – ENVIRONMENTAL DRIVERS

7.1 Introduction

Human activity has had a significant impact on the environment and its resources in the past two centuries. Many of these impacts, however, have been negative, leading to environmental crises such as climate change, threats to biodiversity and exploitation of resources and people. The UN Economic and Social Council (ECOSOC) (2002 cited by PCE 2007) sees no major change occurring in the unsustainable pattern of consumption and production putting the natural world in peril since discussion of the issues at the United Nations Conference on Environment and Development (UNCED Earth Summit 1992).

As poorer nations race to keep pace with the industrialised lifestyles of the Western world, the extent of the impact of man on the natural environment will intensify, unless there is a significant shift in attitudes and behaviours towards protection of the environment, which in turn will influence HE policy and content, as society in general would require a different kind of graduate. For example, to deal with any future environmental crisis or pressure, society will need professionals skilled in environmental management and protection. To deal with issues such as food poverty, society would require scientists and researchers focused on developing more resistant crops and effective methods of dealing with pests or water shortages. Crises such as climate change or fuel shortages will lead to a demand for research into renewable and sustainable technologies, with professionals working in complementary fields, such as architecture or engineering, also needing to be trained in sustainable building techniques.

Some influential businesses are starting to focus on 'greening' their operations, which in turn will lead to demand for graduates with environmental acumen. Marks and Spencer (M&S) in the UK, for example, launched their 'Plan A' eco-plan to become carbon neutral and produce zero waste by 2012, among other targets (M&S 2007). Rupert Murdoch's News Corp is also aiming to cut carbon dioxide emissions to zero, by 2010, while also 'inspiring' their audiences to take action on climate change themselves (Anon 2007c).

In spite of the wealth of information on Environmental Education (EE) or Education for Sustainable Development (ESD), there appears to be a dearth of information on the impact of the environment on tertiary education directly, in this, the United Nations Educational, Social and Cultural Organisation's (UNESCO) Decade of Education for Sustainable Development (DESD). In their OECD study on HEIs contribution to regional development,

Puukka & Marmolejo (2007) also found that contributing institutions and countries did not explore the issue of environmental sustainability to any great extent. The institutions' contribution to social, cultural and environmental development was 'often neglected', with their role as 'good citizens' not being fully undertaken.

This lack of research on sustainability by and about HEIs may be more of a reflection of researchers' interests, or funding constraints, than a statement that environmental drivers do not affect higher education providers. Perhaps it is the case that HEIs are unsure of the direct impacts of these issues on their operations. Some of the significant potential effects of environmental trends are outlined below.

7.2 Education and Environmental Crises

As environmental crises become more of a concern to society and to governments, there is potential for further growth in the field of EE/ ESD in tertiary education. The importance of the discipline of EE/ ESD has been expressed many times by influential organisations, such as the International Union for the Conservation of Nature and Natural Resources (IUCN), which is an international union of non-governmental organisations (NGOs) and governments concerned with conservation (Palmer 1998 p5). The importance of the field of EE was again reiterated by the UNESCO Biosphere Conference in 1968, as the conference called for training, teaching materials and global awareness of environmental problems (Palmer 1998), and at the UNESCO/ IUCN International Meeting on EE in the School Curriculum in Nevada in 1970, where the 'classic' definition of EE was formulated.

Time and time again, key programmes and publications re-enforced the importance of EE/ ESD (for example, the United Nations Environment Programme (UNEP) in 1975; the Belgrade Charter (1975); the UNESCO Inter-governmental Conference on Environmental Education in Tbilisi in 1977; the publication of the World Conservation Strategy (1984) by the IUCN, UNEP and the World Wildlife Fund (WWF); the publication of the Brundtland Report, 'Our Common Future' (1987); The Earth Summits in Rio (1992) and Johannesburg (2002); and so on (Palmer 1998)). The World Commission on Environment and Development Education sees education as playing a key role in helping people become more readily able to deal with environmental and social problems, such as overcrowding or elevated population densities (WCED 1987).

At present, issues such as sustainable development and environmental protection do not have the priority position one might expect in a world facing global climate change. Despite the fact that the economy is "a wholly owned subsidiary of the natural ecosystem" (Ehrlich

2001), the economy is often prioritised over the environment in industry, government and education.

In the future, however, the environment may play a greater role in universities, as they search for the solutions to man's problems – "the planet itself calls for healing, in desperate need for solutions from the university" (Inayatullah 2007). The New Zealand Parliamentary Commissioner for the Environment (PCE) Dr J. Morgan Williams, believes that universities must respond to environmental crises by providing leadership, so that the next generation of leaders are capable of "critical, creative and futures thinking skills; needs assessment and action oriented skills; interpersonal and intercultural skills; *(and)* skills to deal with complexity and uncertainty", so there would be the possibility of environmentally sustainable societies developing in the 21st century (Morgan Williams 2001).

In particular, in the area of the built environment, the natural environment could become a significant driver affecting curricula. On a global scale, buildings have a significant environmental impact. The Higher Education Environmental Performance Improvement report (HEEPI 2007) outlines how construction accounts for "40% - 3 billion tonnes - of the total flow of raw materials (primarily stone, gravel, sand, clay iron ore and other quarried products) into the global economy every year. The construction and operation of buildings worldwide accounts for 25% of all virgin wood use, 40% of total energy use, 16% of total water withdrawals and generates enormous quantities of solid waste". In light of such impacts, both industry and universities concerned with the built environment will be affected by any environmental policies or regulations developed to reduce resource consumption, save energy or avoid environmental impacts, as improving graduates' and construction managers' understanding of these issues could lead to significant improvements in the environmental performance of the construction industry (Cotgrave and Alkhaddar 2006). The appropriate curricula could be negotiated, with academia, government industry and industry professional bodies all playing a part.

A new approach to sustainable development is essential in HE generally, as "the volume of education…continues to increase, yet so do pollution, exhaustion of resources, and the dangers of ecological catastrophe. If still more education is to save us, it would have to be education of a different kind: and education that takes us into the depth of things" (Schumacher 1973 cited by Sterling 2001 p21).

Any major energy crisis affecting fuel prices could potentially impact on the ability of students and staff to be mobile. The proliferation of cheap flights and budget airlines has facilitated

the internationalisation of education, as students and faculty can go to the institution that best suits their needs worldwide. However, if fuel prices were to rise, and affect transport costs, both airlines and public transport systems, this may prohibit mobility in HE, particularly where international students are already paying higher tuition fees than their local counterparts.

7.3 Regulatory Requirements

Requirements for organisations and industry to comply with regulations, for example EU policy; or to achieve standards such as EMAS or ISO certification standards; means that industry and employers require trained, knowledgeable graduates, which in turn will impact on HEIs in terms of course provision and facilities. There are calls to restructure all HE courses to include ESD, which are supported by the corporate sector as it seeks graduates with the personal and professional knowledge, skills and experience necessary for contributing to sustainability (Tilbury and Cooke 2002 cited by Morgan Williams 2001 p43). Tilbury and Cooke found at one University-Industry summit, that corporate stakeholders argued that every student, irrespective of specialism, should have the opportunity to learn about sustainability in HE (*ibid*).

The European Union is a notable example of how a regulatory body can influence environmental practices in constituent states, and thus the demand for qualified graduates in those countries. For example, the recently introduced Energy Performance of Buildings Directive or the Water Framework Directive will require graduates with skills to interpret these directives effectively. Such directives are already having a knock-on effect in the provision of courses in HEIs. In DIT for example, there are Masters courses in Sustainable Development and Local and Regional Development, with modules on environmental management and protection featuring in many other undergraduate and postgraduate courses.

HEIs themselves will be affected by environmental regulations, for example, with the Energy Performance of Buildings Directive. Their overall environmental performance may become a more pressing issue where HEIs are paying for water, energy, waste removal and so on, with pressure to reduce resource consumption coming both from government and from administrators wishing to reduce bills.

Already, many HEIs are taking steps to reduce resource consumption. For example, in Yorkshire and Humberside, a document was recently published outlining how HE can help to minimise the region's carbon dioxide emissions, under the dCarb Initiative of Yorkshire Forward's Education for Sustainable Development Programme. This ties in with the work of the

Higher Education Environmental Performance Improvement (HEEPI) project in Wales and England. The HEEPI project is based at the University of Bradford, with the aim of improving the environmental performance of HEIs through environmental benchmarking and developing the capacity of staff with environment-related responsibilities to achieve positive environmental change in institutions (through workshops, best practice case studies and other means) (Hopkinson and James 2005).

It has been suggested that carbon-related issues, as with sustainable development generally, have only recently become concerns for UK HEIs for three main reasons, that is: energy and other carbon-related costs accounted for a small percentage of total budgets; the market for focused research and teaching was limited; and strategic decision makers were more focused on other topics, such as increasing student numbers. However, this situation is changing, with the key driver being stakeholder perceptions that the HE sector "should be doing more" (Hopkinson and James 2005 p5).

Hopkinson and James (2005 p9-19) also point out that annual improvements in environmental performance will be needed in HEIs to maintain carbon dioxide emissions, as absolute consumption will increase significantly due to increased numbers of students and staff; increased research activity (and thus energy and water); higher expectations of staff and students (for example, air conditioning, ensuites in residences); longer opening hours; and greater use of IT in research, teaching and residences.

In the US, a joint programme of the Environmental Protection Agency and the US Department of Energy, called Energy Star, has been set up to save money and protect the environment through the use of energy efficient products and practices. As colleges and universities in the US spend close to $2billion every year on energy (EIA 1999 cited by Energy Star 2007), reduction of costs of running HEIs is a key focus of the Energy Star programme.

In Ireland, Sustainable Energy Ireland has funded the e3 programme in four Dublin-based HEIs – the Dublin Institute of Technology, Trinity College Dublin, Dublin City University and University College Dublin, to reduce their energy consumption. Through the establishment of an energy management bureau (e3), the institutions aimed to reduce energy consumed in thirty key buildings by 10% over three years. At the end of the first year in the programme, the institutions had achieved a 3.3% saving, valued at €158,000 (at 2004 prices). By the end of the second year, a 6.3% saving had been achieved, valued at €258,000 (at 2005 prices). In the final year of the programme (2006), a 12% reduction in energy use had been achieved, valued at €643,000. Total savings from the energy management project exceed €1million and

6,200 tonnes of greenhouse gas over the three year project. Savings from competitive procurement of electricity and gas saved approximately another €1million (e3 2007). Such initiatives may become more commonplace in the future, as environmental issues become more pressing.

7.4 Societal Value Systems and the Environment

The potential of the environment to impact on third-level curricula depends to a large extent on societal value systems. A 2005 study of attitudes to the environment in the EU found that almost 90% of Europeans in 25 countries believe that when making decisions, policy-makers should pay as much attention to environmental issues, as to economic and social factors (EU 2005b). The state of the environment (72%) was cited as influencing quality of life to the same extent as social factors (72%), and only slightly less than economic factors (78%). 85% of Europeans feel that they make an effort to care for their environment, but over half (57%) believe that industry, corporations and individuals must all play a part to prevent environmental degradation (EU 2005b).

Where societal value systems prioritise the environment, this in turn could effect change in HE institutions. If society was willing to pay more taxes for environmental remediation, for example, institutions should be in a position to react to this change in value systems to ensure that their courses and research are designed to respond to, and take advantage of, this. In the face of a shift in societal value systems, government and industrial funding could become oriented towards projects promoting more effective environmental management. Curricula may be designed to focus more on problematic aspects of man's activities, such as agriculture, waste management, transport and urbanisation.

Shortages of graduates with key environmental skills to cope with societal demands for solutions to environmental problems may reach crisis point in the future, if there are not enough qualified graduates being produced. In the UK, it is feared that there will be a chronic shortage of geophysicists in the future, for if current rates of decline continue, there would be no geophysics undergraduates by 2030, according to the British Geophysical Association (cited by Smith 2006c). This is at a time when environmental issues such as climate change and global water shortages are coming to the fore. At the same time in the UK, one in three graduates feel they did the wrong degree, and wish they had chosen a scientific, technical or business-related course (Smith 2006e).

In Ireland, a survey by the Department of the Environment and Local Government (Government of Ireland 2000) on attitudes towards the environment found that people here

have a 'public and private morality' – while the population thinks one way, they behave in another, in relation to environmental issues. The public wants to see the government doing more about the environment, but they are not willing to make individual sacrifices, with only 20% willing to pay higher taxes, 18% willing to pay higher prices, and 12% willing to make cuts in their standard of living. In general, environmental progress over the period 1990 to 2000 was seen as "disappointing" (Government of Ireland 2000). In light of this, Irish HEIs may not be under any significant pressure to change the content of their courses without outside pressure from the EU.

A more recent report indicated that Irish people are 'deeply concerned' about environmental threats. However, to mobilise the public to *actively* care for the environment, a longer-term role of critical and liberal education is needed, as well as the empowerment of individuals and communities, to support and develop a sense of socio-political usefulness (Kelly *et al* 2003).

This is not to suggest that EE/ ESD will automatically lead to people changing their behaviour towards the environment or prevent resource depletion. Ramsey and Rickson (1977 p10 cited by Bognor 2002 p26) maintain that "increased knowledge leads to favourable attitudes towards the environment which in turn leads to action promoting better environmental quality". However, the linear idea that more education leads to positive changes in society is not without its critics, as, although the volume of education increases, "…so do pollution, exhaustion of resources, and the dangers of ecological catastrophe" (Schumacher 1997).

Studies on the ability of knowledge to promote concern for the environment have been controversial. Braun (1983 cited by Bognor 2002 p26) states that education programmes could encourage positive environmental attitudes in students, but not tangible commitment. Hendee (1972 cited by Bognor 2002 p26) assumed that knowledge can affect attitudes as "the folklore of EE". However, Bognor (2002 p26) believes that "only what one knows does one protect", which is supported by Barry (1990 cited by Bognor 2002 p26), who found that that most unfavourable actions towards the environment do not come from malice, but from lack of knowledge about it.

People's responses to change depend "to a great extent" on the change in question. Incentives to change behaviour must be enough to compensate for disincentives, particularly in terms of time or disruption to people's daily routines. There must be a "clear perceived benefit…from the behaviour change" (Ekins 2002).

Palmer (1998 pX) believes that it is only by combining formal programmes with the promotion of other significant experiences in people's lives, and their informal encounters with the environment, can any 'real progress' be accomplished.

7.5 Young People and the Environment

Children and young people are irreversibly affected by economic, social and technological developments (OECD 1991 p11), so it is crucial that they are equipped to cope with the challenges ahead of them. Filho's study (1995 p6) of children's attitudes to the environment found they had a very high level of interest in environmental issues. 62% of children were 'very concerned' about environmental issues, 30% were 'a little concerned' and only 8% had 'no concern' at all. In Ireland, children are exposed to a high level of environmental issues through the revised primary curriculum, particular subject areas of the secondary level curriculum, and through participation in the Green-Schools programme, with 65% of Irish schools (primary, secondary and special) registered in the programme, which encourages environmental management and protection, and discussion of environmental issues (Green-Schools Ireland 2007). The degree to which children are exposed to environmental issues and citizenship may be reflected in their choice of college courses when they leave school. The task of equipping children and young people for future environmental challenges may also fall to HEIs in the years ahead. Already DIT has formed an alliance with the National Environmental Education Centre in Ireland, showing how a third-level education provider can support environmental education at a primary-level through the provision of resources and expertise.

7.6 Conclusion

Environmental drivers have the potential to impact on HEIs in a number of ways, be it through course content to keep abreast of current best practice or regulations, or to comply with regulations pertaining to HEIs.

Of the six key drivers affecting change in the HE landscape, there is less literature available on the impact of the environment on the future of the university. This may be an indication of how unnoticed trends in the present emerge as all-encompassing in the future. As environmental crises become ever more pressing, the economy and all which depends on it may be forced to re-orient their approaches as issues of sustainability become more urgent. Such a significant change in societal and economic values would inevitably impact on the services and mission of the university in the future.

CHAPTER 8 – EXAMPLES OF HIGHER EDUCATION FUTURES STUDIES

8.1. Introduction

The drivers discussed in this review leave much scope for different directions in HE. This chapter outlines some potential future scenarios as described by a variety of commentators, and focuses in particular on three studies – one commissioned by the Australian Commonwealth to identify possible scenarios for the Australian situation (Global Alliance Ltd 1999), and two by Vincent-Lancrin (2004 and 2006), prepared for the OECD.

The various scenarios in this section range from predictions of the university's demise, to the proliferation of corporate universities, the entry of new actors in HE and so on. Scenarios are not ruled out on the basis that they are 'improbable', as "probable, improbable, desirable and undesirable scenarios can all be useful for forward thinking" (Vincent-Lancrin 2004 p257). For this reason, many forecasts and predictions are discussed below; irrespective of how likely they are to occur in an Irish context. It must be noted however, that the scenarios discussed are limited by the fact that:

> …today's stories about tomorrow inevitably face the fundamental constraints of language and uncertainty (as) the ideas and words that will be used in the future have not yet been invented or lived. Nor is it possible to know the 'facts' of a day that has not yet passed. As a result stories about the future are largely rooted in the present – the expectations, fear and hopes that form the path to the future (Vincent-Lancrin 2004 p257).

This chapter therefore does not claim to make any predictions about the fate of universities in the future, as the future, much like the past, is 'unknowable' by empirical methods, and both are 'reinterpretable', with the future, by definition, having no primary sources or archives to examine for information (Warren Wagar 2005 p83-90).

One factor in common for the majority of commentators cited is that traditional universities and HEIs are to undergo change to survive in a more competitive education marketplace. The Director of the Society for Research into Higher Education in the UK has stated that the issue is less about speculating which universities or 'mega institutions' will exist in the future, and "more about considering what those universities which wish to exist in 2024 need to be considering now" (cited by Cormack 1999 p121). In this changing world, futures studies can assist HEIs in avoiding "undesirable situations and to encourage post-secondary systems to adopt appropriate strategies" (Vincent-Lancrin 2004 p246).

8.2 The Future of 'Traditional' Universities

According to Clark (2005 p169) many traditional universities will continue to operate in an 'old-style' mode for as long as they possibly can. Shattock (2002 cited by Clark 2005 p170-171) supports this, as he believes that cultural change in traditional universities is very difficult to realise, and the traditional structures can remain in place long after they have outlived their function as:

> …when any issue comes up the first solution is the old solution…(and) when push comes to shove, universities can always find friendly benchmarks that provide soft landings in self-esteem and public reputation. In the comfortable old family – other places like us – the will to change slackens. Lowered expectations become self-fulfilling.

Clark believes that many of those universities which do attempt change will not be proactive enough, as they will find "one or another rationale for inertia: traditional ways will certainly prove best over the long term". In this scenario, Clark believes that if these traditionalists find their institution lacking in money, they will rely on government or patrons to come to their rescue, as they "realise, for the good of the nation, that universities must be funded as a first priority and at a much higher level". For these traditionalists, embarking on a new path involving change "seems difficult and risky"; so many traditional universities deem the "risks of adhering to the status quo… preferable to the risks of change" (Clark 2005 p170).

In a changing educational landscape, these universities may find themselves having outlived their usefulness and thus their ability to compete for funding. When interviewed about the fate of the 'traditional' university, one leading Oxford professor and founding member of the Manchester Business School indicated that he believed that such universities were "unrescuable", as universities in general had "lost their intellectual monopoly", as people outside the university worked in "similar ways and with similar talents", but not limited by "academic traditions, preconceptions and institutions", meaning that "for the first time there are more clever people outside universities than inside" (Brimelow 1993 cited by Hagen 2002 p2).

Stakeholders outside universities are increasingly conscious of the change occurring in society and in their own work environment, and they will "deepen their expectations that universities should also change and at a quickened pace" (Clark 2005 p170) to meet new demands arising in society. The changes occurring in governance in venerable institutions such as Oxford, illustrate that even the most traditional of institutions must react to the changes in their midst, or "as others move forward, a university may find itself standing still on a down

escalator". But the same commentator also finds value in the metaphor of a "steady state of institutional change" (Clark 2005 p169).

For Abeles (1998 p603-613) the traditional university is facing its demise, followed by its subsequent rebirth. Universities are losing the battle to produce short half-life knowledge (with a short use-by-date) to other institutions, because of the infrastructure costs compared to the costs of virtual space. The university needs to return to the core business of providing long half-life knowledge, having the ability to synthesise and produce wisdom in order to be 'reborn'.

Duderstadt (2002 p10) believes that for the near-term, 'traditional' universities will continue to exist much in their present form, although to meet the challenges of new players in the education market, "significant changes" will be necessary in how universities teach, conduct scholarship and source funding.

8.3 The Future of the Physical Campus

Many commentators have predicted that the University of the Future will not occupy a campus in the traditional sense – there will be no football team or library building for example, because new "open and accessible alternative sources of authority of knowledge", such as the internet or the television, can provide learning and skills without the need for the traditional physical campus (Smith and Webster 1997 p25), bringing about the "death of distance" as it is no longer a constraining factor for potential students (Chapman 2006 p63).

As outlined in previous chapters, the demands of students are likely to change as the profile of the student body changes. The 'new' student is part of an iGeneration or Generation Z, which may demand a new way to learn, with mobile learning becoming a feature used to improve the learning process (Prensky cited by University Futures 2007b). Sperling (1999 p109) believes that ICT will facilitate universities being communications hubs, packaging information for students through a variety of channels and media "many, if not most, not yet invented or imagined". Advances in technology feature strongly in predictions of the demise of the university campus, as technology becomes a facilitator for alternative means of delivery of learning and skills. Anywhere a student demands access to a HEI in 2025, they will simply have to connect to the internet "thus rendering the need for the traditional physical campus obsolete", as HE is provided through mega institutions with "global information/ intelligence/ knowledge" systems accessed anywhere learners have a digital connection (Sperling 1999 p109). Already MIT has posted all of the syllabi, lecture notes, exams and other material for its 2000 courses on the internet, so that individuals not actually enrolled in MIT can access the

material to "disseminate new knowledge and content, at no cost…as learning resources" (Chapman 2006 p55). Other universities have followed suit to different degrees. Of course to benefit from these developments, the potential student does need to be well enough off to own a computer with access to the internet, or they must have access to a library with such facilities. In spite of the changes in HE and the concern for 'access' for all, many potential students will not have the opportunity to access HE wherever or whenever they want to due to their circumstantial and financial limitations.

It has been suggested that the university's delivery mode will change. Thorne (1999 p6) uses the example of Blackwells Books, which is both a publishing company, and a chain of bookshops. Thorne (1999 p6) has described how universities will produce learning 'products', so books are replaced by learning programmes, some involving face-to-face tuition, other programmes given elsewhere, or through distance learning or telematically. The university could provide the learning programmes, or it could source them, like products, from other institutions because a 'home-grown' version does not exit. In this way, customer loyalty is improved, as the university is meeting the learners' demand for the topic of study, and their preferred delivery mode.

With changes in delivery of education, students will be able to study whenever or wherever they wish, with predictions that "historical peculiarities" (such as 'Michaelmas' or 'semester') will also be removed from the university lexicon, except in places such as Oxford (Thorne 1999 p7). However, no matter how much students like being able to study at a time or pace that suits them, via electronic means, Skolnik (1998 p647) is of the opinion that the key factor determining their choice of HE opportunities will be the "value of the credentials they can obtain".

For those physical campuses continuing to exist, economic globalisation will "tend to create the demand for similar types of education in all countries integrated into a common system" (Sperling 1999 p117). This could happen, for example, in the EU through the common credit systems. Based on this thesis, Sperling makes a different, grim prediction about the university campuses of 2025, where they are identikit institutions the world over, devoid of diversity. At present, diversity in form and function is a feature of universities, but in the face of globalisation, "with the mixing and blending it implies", universities are more likely to function as a "homogenising/ standardising force", particularly in those universities that are publicly-traded, and operate on a global scale (Sperling 1999 p106). To preview this prophesy, he suggests checking into "any hotel of an international chain in any city of the world and note how small the differences from all the others anywhere in that chain or within any other

international chain" (Sperling 1999 p117). Vincent-Lancrin (2004) believes that as the world becomes more globalised and liberalised, the different directions taken by HEIs may raise new issues, in spite of the fact that post-secondary education systems have a tradition of diversity.

Despite these predictions, and the fact that sources of knowledge are manifold, there will always be a need for academics to have a physical campus, as "even where knowledge is contested or uncertain, there is potential for a worthwhile intellectual endeavour, which demands a physical location where people can gather to work" (Kumar 1997 cited by Smith and Webster 1997 p25). At the same time, Kumar is of the opinion that the university will not be defensible if it relies for its validation exclusively on the transmission of knowledge and skills, as these are both challengeable and accessible elsewhere. To be viable, the college campus must continue to represent the experiences, activities, events and memories that were generated within that institution, as a "perpetual parade" of students walk through the space in an 'Intentional Community' of learning (Chapman 2006).

The experience of the Open University, a pioneer in distance learning, also supports the thesis that learners benefit from a physical environment with human interaction, as their students commonly regard their summer and weekend residential school "high points of their periods of study" (Smith and Webster 1997 p36).

The prestige attached to a well-resourced physical campus may also ensure its existence in the future, if even for the opportunity it affords visiting dignitaries and politicians to 'hold court' in prestigious locations. In this respect, universities are "prestige-maximisers" who use this to control both state and market influences (Clark 2005 p169). For example, Warwick University hosted a visit for then Prime Minister Tony Blair and President Bill Clinton when they met in December 2000 (Smith 2007 p21). Every institution has its own 'story' to tell, about "its mission, its history, its traditions, its aspirations" (Chapman 2006 pxxii), with the campus acting as a "tapestry of sensory, cognitive and intellectual experiences that are meaningful in and of themselves, and that can profoundly reinforce one another" (*ibid*) and this capital can be used to a HEIs advantage.

Sperling has predicted that not only will physical campuses be in existence in 2025, many of them will be mega universities, and they will be in the developing world. He predicted that the China TV University will have 53,000 students; Anadolu University in Turkey will have 520,000 students; Terbuka University in Indonesia will have 350,000 students, and the University of California will have 157,000 students. The State University of New York is predicted to have

400,000 students, with the City University of New York having 350,000 students, among other potential mega-universities in the word. Through ICT, the reach of great research universities will increase, but they will still be "site based with tenured, full-time faculties of scientists and scholars teaching and pursuing, alone or in small groups, their accustomed subjects and research concerns" (Sperling 1999 p104). Those liberal arts colleges which have established national reputations will not undergo significant change, but non-élite HEIs, whether state-operated or not-for-profit will undergo considerable change, driven by competition with new publicly-traded education corporations. Sperling also predicted that for the most part, these educational bureaucracies will be administered by the state, but private universities will also exist. These private universities will range from the "great research universities of Europe, Japan and the US, to small private colleges, whether mundane or élite, that serve specific micro-populations". He further believes that new institutions, which are barely on the educational radar at present, will emerge as major players in HE in the future (*ibid*).

On the other hand, Vincent-Lancrin (2004 p253) believes that the traditional university-age population is expected to decline, and public funding may shift to other priorities, which could lead to a reduced size of HE systems. However, he believes that students from developing or transition countries will become increasingly mobile internationally in the future, in order to fill the unmet demand for HE in these countries (Vincent-Lancrin 2004 p249). Through foreign branch campuses, joint ventures with local institutions, or franchise arrangements, universities can maintain student numbers through the enrolment of international students. This trend towards globalisation of supply and demand in HE will be facilitated by developments in ICT and liberalisation in trade and investment (OECD 2004 cited by Vincent-Lancrin 2004 p249).

Elements of Sperling (1999) and Vincent-Lancrin's (2004) forecasts are supported by Inayatullah (Inayatullah and Gidley 2000) who predicts three spaces for the university of the future. They are *élite brand name universities*, which expand outwards due to the influence of globalisation and virtualisation; *convenience mega universities*, which deliver courses in a flexible manner, and thus attract the bulk of the world's students; and the *smaller niche universities,* which focus on "multiculturalism or regional and local concerns".

In a study of organisational change in four UK universities, Taylor (2006 p262) found that all four moved away from traditional Faculty and department organisational structures in the direction of large 'super Faculties' with new large schools, with significant impact on their academic staff. The size of the 'super Faculties' was seen as a way to increase efficiency of operation and interdisciplinary collaboration in teaching and research, and to improve

managerial competence. All four universities found their restructuring was met with apprehension from within the organisation as the operating environment changed. To deal with this, they invested in "good communications and leadership" to address academics' doubts (*ibid*). Taylor (*ibid*) suggests that the "demise of the department as the main unit for the delivery of teaching and education and the erosion of the supremacy of the academic community in government and management" is arguably the most significant development in the long-term history of the UK university, as the university attempts to adapt and compete in a "rapidly changing operating environment" (*ibid*). Restructuring internally is being explored in universities as a means to adapt to rapid external change.

Gender will play a significant role in the physical campus of the future, as women will not do well in most scenarios, and traditionally they have not featured strongly in HEIs. Women's universities will develop, where education and child care are central, as opposed to peripheral concerns (Milojevic 2000). Nicholson (2000) on the other hand, believes that universities will take the form of 'advanced learning networks', with smaller 'experience camps' behaving in a more responsive manner towards the community, and relating their work to service needs.

8.4 The Language of the Future

At the end of the twentieth century, Sperling believed that English will be the *lingua franca* of HE in the future, driven primarily by developments in computer technology and the internet, as a common communications protocol is developed worldwide, and the language sustaining it is English (1999 p118). The internationalisation of economic processes will, in the future, require students to speak English fluently to be "full participants in the global socio-economic system", as English is the language of many large global corporations, and most of the papers and publications in technology and science are written in English (Sperling 1999 p118).

As English is the language of international business and science (Chapman 2006 p83), those HEIs catering for English-speaking students are more likely to prosper as they can cater for an international, fee-paying audience. At present, many HEIs in the EHEA insist on teaching in the first cycle through the national language, with some institutions offering parallel programmes through English which are considered to be of lesser quality (EUA 2007 p45). Such occurrences limit mobility and may also hinder the institutions ability to attract international students, and to remain viable, in the future.

This, in turn, could impact on HEIs in Anglophone countries, as other providers of HE develop courses in English to attract students abroad, leading to further competition for students, staff and resources. In the 1990s, Anglophone countries dominated the market for overseas students, in spite of the fact that these countries charged international students full fees, while countries such as Germany or France charge low or no fees to overseas students (Hatakenaka 2004 p5). As English becomes the *lingua franca* for course delivery in many institutions around the world, institutions in Anglophone countries may no longer attract their desired cohort, as internationally mobile students have increasingly broader choice in other countries.

8.5 New Players in HE

Cormack (1999 p123) believes that "the university of the future will undoubtedly have new and different competitors" for students, staff and resources. Technology, in particular, allows new players to move into the HE market, as the exponential pace of evolution associated with technology allows new HE providers access to students in their homes and through mobile technology. It is predicted that the number of people linked by digital technology will grow from millions to billions, and society "will evolve from 'e-commerce' and 'e-government' and 'e-learning' to 'e-everything' since digital devices will increasingly become our primary interfaces not only with our environment, but with other people, groups and social institutions" (Duderstadt 2002 p10). The impact of IT is likely to be "*profound, rapid and discontinuous*, just as it has been and will continue to be for the economy, our society and our social institutions" (emphasis authors own, *ibid*).

Already new 'virtual' players are making themselves felt in the HE landscape. For example, the Knowledge University, which was formed in 1996 with an initial capitalisation in excess of $500million; and having the aim of providing a broad range of services and products to serve lifelong education needs. An interesting feature of this institution is that it has strong relationships with the world's leading entertainment, telecommunications and technology companies. As a private company, Knowledge University is in a position to develop creative structures and long term relationships, and has a management team described by Fortune magazine as "stellar" (Cormack 1999 p124). Such private providers of HE with management from business may become more common HE providers to student consumers.

Brown and Duguid (cited by Skolnik 1998 p642-643) suggest that in the 21st Century, new agencies specialising in evaluation, accreditation and certification, Degree Granting Bodies (DGBs), will control the awarding of degrees, instead of universities. HEIs would produce and deliver components of a degree, and DGBs would also allow credit for prior learning or

experience. Universities would lose the power to validate degrees, as they would become one of many suppliers competing to have their products or components included for an award, so they would have a conflict of interest.

There is a already a move underway in HE towards competency-based awards, which would challenge the monopoly of the traditional university, as informal learning becomes formally accreditable, instead of learners having to accumulate units or credits. The Western Governors University, for example, has competency-based programmes, so that learners can take independent study classes, build a portfolio and take exams in areas where the learner has already a level of expertise and skills. In the future, more HEIs may award degrees based on the knowledge a student has built up, regardless of where that knowledge came from, be it from work experience, life experience, or from previous education (Farbman 1999 p72). If more awards are given based on competences, as opposed to 'seat time' and accumulation of credits, this will affect traditional HEIs as they will have to develop frameworks to accommodate this type of credentialing. It may be the case that the university is not the most appropriate body to award these degrees and certificates, and a DGB would be more suitable, which would be a major threat to the power of the university.

8.6 Futures Scenarios for HE in the Australian Commonwealth

In 1997, the Australian Commonwealth reviewed HE and HE policy in Australia, and deduced a variety of scenarios for the future of HE in the era of "mass customisation" (Global Alliance Ltd 1997 p76-87). These scenarios describe possible futures for the traditional university to pursue, and are as relevant today as when they were first charted. These scenarios are summarised below.

In the first scenario, the **Do Nothing University**, the governing bodies stand firm against all change, in support of the thesis that education is not an industry. Slowly things start going wrong for the Do Nothing U, as prices go up. Academics continue to obtain small increases in their salaries, with no changes in the way courses are delivered and thus no productivity improvement. Superior academics leave to work in other universities with larger endowments and high fee structures, or specialist research and education institutions for example.

The second scenario is the **Middle Asia Web University**, which is a low cost, virtual university, which makes its money through servicing the growing educational needs of lower Asian middle classes, through an Australian or US franchise name. The Middle Asia Web University attracts academic superstar course producers or product managers, in the place of

traditional faculty, to ensure the development and delivery of the Middle Asia Web University's educational products.

The **Low Cost Provider U** (and its multi-local U variation) is the third scenario described by Global Alliance. This university targets undergraduate young people and mature age new entrants with lower middle income backgrounds, and is very price-sensitive. If a course does not reach an economy of scale, it is not provided in the Low Cost U. Teaching is on-campus, and students are guaranteed a quality of outcome. The Low Cost U sells its real estate and rents units near students' work places and homes, to raise finance to expand. Computer-aided learning is provided, with modules purchased from top universities. Faculty are remunerated based on students' results and the internet and intranet is used to automate back office functions.

The fourth scenario for the university of the future is the **Harvard in Australia U**, which aims to be a member of the "World's Best Universities Group", with high cost research and teaching programmes. Students are targeted from both Australia and Asia, with employment virtually guaranteed for life after attending the Harvard in Australia U, due to the esteemed reputation of the university. Students have access to an extensive loan programme as fees are extremely high. The university has an extensive endowment as a result of converting all its non-essential property assets into cash, and re-investing in a well-managed portfolio. Alumni are another source of finance, as is the Harvard in Australia U corporate programme, which raises money globally. The university targets Asia in particular, with sophisticated new programmes developed to appeal to new Asian wealth. Schools that are not performing to an adequate level are shut down in the Harvard in Australia U, and teaching programmes are developed in-house. Faculty receive remuneration packages that are competitive on a world-wide scale, and they have access to world-class research facilities. Initially when the Harvard in Australia U is formed, there is a painful period of 'adjustment and contraction', which is followed by expansion in areas where Harvard in Australia U has the competitive advantage.

The final scenario described by the Global Alliance Ltd is the **World School U**. The World School U starts with faculty in middle-level homogenous universities, which do not survive reforms as an integrated entity. The World School U establishes a brand name in Asia, then the world, as a leader in a particular specialisation. Because of its reputation, students are attracted from around the world. Asian alumni ensure the World School U has a rich endowment, supporting a strong research programme. The headquarters of World School U are in a university park, which was formerly a campus of a Do Nothing U. Multiple outlets of

the university are set up to teach around the world, and are linked by broadband. For the most part, teaching programmes are developed in-house as a source of competitive advantage, and cost control is not a major objective. Staff in the World School U are considered to be the best in the world, and have their own consultancies. They have a gross income of around US$300,000 per year.

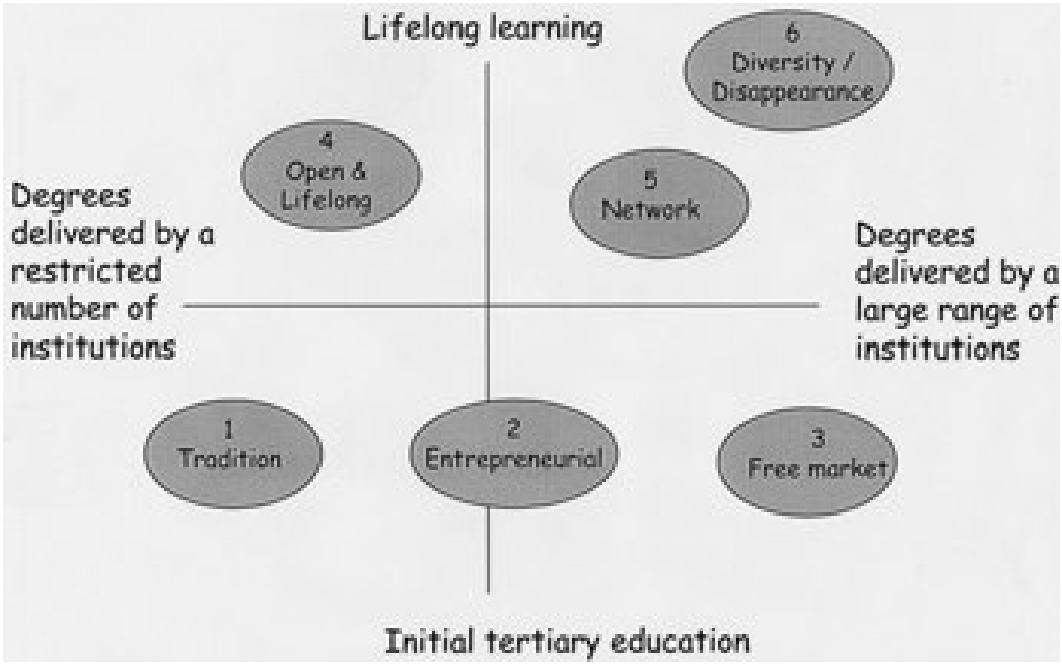
8.6.1 Conclusion

Clearly these scenarios do not present a very positive outcome for those universities who do not embrace change in a pro-active manner, as competition from forward-thinking institutions will ensure their demise in the face of rising costs and competition. Although these scenarios are focused on Australia, which is in a position to capitalise on potential demand from Asia, the scenarios outlined could be adapted and applied elsewhere, particularly in light of the role of ICT. There are also many trends and themes in common with Vincent-Lancrin's (2004) six scenarios for the University in the Future, as well as his 2006 study on trends and future scenarios for academic research.

8.7 Vincent-Lancrin's (2004) Six Scenarios for the University in the Future

In 2004, Vincent-Lancrin prepared a report on six futures scenarios for universities and tertiary education providers. The report was written from the international perspective of OECD member countries, in recognition of the fact that many forces are putting HE systems in member countries under pressure to change and adapt going forward. The report identified four main forces as the context in which speculation about the future of HE occurred. These were the interrelated fields of: demography of and participation in education; governance and funding; the knowledge economy; and the rise of new actors in HE. In the context of these drivers, and bearing in mind the four key missions of the university (teaching, research, services and credentialing), six potential scenarios facing universities and HEIs in the future were outlined, as summarised in Exhibit 8.1, and as outlined below.

Exhibit 8.1 –Six scenarios facing the university of the future (Source: Vincent-Lancrin 2004 p2)



8.7.1 "Tradition"

In the first scenario facing universities of the future ('**Tradition**'), universities are more or less similar in characteristics and operation to today, pursuing teaching and research, and catering to a small share of the youth population preparing for job selection. Governments play a prominent role in funding, regulating and managing universities, and universities find themselves with limited opportunities to generate other finance. LLL and e-learning develop largely in education providers outside the university system.

Vincent-Lancrin believes that this scenario is the current situation in some OECD countries, for example, Continental Europe, but he also believes that the 'Tradition' model is the approach many developing countries are aiming for. In the context of the "massification of HE", he suggests that this model may already be obsolete, and the future of those universities adopting the 'traditional' model has the potential to be "very gloomy" for faculty at least, as universities in this scenario risk continuing to be under-funded, and drifting towards a "secondary-school model – with academics becoming more like schoolteachers" (Vincent-Lancrin 2004 p261).

However, Vincent-Lancrin believes that the 'Tradition' model also has the potential to be a model for the future, if different HEIs develop to cater for smaller and more élitist enrolments,

thus "the old ideal of the university fusing teaching and research by teaching students who will themselves create new knowledge, could thus have a second life" (*ibid*).

8.7.2 "Entrepreneurial"

In the second scenario outlined by Vincent-Lancrin, universities follow the '**Entrepreneurial**' model. Teaching, research and community service are balanced well in this model, but there is greater separation between the different missions, across different institutions, as entrepreneurial universities have greater autonomy and behave in a more responsive manner.

The main difference between 'Entrepreneurial' and 'Tradition' universities is that entrepreneurial universities are in a position to take advantage of a variety of funding sources, as they are more autonomous in this regard. Mixed private-public funding becomes more common, with entrepreneurial universities also having other funding streams.

Research is undertaken in the 'Entrepreneurial' university of the future, because it is both financially rewarding, and it bestows upon the university intellectual property rights. However, a market-oriented approach prevails, without losing 'basic academic values'. Teaching remains quite élitist, as research attracts both prestige and income. Less prominent institutions which focus on teaching-only cater for LLL, instead of being a strong feature of the 'Entrepreneurial' model. E-learning is considered important, as are commercial approaches to international markets.

In this scenario, the 'Entrepreneurial' approach puts the university in a position where wages, resources and the prestige of the faculty improves, and links to the local economy are strong.

The phrase 'entrepreneurial' has already been applied to the university by many commentators (for example, Hazelkorn 2007a, Clark 2005), and many more may seek to follow in the footsteps of successful models in the future. However, Clark (2005 p169) notes that when universities only move 'part way' towards becoming entrepreneurial, they become "hybrid forms in which problems of commitment and balance – between old and new educational programs, centralised and decentralised control, new and traditional sources of support – become paramount". In this scenario, the model may fail. The successful Entrepreneurial university is based on "entrepreneurial departments - dynamic places attractive to faculty, students and resource providers" (Clark 2005 p176).

8.7.3 "Free Market"

In the third scenario proposed by Vincent-Lancrin, market forces are the main driver (`**Free Market**' scenario), where a private tertiary sector is regulated by private companies for quality assurance and accreditation. Free Market universities are mostly funded through the market mechanism, with institutions which are specialised "according to function (teaching, research), field (business, humanities, etc.), and/or audience (young students, part-time students, distance education, adult education, lifelong learning)" (Vincent-Lancrin 2004 p259). At the same time, businesses have the capacity to accredit employees to degree level for corporate training. A strong hierarchy develops between the different institutions, and a "global super-élite" appears, with faculty becoming increasingly polarised (*ibid*).

Greater choice for students leads to greater competition for students, and tuition revenues become more important to an institution as a funding stream. Technology is widely used in teaching, and internationalisation becomes more significant in the education market.

The bulk of parents and students are not interested in research, or bearing the associated costs, and thus research is carried out in public research centres and corporate R&D divisions. Research becomes more demand-driven and specialised, with intellectual property rights securing income. Any remaining research in universities becomes even more élitist, with teaching to mass markets leading to more standardisation in courses, and the patenting of curricula and instruction techniques.

The first three scenarios are selective, catering for young people in their initial preparation for life.

8.7.4 "Lifelong Learning and Open Education"

Vincent-Lancrin's fourth scenario sees universities characterised by diverse student populations, with research playing a less significant role than in other scenarios (`**Lifelong Learning and Open Education'**). This is a scenario where the knowledge economy is thriving, and HE is a source of continuing professional development for individuals in the workforce, as well as being undertaken by elderly people for non-professional reasons.

There is a move in this scenario towards learner-, teaching- and demand-oriented education, with more short courses, distance learning and e-learning being provided in the university. Governments or independent accrediting bodies ensure quality assurance and validate accreditation.

For the most part, research in the 'Lifelong Learning and Open Education' scenario is conducted outside HE, with the best researchers working in private companies, specialised institutes, or the few enduring élite universities. Corporate universities and corporations exert a large influence in this scenario, and the university responds to market forces and applies a business-oriented model. In this scenario, learning is often applied in manner, so much so that all education in universities would have the potential to follow the professional school model.

8.7.5 "Global Network of Institutions"

In the fifth scenario, the '**Global Network of Institutions**', tertiary education becomes demand- and mostly market-driven. Two defining innovations characterise institutions in this scenario – learners define their own study courses and degrees from all available through a HE network spanning the globe; and HEIs increasingly engage in partnerships, including with industry.

In the 'Global Network of Institutions' scenario, e-learning is a strong feature, as are other means of education. Training content becomes more standardised, and possibly draws on technology and media for is delivery, for example, modular learning objects or edutainment. The market for LLL grows dramatically, with more provision for LLL, and education taking a variety of new forms.

For the most part in the 'Global Network of Institutions' scenario, research is conducted outside HE, and faculty in mostly teaching-institutions become "less qualified than today but use more sophisticated teaching techniques". Faculty who develop effective 'learning tools' become academic superstars, and have high status, leading to polarisation in academic status. The development of programmes and courses becomes more important than institutions, and intellectual property rights "for substance as well as for teaching methods" ensure high income for their owners (Vincent-Lancrin 2004 p260).

8.7.6 "Disappearance of Universities"

In Vincent-Lancrin's final scenario, the demise of the university is predicted ('**Diversity of Recognised Learning – disappearance of universities**'), as the formal tertiary education sector is disbanded, as people learn both formally and informally, through work, their lives and in the home. Increasingly people learn by themselves or by sharing expertise with other learners involved in the same field. An apprenticeship approach to hands-on professional education, such as dentistry, is carried out in businesses, through new sophisticated electronic devices (for example online). Technology plays a role in this scenario, as it facilitates the 'diffusion' of information and knowledge.

Individuals learn as much, or more than they do at present, but learning occurs in the model of 'open course' education, which is predominantly free and non-commercial, with partnerships occurring between a range of institutions and individuals. Knowledge and learning are accredited through specialised assessment bodies, through formal assessments of credentials. Because knowledge is so common, it is less of a factor in career progression or the 'stratification of society' (Vincent-Lancrin 2004 p20).

In research, those fields requiring less finance, such as humanities or maths, become less specialised. A large amount of research and the associated investment takes place in public research centres and in corporate R&D divisions in this scenario.

The key characteristics of the six scenarios are outlined in the exhibit 8.2.

Exhibit 8.2 – Matrix of Six Scenarios for the Future of Universities (Source: Vincent-Lancrin 2004 p259)

	Scenario	1 Tradition	2 Entrepren-eurial	3 Free Market	4 Open and Lifelong	5 Global Network	6 Diversity/ Disappear-ance
1	a) Selective/ Initial education/ Mostly young students	X	X	X			
	b) Open/ Lifelong learning/ All ages				X	X	X
2	a) Public funding	X					-
	b) Mixed funding		X		X		-
	c) Private funding			X		X	-
3	a) Teaching and research ("+": with strong research)	X	X+				
	b) Mostly teaching				X	X	
	c) Specialisation by missions			X			X
4	a) Mostly national focus	X			X		
	b) Importance of International focus		X	X		X	X
5	a) Homogeneous status of staff and institutions	X			X		-
	b) Polarisation in status of staff and institutions		X	X		X	-
6	a) Low e-learning	X					
	b) High e-learning		X	X	X	X	X

- : undetermined

8.7.7 Conclusion

Vincent-Lancrin believes that all six scenarios have associated advantages and downsides, and that they can be used to assist HEIs and policy makers as tools for reflection. He suggests asking, "Where does one want to go? Which of these scenarios seems the most (and least) desirable? Why? Which of them seems the most (and least) likely? Why?". He also suggests bearing in mind what kind of university will society need in the future?

HEIs must understand the processes which could "lead from one point to the other" and stakeholders "strategies and interests" must be considered to identify what is actually practical and possible for a particular institution or HE system. As an addendum, Vincent-Lancrin highlights that although futures scenarios help to engage stakeholders and facilitate discussion of alternative possible futures, "futures scenarios are not an end in themselves". Vincent-Lancrin (2004 p21) describes the final step of deciphering the dynamics and details of potential futures and building one's own as "decision making".

More recently, Vincent-Lancrin (2006) has outlined a set of four scenarios focusing on academic research, examining administrative versus market forces, and international focus versus national focus, in light of the 'massification' of academic research, changing missions, new public management, the rise public funding and the internationalisation of research (see Vincent-Lancrin 2006). These are discussed further in Section 8.8.

8.8 Other Futures Scenarios

8.8.1 Global Business Network & the College of Marin, California

A classic scenario planning exercise was conducted in 1998 at College of Marin, California, by Global Business Network (GBN), one of the worlds leading consultancies in the field of scenario thinking and planning. Using the 'matrix method' (Exhibit 8.3) to decide which stories about the future would be most interesting and useful to tell, the participants agreed that the two things about the future they would wish to know to create a sound long-term strategy would be:

- What will be the level of state funding for California's community colleges?
- Will the market for higher education in California be a 'buyers' market' (too much supply for the level of demand) or a 'sellers market' (not enough supply to meet the demand)?

Exhibit 8.3 Scenario Matrix (Source: GBN YEAR PAGE)

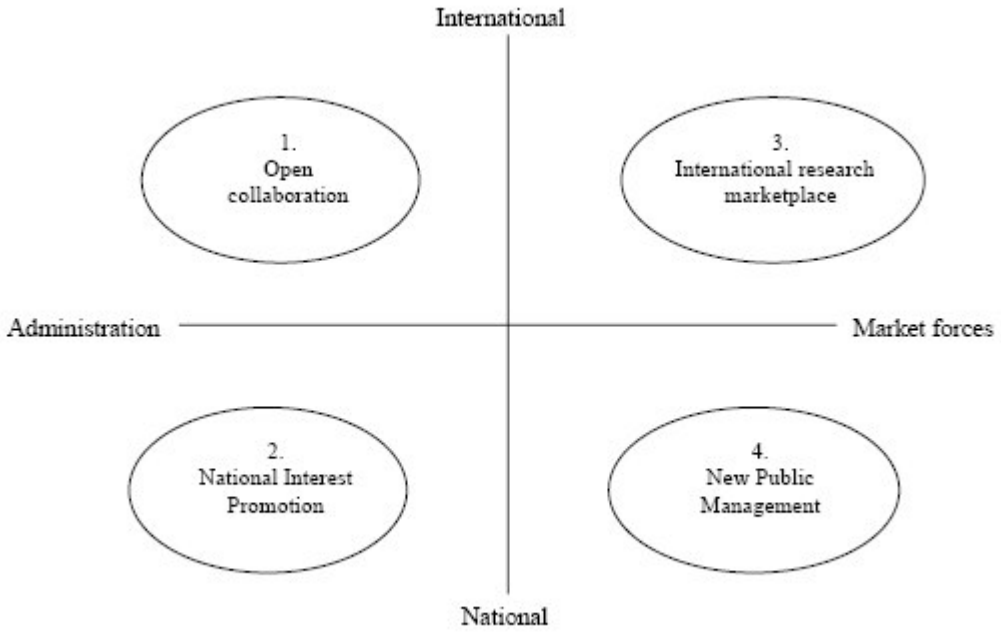
	Low State Funding	High State Funding
Buyers' Market for Education	"Beggars at the Banquet"	"Uncle Harry's Will"
Sellers' Market for Education	"For Sale to the Highest Bidder"	"The Great Education Society"

From the resulting matrix the basic plot dynamics of four stories of the future for the college were developed. These were published on the GBN website (http://www.gbn.org) together with a set of strategies for College of Marin exploring the alternative futures envisaged.

8.8.2. Vincent-Lancrin's Four Scenarios for Academic Research

More recently, building on his previous work, Vincent-Lancrin (*op cit* 2004), proposes a set of scenarios for higher education research in a 20-year time frame (*op cit* 2006). The four scenarios constructed are based on the trends discussed earlier: the increasing importance of knowledge; the growth of private funding and decline of government funding; the rise of competition from other sectors in basic research; the growing collaboration and competition at the national and international levels; the growing demand for accountability and transparency from governments and civil society; the new opportunities offered by technology progress; and the persistence of mass higher education systems. The 'possibility spaces' created by the two dimensions – administration versus market forces, and international focus versus national focus – emphasises some feasible strategic directions. These are shown in Exhibit 8.4.

Exhibit 8.4 - Four Scenarios for Academic Research (Source: Vincent-Lancrin 2006 p21)



8.8.3. Universiti Sains Malaysia

Inayatullah (2007) suggests that Universities attempting to deal with change have three main options when envisioning their future. They can create "back to the past" futures; they can blindly pursue the "used" futures of industrialised countries, or universities can map out alternative futures taking account of the views of different stakeholders, and attempting to achieve consensus and move towards a desired future.

Universiti Sains Malaysia (USM) is one such university, which conceptualised scenarios which will have repercussions for the manner in which the university operates in the future, in their bid to provide a high quality education, while also competing on a global scale and adapting to change in the HE environment.

Five scenarios were generated, broadly covering three main paradigms:

1. The market-centred paradigm, as in the student-led 'à-la-carte' university; the 'invisible' university', and the state-led university;
2. The financial-centred paradigm, as in the corporate-led university; and
3. The creator-centred paradigm, as envisaged in the scholar-lead (autonomous) university.

The 'à-la-carte' university would offer courses to appeal to both learners and employers worldwide, in order to make USM a leader regionally and globally. The most up-to-date teaching technology would be used in this scenario to facilitate this role as "the premier educational institution in the Southeast Asia region" (USM 2007 p37).

The Invisible University would also be technologically-dependent, using cyberspace models, in particular the Massachusetts Institute of Technology (MIT) Open Courseware (OCW). This university would have non-centralised, scaled-back administration, supporting "flexible student-lead and student-centred" learning, in order to facilitate a "knowledge-for-all concept" (ibid).

The Corporate University scenario envisions the university dealing with a 30% reduction in state funding through private funding, partnerships with industry and commercialisation of products and expertise. The corporate university would operate independently but would be highly regulated, and would use the government's physical campuses in exchange for taxation and rent. Effective governance and quality control would play a large part in ensuring the sustainability of this scenario.

By contrast, the needs of local industry would be a key focus of the State University, which would be niche-based in operation, but flexible in its operations. Private and public sectors would be relied on to generate growth and income, with Foreign Direct Investments (FDIs) playing a significant part in this scenario. Emerging economies such as China and India would provide talent to attend such universities (USM 2007 p37-38).

Finally the 'University in the Garden' scenario aims to introduce a more holistic-based education system, which is "autonomous, accountable and sustainable" (USM 2007 p38). Learning would be valued for its own sake, in opposition to the "McDonaldisation" of HE. Shared values, academic leadership and innovative thinking would be key aspects of the University in the Garden (ibid).

Feedback from stakeholders encouraged USM to envision a fourth paradigm – the ethical-centred paradigm, where religion, ethics and spirituality would play a part in "scientific endeavours, corporate social responsibility, workplace employee well-being, and corporate accountability in organisational pursuits" (USM 2007 pXIV).

USM found that one of the greatest gains from the scenarios exercise was that they were aroused from their "cocoons of self-comfort and complacency to a multifarious future fangled with all its uncertainties and lurking dangers" (USM 2007 Executive Summary). In any case, the exercise allowed USM to gain helpful insights into their "strengths, versatility as well as the general preparedness of our citizenry to welcome and embrace change" as well as sensitising the university to their "inherent weaknesses and the external constraints that are obstacles in our pathway to future progress" allowing USM to visualise a "journey into uncharted waters" (*ibid*).

Of particular interest in USM's study is the importance placed on environmental factors and sustainable development, as USM sees HEIs as having a crucial role to place in advancing these issues through both research and education (Dzulkifli 2007). While the student may see education as a success if it leads to a job, if the job is in a polluting industry, USM does not view this as a successful outcome. Rather, success is defined by the student's ability to get a job of benefit to society. This view is reinforced by policies in the university, such as banning motorbikes from campus for environmental reasons, and engaging students in planting a tree which they must look after for their time as a student (*ibid*).

8.8.4. Other Futures Studies

Georghiou and Cassingena Harper (2006 p5) outline how at present many universities have generic mission statements, but visions genuinely used to drive change are much less common. Some exceptions are the University of Melbourne, the University of Manchester and Dublin City University.

The University of Melbourne is producing a strategy called Growing Esteem, which will be used to develop a new funding model by 2015, based on the Triple Helix metaphor of research, teaching and knowledge transfer. Among the university's plans are the provision of professional programmes at graduate level, and undergraduate programmes with "a more coherent general education with fewer courses and subjects, and a range of well-defined pathways into graduate study" (University of Melbourne 2006). The university acknowledges that Growing Esteem "goes against the grain of current Australian expectations" in HE, and for this reason, they will have to explain the value of the 'Melbourne Model', to illustrate its pedagogic and access benefits (University of Melbourne 2006).

Meanwhile the University of Manchester has expressed key performance indicators to transform the institution into a world élite university in its 2015 vision, following the recent merger (University of Manchester 2006 cited by Georghiou and Cassingena Harper 2006 p5). In Ireland, Dublin City University is also engaging in a Futures exercise, using groups of internal and external members to identify strategic priorities for research. The exercise will be linked to a three year cycle of strategic planning and external assessment (Georghiou and Cassingena Harper 2006 p5).

8.9 Research

It is beyond the scope of this review to delve fully into future possibilities in the area of research in HE. However, some possibilities for further discussion are outlined below.

While Newman's 'Idea of a University' emphatically dismissed research from the university so that it was free to give full attention to the teaching of students, today's academics are expected to combine teaching and research. There is, however, little evidence that undergraduate students benefit from or are even aware of the research being conducted by their teachers (Smith and Webster 1997 p37).

Research from the United States suggests a negative correlation between the research orientation of faculty and student satisfaction with the teaching that they get (Smith and

Webster 1997 p37). Astin (1993 cited by Smith and Webster *ibid*) goes so far as to conclude that:

> the university's increasing difficulties in offering a high-quality undergraduate education can be traced primarily to the massive expansion of university-based research which leads to the appointment, promotion and emulation of 'stars' who do not teach much, whose identities are defined through their research rather than through teaching, and who tend to eschew more student-centred and innovative forms of teaching.

Abeles (1998 p611) believes that in the future, the number of academic 'superstars' will increase, in both research and teaching. While some will fulfil both roles, more academics will choose a preferred position in which to specialise.

Barnett (1996 p155) makes the case for dividing the roles of research and teaching in HEIs. He recounts that while rhetoric in the UK suggests they are closely linked, as a sociological claim, Barnett finds that this statement bears "no serious examination". A draft report from the Commission on the Future of Higher Education in the US (2005 cited by AAUP 2006) outlines how "undergraduates are being short-changed" because "many professors are excessively preoccupied with research (and) pay too little attention to innovative teaching techniques". This is supported by Vincent-Lancrin (2004 p253), who believes that a strong knowledge economy requires a "strong research sector and the development of LLL at an increased pace", but this can occur either "within or outside the university" to be effective.

As research is also carried out by industry and government on varying scales in different countries, it is possible that many HEIs could be passed over in future research contracts, in favour of contractors from outside the educational sphere. In a country the size of Ireland, with many HEIs, it may be more effective to cluster research 'centres of excellence' in key institutions, instead of attempting to carry out large scale research in all HEIs. The concentration of resources in key institutions could attract the best minds and students, instead of spreading resources thinly in all areas. It would also permit faculty to concentrate on the area which interested them most, without feeling compromised to do both activities. However, the counter argument may be that institutions would become purely teaching or research based institutions, with faculty who are keen to do both being alienated.

8.10 Conclusion

The potential scenarios outlined in this chapter for HEIs offer them significant scope for discussion and options for evolution to ensure their viability in the coming decades.

Those institutions currently fitting the 'traditional' university model appear to face a series of changes in mission and form if they are to compete with new players or other institutions taking advantage of developments in technology or funding models, except for those universities catering for specialised interests. Smith and Webster (1997 p32) warn that the demise of the university may well be evidenced if it defends itself on the rationale that it is an authoritative provider of knowledge, as there may well be other providers "better equipped for the provision of skills".

The role and fate of the academic in the scenarios described above vary significantly, from a situation where they have high earnings and consultancies, to one where their role is automated, and they are 'proletariatised'. They may not be able to stop the tides, as has happened in other trades and professions, but as intelligent individuals, they need to consider their preferred future, and act on it.

As far back as 1982, Coombs (cited by Knapper 1985 p145) predicted that by the year 2000, the number of students in HE would have increased, alongside a "tightening financial squeeze" and a "worsening relationship between education and employment prospects". While it is debatable if this scenario has fully played out, it is a prediction which would not sound entirely out of line with the views of other commentators considering the next twenty years in HE. To ward off this pessimistic forecast, Coombs recommended a "more comprehensive, flexible and innovative educational strategy", which would require "radical changes in conventional educational thinking, methods, organisations, structures, and practices" (*ibid*). This recommendation in turn would also fit well into current comment on the future of HE, reflecting the cyclical nature of change in the HE landscape.

CHAPTER 9 - CONCLUSION

Universities over the centuries have repeatedly shown themselves to be durable institutions, with the capacity to change and adapt while "maintaining their traditional ideas" (Coaldrake and Stedman 1998 p1). The current crises facing universities and other providers of HE occur in the context of significant change in society, as the knowledge economy and advancements in technology make the provision of skills and learning imperative for developed societies.

Some of the key drivers exerting pressure on the university to respond to change are changes in society, governance and demography; developments in technology; environmental crises; and the influence of the economy.

This review outlines some potentially significant trends under each of these driver headings. At present, certain trends may not be particularly imposing, but in the future, they will perhaps have more of an impact.

Demographic drivers such as the birth rate or dependency ratios can impact on the potential audience for HE in the future. Ageing societies or societies with falling birth rates will have to look to non-traditional students to fill places where traditional-age student cohorts are declining. Universities can also look to the international market, as the unmet demand in transition or developing countries causes students from these countries to seek HE elsewhere.

Demographic drivers link closely with societal drivers. With changes in skill sets and the importance of HE for career progression, society is increasingly demanding access to HE, for traditional age-students, mature students, women, ethnic minorities and other groups denied HE in the elitist tradition. As HE becomes universal, a degree is no longer a guarantee of work or status, and so participation in LLL and fourth level education will rise in knowledge economies which depend on innovation. Universities can capitalise on this opportunity if other providers of HE do not step into the market before they react. Another aspect of change in society which will impact on HE is the global nature of change. As markets become increasingly international, so too must HE in order to produce graduates capable of competing in the workforce, thus education becomes globalised, and in many cases standardised and available in any location through the internet or technology.

Technological drivers are the enabler for many Futures Scenarios outlined for universities in the future. Already technology enables researchers to innovate in a new manner, and ICT allows researchers to collaborate and cooperate on an international scale. In terms of teaching, technology and new media are currently present in some classrooms, and it is predicted that learning objects will increasingly replace academics and supplement lectures. In some cases, the physical campus of the university is predicted to disappear, as technology and ICT replace the lecture hall, allowing students anytime-anywhere education. Various institutions may find the costs of investing in technology, particularly in knowledge-dependent areas such as nanotechnology, too onerous and may change their mission to focus on teaching only.

Changes in governance will also impact on the University of the Future. Frequently traditional universities are multi-million Euro industries, with huge capacity to generate new knowledge and income. With the scales of finance involved, governments, funders, students, parents, regulatory bodies and society in general are increasingly demanding that universities be more fiscally accountable, and ensure value for money received. The business approach in HE is seeing many academics alienated, as they lose control previously accorded to the community of scholars. Professional administrators are now charged with the business of running HEIs, enabling change in the process, even in the most prestigious of institutions.

Economic drivers affect HE in knowledge economies, employers and government look to HEIs to produce competent graduates, who are capable of delivering in a global market. With the rise of service industries, graduates are crucial for certain roles. As producers and teachers of knowledge, universities can capitalise on demand for HE, providing they are not outbid by new entrants to the market.

Of the six key driver headings, the environment does not feature strongly in HE literature on the future of the university, compared to other headings. But as all other factors depend on a viable environment and planet for survival, environmental drivers may play a greater role in the University of the Future, as "if all education is for the future, then the future needs to be a more explicit concern at all levels of education" (Hicks 1994 cited by Sterling 2001 p23). This could be manifested in changes in the location of universities, resources consumed, outputs generated, curricula and so on. The 'Sustainable University' may become a more common feature in HE, as around the world, hundreds of institutions of higher education are experimenting with ways to limit their use of resources and to improve the lives of people, both locally and globally. Some of these strategies are straightforward 'best practice' environmental actions such as promoting the use of renewable energy sources: encouraging

cycling, walking and recourse to public transport; buildings constructed of local and renewable materials; recycled paper, computers and other materials and machinery; the `green' design and layout of campus buildings and landscape; sourcing and procurement of local produce; and the responsible disposal of waste.

Other wider initiatives include the ethical investment of university finances; students and staff helping to construct affordable housing and similar civic works, and university volunteers working in elementary and secondary schools to teach about sustainability and help raise the general academic performance of local students.

More centrally of course, there has been the development of academic programmes in the broad field of environmental science, planning and resource management; the establishment of specialised research and study centres concerned with various aspects of sustainability, and the adoption of `civic engagement' and community involvement practices and projects across the curricula.

Broadly speaking, in describing futures scenarios for the university, two contradictory theses have been put forward. One is optimistic or ascendant, where the move towards a knowledge-based society means that learning and knowledge are on a par with heavy industry, and universities, as providers of learning and knowledge, are very important for the country they serve (Martin and Etzkowitz 2000 p9).

On the other hand, there is a `declinist' view of the future of the university, as it is under threat from governments and others expecting universities "to do more useful things (to produce more applied knowledge, to develop more useful skills in students" (Martin and Etzkowtiz 2000 p9). In this sense, there is a very real threat to the universities autonomy. New entrants in HE are also a threat. However, it is worth noting that this declinist prediction refers to the traditional university, not to higher education providers generally, as those who adapt to society's needs and pressures face fewer threats than unchanging, unresponsive institutions.

For Thorne (1999 p120) there is one certainty about the university of 2025, and that is that it will "look substantially different" from that of today, as "we face a time of great challenge, change and opportunity". The Registrar of the University of Warwick in the late 1980s once commented that "attack is the best form of defence, or in university language, that optimism, some risk taking and a willingness to attempt new things represent a better policy than caution, cut-backs and academic conservatism" (cited by Smith 2005 p11). It is in this spirit that HEIs need to approach their future, as society increasingly demands access to

learning and skills, and governments demand greater accountability and transparency. Institutions exploring their options for change can address growth, market repositioning, restructuring (for example location, organisation, staffing) or income generation (OECD 2007b p32) with the aim of accepting and managing risks that are "commensurate with the opportunities and benefits they expect to achieve", instead of eradicating or avoiding risk entirely (*ibid* p44).

There are huge opportunities to be capitalised on by HE providers if they behave in a flexible and responsive manner. In 2002, Duderstadt (p12) observed that there were thirty million people in the world who were fully qualified to enter university, but for whom there were no places available. The IDP Education Pty Ltd (cited by Hatakenaka 2004 p8) forecasts global demand for international HE is set to exceed 7 million students by 2025, four times as many as the global demand in 2002, while Duderstadt (2002 p12) predicts that the number of people qualified to enter university will rise to 100 million potential students by 2012.

Facing into the future, each individual institution will have to examine its own mission, as according to Clark (2005 p183) "complex universities operating in complex environments require complex differentiated solutions. One hundred universities require 100 solutions". The current diversity to be found in HE providers is 'valuable' and where an institution can resist homogenisation they should, because:

> …on the university-led pathway, reform avoids at all costs a one-size-fits-all mentality… and) encourages institutions to freely carve out their own solutions in combinations of the traditional and the new…These new measures reflect their particular possibilities as well as their particular constraints – and especially their particular acts of will (Clark 2005 p183).

Clark believes that "one by one, as the twenty-first century unfolds, universities will largely get what they deserve. The lucky ones will have built the institutional habits of change" (Clark 2005 p184), as it is "not the strongest of the species that survives, nor the most intelligent; but the one most responsive to changes", according to Charles Darwin (cited by USM 2007).

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