The Future of Higher Education Provision in the UK: Workforce Implications

A review of the literature: a report to HEFCE

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1. Introduction

The concept of 'university' has been around for centuries and yet the majority of British universities have yet to reach their 50th birthday. The higher education sector has been through extensive change over a relatively short period of time and this is likely to continue in the future.

This report was commissioned by the Higher Education Funding Council for England (HEFCE) to consider the higher education workforce in the future in order to inform the 2010 Higher Education Workforce Framework (HEFCE 2010/05a).

2. Methodology

How does one research the future? The very notion of researching the future is a paradox. The word 'research' lies within the time boundaries of the past and the present so to research the future appears a logical impossibility. When researching the future, no one method is appropriate in isolation. Quantitative forecasting, extrapolation and time series have proven useful where there are raw numerical data to work with, such as demographic trends. However, given the nature of 'the future' itself, such raw quantitative analysis needs contextualising and interpreting in light of the assumptive constructs. In this particular study, a literature review was undertaken to report the findings of an intelligence gathering exercise carried out in December 2008-January 2009. This summarised findings from the literature that are relevant to the HE sector: from an economic analytical viewpoint; demographics; socio-political analysis; analysis of the education sector and research sector themselves; business process analysis and other non-related futures studies that will impact on the future workforce and context for this study, as outlined below.

Economic analysis – current analysis investigating economic indicators most closely related to engagement with higher education and those dependent upon outcomes of higher education.

Demographic analysis – the population eligible to attend higher education in 2018 has already been born and hence relatively reliable extrapolations can be made of demographic trends for the next 10 years and the implications for the provision of higher education.

Social and political analysis – as the world becomes increasingly globalised and democratised there are a range of social and political issues that could impact the next 10 years in higher education. This analysis includes a review of digitalisation and the impact that this is having on the ways in which people live, their expectations, aspirations and means of communication.

Educational analysis – by understanding where higher education has come from and how it has been changing over the last 20 years, trends and ideas can be extrapolated for a further 10 years. This will also include, amongst others, current government educational initiatives, such as the Leitch Report, the increasing

professionalisation agenda within the children's workforce, the Bologna agreement with regard to higher education credits, the new 14-19 diploma and the expansion of foundation degrees.

Business process analysis – drawing on the fields of management and leadership, employee development, change management and wider Human Resources Management (HRM) models relevant to the future development of the higher education workforce are explored.

Futures analysis – a review was carried out of futures studies that have been published in any of the above areas relating to higher education or the future of higher education. In particular, attention will be paid to The State of the Future Index prepared by the United Nations University Millennium Project, Future Survey produced by The World Future Society and relevant articles in 'Futures', the leading academic journal published by Elsevier on futures studies and issues.

The process of selection of the literature to review was based on searching academic databases, relevant government department websites, and various futures journals and publications using the terms 'future', 'HE' and 'University'. The focus of the review was on specific sectoral publications that had not been previously read by the authors, and works that built on previous work carried out by the research team. The lead researcher in the team, for example, completed her doctoral thesis at Durham University on 'The Future University', which gave a ground base of literature from which to build.

3. Economic analysis

3.1 Introduction

The most significant point for discussion in terms of economic development in the literature is the further development of the knowledge economy and the implications this will have on the global market for higher education. The concept of globalisation itself is also grounded in economic analysis and the increasingly competitive global market for students is a point for concern. Although it is not yet represented in the literature, since we were commissioned to undertake this project, the world has experienced a sharp economic downturn that is being named 'the credit crunch', which has resulted largely from a loss of confidence in the banking sector due to the banking sector's mismanagement of its risk base. This is also likely to have a significant impact on the HE sector and will be discussed further in this section.

3.2 The knowledge economy

In today's knowledge economy, the role of higher education is being redefined – not simply tweaked and fine-tuned. Disruptive forces may be stemming from technology, particularly in publishing, including:

- unbundling (taking content from various sources, mixing it and creating new ways to produce it) which in turn is affected by the digital divide, models of authorship and costs of production
- demand pull (move from producer push to demand pull) as students take a minimalist approach to browsing
- ubiquitous access (all information is becoming accessible freely by one form or another, anytime, anywhere) and open access materials are becoming the new norm, challenging the university as an institution that provides access to knowledge
- the rise of the pure property view of ideas (IP rights) impacting on the relationships between students and professors with regard to the generation of new ideas.

Opportunities include:

- exploring new models of scholarly communication (moving from print to digital repository software)
- using copyright in the service of sharing (e.g. through the creativecommons.org mechanism) which allows licences with reservations
- embracing mass digitisation (ubiquitous access) to free up scarce resources
- leveraging cost curves (managing to abundance rather than scarcity) to take full advantage of low marginal costs
- participating in the open source movement to break down monopolistic practices and prevent the sector becoming over commercialised (Hilton, 2006).

Knowledge economy policies are currently very powerful drivers of change in contemporary university approaches to research. They typically orientate universities to a national innovation system which both positions knowledge as the key factor of economic growth and sees the main purpose of knowledge as contributing to such growth (Kenway et al., 2004). This view implicates technology with enormous power as an agent of change and increases time pressure to produce innovation due to market forces, which in turn increases the risks associated with innovations; this can lead to dishonesty, lack of reflexivity and a loss of selflessness. Kenway et al. argue that this is a narrow, reductionist logic to knowledge economy policies and that the university should have a wider public contract than generating knowledge for those who can pay for it, making a wider contribution to a broad, rich knowledge base which is attentive to social and cultural knowledge as well as traditions. They argue that a vibrant and generative intellectual community is underpinned by a gift economy based on reciprocity according to social and ethical codes and that while commodification creates freedom of the object and subject, it leads to the destruction of the social and the ethical, which in turn leads to a breakdown of communities. Hence the future of the ‘knowledge economy’ needs careful managing rather than being left to market forces.

‘In a post-industrial society, knowledge will be regarded as a national property or resource and its cultivation and optimization provides [sic] paramount hope for an economically secure future at the top of the global food chain’ (Forstorp, 2007). Hence the West will dominate the knowledge economy in an extension of capitalist colonialism and manual work will be transferred to other parts of the world.

The major global educational discourses are about the knowledge economy and technology, lifelong learning, global migration or ‘brain circulation’ and neoliberalism. The major institutions contributing to global educational discourses and actions are the World Bank, the Organisation for Economic Cooperation and Development, the World Trade Organisation, the United Nations and UNESCO. International testing, in particular the Trends in Mathematics and Science Study and Programme for International Student Assessment, and instruction in English as the language of commerce, are contributing to global uniformity of national curricula (Spring, 2008).

In order for the UK to be a nation of world class skills to compete in the knowledge economy by 2020 we need a shift in attitudes and aspirations in workplaces, schools, colleges, universities, government and society itself. Creating the right skills culture requires a collective effort – over 70% of the 2020 workforce are already adults in 2010 (Department for Innovation, Universities and Skills, 2007). Demand led development rather than supply driven is key, hence a suggestion of changes in funding mechanisms to fund HEIs on results with business rather than intake numbers (Leitch, 2006). The proportion of the population with graduate qualifications, and the percentage of GDP invested in education, are lower than many other countries including the USA, Canada, Sweden and South Korea. Leitch suggests that we have over-targeted young people at the expense of engaging with employer and work-based qualifications, favouring full-time undergraduate students with funding rather than part-time students who are also employees. He notes that we are unlikely to grow the graduate population within the current framework and provision.

This sentiment is echoed by the Chartered Management Institute. Tomorrow’s workforce will be increasingly individualistic, older, mobile, international, ethnically varied and far more demanding of their employers (CMI, 2008a). There is doubt as to whether the education system can produce the right number of people at the right skills level in the future. Over 20% of UK nationals with a degree live in other OECD countries while immigration tends to be unskilled or low skilled workers. By 2010, fewer than 20% of the full-time workforce will be white, able bodied men under the age of 45 – the historical core of the workforce.

3.3 Globalisation and education

Much of the debate about the type of person the education system should be producing has been framed within a national context (Lauder et al., 2006) rather than a global context. The knowledge base that underpins global development is vast. It includes cultural knowledge, cognitive skills, languages, ICT skills and the ability to relate to people who hold a different set of assumptions to your own. The task for education therefore is to ensure that children and adults learn and develop the skills,

knowledge base and abilities to allow them to function to their optimum within this global environment.

Eckersley (2007), writing about teaching and learning about globalisation, views the concept as having developed from the field of international relations but sees it now as essential to be included in any discussion of political, economic, cultural and social issues. The concept of globalisation, therefore, appears to have become all pervasive. The relative wealth and power of countries and even continents around the world are an important part of the globalisation concept. Indeed, it is this economic foundation to the analysis of activity that frames it as globalisation rather than internationalisation. Internationalisation is essentially 'between nations'. Globalisation, on the other hand, is about economics, as it is linked in discourse to the concept of the 'knowledge economy'.

The Fielden report (2007) uses Knight's (1994) definition of internationalisation as its starting point, which is the process of integrating an international/intercultural dimension into the teaching, research and service functions of the institutions. This definition is quite insular as it is about bringing an international element into the university, although it does stretch to include study abroad, exchanges and accreditation of overseas partners. Globalisation may be better defined as both a strategy and an impact, with a more external focus, perhaps 'the promotion of intercultural dimensions in teaching, research and education service functions in an international market context' (Blass, 2008).

Fielden (2007:6) offers a table which outlines how 'internationalisation' is occurring both at home and abroad in terms of current practice in UK HEIs. These could equally be reconceptualised in terms of the definition of globalisation offered above, such that they are no longer seen as activities, but initiatives with a specific purpose.

Table 1: Adaptation of 'internationalisation' and transformation to 'globalisation' in higher education (Blass, 2008)

Internationalisation at home (Fielden 2007:6)	**Re-interpretation as globalisation at home**
Internationalising the curriculum and related materials. Foreign language study for home students. New courses with international themes. A mix of international students. Involvement of international students in teaching/learning process. International academic staff. Intercultural campus events. Liaison with community groups. Student placements with local ethnic organisations.	Adapting the curriculum and materials for a global market. Foreign language study. New curriculum development on globalisation. Increased diversity of student population. Integration of peer-learning strategies across diverse student groups. Increased diversity of academic population. Intercultural campus events to celebrate a global calendar. Integration of overseas students with local relevant community groups. Student placements to maximise international networks and opportunities.
Internationalisation abroad (Fielden 2007:6)	**Re-interpretation as globalisation abroad**
Home students studying abroad. Academic staff working overseas on teaching, research or consulting. Delivery of courses offshore jointly with partners. Accreditation of partners' programmes as part of a home degree/award. Establishment of an offshore campus delivering home degree/awards. Establishment of joint research centres abroad. Research projects undertaken abroad. Capacity building or technical assistance projects. International volunteering and charity work.	Improving employability through international experience. Academic sabbaticals overseas to generate a presence overseas. Development of offshore partnerships for income generation. Development of offshore accreditation for income generation. Development of offshore research centres for research efficiency. Offshore research to ascertain Western interpretation of offshore development. Capacity building projects to model Western methods offshore. Pro-social fulfilment and good marketing through charity offering.

The left hand side of Table 1 lists activities that are currently occurring in UK universities as part of the 'integration' process of internationalisation. The right hand side of Table 1 reframes these activities so that they have more of a purpose than simply to achieve integration. Most of the 'globalisation at home' elements underpin a marketing strategy of making the university more attractive and inclusive of the global

marketplace. Most of the ‘globalisation abroad’ elements are driven by the economics of income generation. Why else would Western universities be engaging in this form of activity? While the individual academics involved in actually delivering offshore activity are enthusiastic about the learning that they have gained from their experiences, this is not shared institutionally, nor is it appreciated or valued within the academic performance management frameworks. Hence this contributes to ‘teacher quality’ rather than ‘teaching quality’ (Jasman, 2008). Many UK academics are very reluctant to become involved in offshore developments as they amount to a lot of extra work for them in terms of administration and no significant payback. At the end of the day, the driver behind this activity is economic.

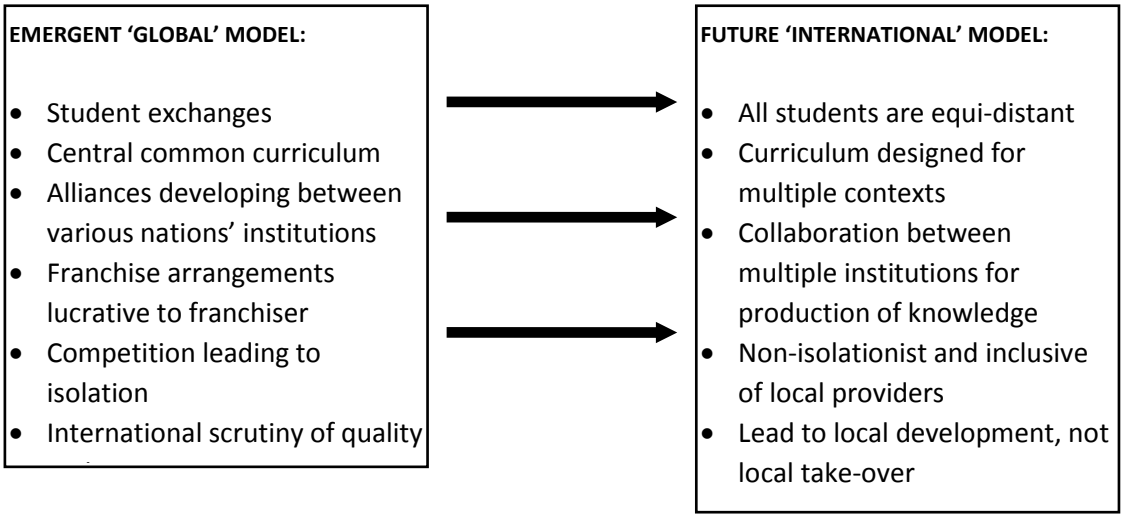
Globalisation as a concept has resulted in higher education institutions behaving as business enterprises much like any other business in the Western world. Rather than embracing the opportunities for diversity that internationalisation offers, it is falling prey to the dominant economic discourse through the development of strategies that exploit market opportunities. Sentamu (2000:51) argues that we should be valuing cultural diversity in education, presenting a relatively liberal view that offers a more inclusive view of globalisation. ‘Education must challenge our complacency, our prejudices and our misconceptions.’ To him globalisation is an opportunity for further development and exchange of ideas, rather than the one way opportunistic approach currently being practised.

The cultural perspective offered by Spring (2008) offers a sustainable future for the development of global higher education rather than the post-colonial perspective currently dominating the horizon. If we are to create a model of globalisation that has a liberal, meaningful purpose with regard to pedagogy, curriculum and educational philosophy, we need to move away from a market driven approach and revisit the roots of university as a place of moral development (Newman, 1853). Higher education is in a unique position in that it has the opportunity to contribute to democracy as well as economy. Globalisation is driving the economic agenda over the democratic agenda and this cannot be good in the long term for the health of the planet. The two, of course, need not be mutually exclusive, as economic success can develop from the success of democracy; it is questionable whether or not it can be achieved the other way round.

The force of globalisation has led to a focus on creating wealth regardless of distribution, which leaves minorities within nation states needing to surrender their cultural identity for economic progress, which in turn leads them to revolt and look to the international community to deliver (Orstrom Moller, 2003). As such people around the world are starting to question the mantra of globalisation in search of a set of common values to keep the powerful nations reined in and legitimising intervention. Orstrom Moller questions whether the powerful nations would respect such rules in the interest of internationalism and argues that tolerance needs to come into the picture, moving the world towards a value-based and value-controlled system rather than economic considerations only.

Blass (2003) proposes a global university model that is inclusive rather than isolationist, moving the emergent international model to a future global model. Writing now, the terms 'global' and 'international' might be reversed as globalisation has been dominated by an economic agenda and internationalisation has regained the collaborative ground. As such, the model below has been adapted to allow for this change.

The global university model (adapted from Blass, 2003:74).



Not changing in the future is not an option. Higher education in the UK is too expensive in comparison with other counties and numbers of overseas students applying to study in the UK will decline (Bone, 2008). The one year full-time masters cash cow is losing popularity to two year options including work placements being offered by other EU nations. Overseas students are perceived as revenue to UK universities rather than internationalisation being embedded in HE strategy.

3.4 Funding the HE sector

Funding is the key issue for the future of universities and there is a danger that they will shift too far towards focussing on economic success at the expense of education (Marginson, 2004). The university may be a self-serving corporate, but it could also be a source of major change on teaching, learning and research, a producer of common public goods and a fountainhead of culture and civilisation, amongst other things. Marginson discusses the many different roles attributed to the university, starting from the liberal ideal of the university conducted within the humanities. Other roles include: the policy specialists' focus on the tasks of system organisation, government policy and institutional management; the modern mass education ideal for a global competitive state; the role of the university in constructing national culture; the postmodern idea of the university playing a role in the authorisation of truths. Finally, Marginson identifies two further roles of the university; that as a standalone corporation swinging free of government in its own global marketplace, subjected to the familiar rituals of leadership and management; and that of the research-intensive, innovative university driven by technology transfer and research and development (R&D). Marginson identifies funding as the key issue for the future

of universities and suggests this is impacting on the choices of what type of 'multiversity' to be.

Social competition in HE and inter-university competition is steepening the university hierarchies, with the formation of a world market elite and a closer alignment of social hierarchy and educational hierarchy at a national level (Marginson, 2004). Also, there is a tendency to fund what can be measured and hence institutions become better at playing the games associated with the metrics and league tables rather than attending to their core purpose (Eastwood, 2008).

Complacency and a failure to take on ideas 'not invented here' combined with risk aversion and a lack of foresight in competitor analysis is resulting in the HE sector becoming vulnerable as there is demand for higher quality at lower costs (Egol, 2006). The tendency towards hallowed tradition and the status quo needs to be replaced by a vision for HE which meets the needs of the information age and offers a new learning paradigm to the ever-changing needs of students and society.

There are lots of calls for more funding in additional areas in the future, such as a common framework for the examination of research degrees (Powell and Green, 2003), the development of a core e-infrastructure for education (Cooke, 2008), development of research capacity throughout the UK (UUK, 2008b), or provision of open access knowledge materials (Armbruster, 2008), for example.

Equally, there is much recognition of the need for new, or additional, funding sources to become available in addition to the public purse. Whether this should come from increased tuition fees (Vincent-Lancrin, 2004), overseas students (CHERI, 2007), employers (Blondal et al., 2001), or research funding (UUK, 2008e) is debateable.

A final point to note here, although the data is largely anecdotal, is the legacy of the credit crunch and the debt laden society. Members of this research team were involved in a widening participation study of young people in the West Midlands who were opting not to go into HE. One of the key reasons they were not going to university was to do with fees and getting into debt. They were witnessing the stresses and strains that debt was putting their families and their communities under, and they did not want to enter this arena. This finding is contrary to national studies on student fees and the fact that applications to universities have not declined since student fees were introduced, however we foresee this as a big issue for the future. If this is coupled with the credit crunch, what we have is the government and banks desperately trying to get people to borrow again to get the economy going, but individuals are resisting. The current economic downturn appears to have stemmed from debt mismanagement and while the government and banks may not have learnt any lessons from this, individuals have. As such, engaging in three years of debt to undertake full-time study will be increasingly unattractive to the next generation and they are more likely to look to study part-time while working full-time to fund their lifestyle. This will create a massive shift in the sector towards part-time provision of

undergraduate qualifications – something for which the sector is not currently prepared.

3.5 Key points that will impact on the future of the HE workforce

The key points to take forward from this section are:

- the knowledge economy views knowledge as an economic asset and a driver for knowledge development, rather than an end in its own right
- research is seen as leading to economic growth rather than the development of an intellectual community
- knowledge ownership may be a means of Western domination of the world if current trends continue
- we need to develop a demand led skills agenda, being responsive rather than offering what we can do
- globalisation is currently driven by an economic agenda and we need to move beyond this if we wish to retain our international student base and reputation
- need for greater collaboration internationally, particularly within the EU
- funding will be the major issue driving activity in the future
- competition within the sector is steepening hierarchies which do not benefit anyone
- a shift from full-time to part-time undergraduate provision could occur to avoid personal debt
- there is a lack of confidence in society that education can provide the right number of people with the right skills level at the right time.

4. Demographic analysis

4.1 Introduction

The most significant point for discussion with regard to demographic trends in the literature has to be the combination of the shrinking, aging population in the developed world combined with the expanding, increasingly young population in the developing world. These trends are unsustainable in terms of provision of food, energy and shelter, simply in environmental terms, in addition to the economic costs. However, the focus of this report is on the future of higher education in the UK and hence those trends that will impact on this directly and relatively indirectly are discussed in this section. A number of demographic projections are already published with regard to HE in the UK and these are not reproduced in detail here, although the key points are of course drawn out (UUK, 2008c).

4.2 World demographic trends

Over 50% of the world's population is under 20, but Western countries have shrinking populations, meaning there is massive expansion of young people in Africa and Asia

and an aging population in the West as a result of progress in medical science and genetics (Mayor and Binde, 2001). This will result in more countries becoming dependent on migrant workers; the UAE already has 80% migrant workers and Saudi Arabia has 34%. Coupled with the data on the knowledge economy and globalisation in section 3 this migrant workforce is likely to be largely unskilled and could lead to a dual labour market consisting of a market of knowledge workers consisting of largely nation state citizens, and a market of relatively unskilled manual/service providers consisting of a largely migrant workforce that services the needs of the knowledge workers.

The predicted number of 18-20 year olds in the UK from 2009 to 2019 will fall before rising again in England to 2027 (UUK, 2008a). This age group currently accounts for 70% of full-time undergraduate entrants. Older age groups where part-time undergraduates are currently recruited from will rise modestly. Student enrolments from outside the EU are not impacted by demographics but rather by factors such as reputation. Numbers of students taking A levels does impact on enrolments, as does social class of father's occupation, which is rising. UUK suggest that HEIs need to: play to their strengths and establish niches in the market; engage in schools to increase the number who see HE as an option for them; further develop partnerships with FE and other non-traditional providers; increase collaboration with other universities in subject areas which are in decline; identify and exploit new markets and increase employer engagement.

If the UK does want to be world-leading in higher level skills then it has to recognise that most of these will be gained on a part-time basis as the context for education changes (King, 2008). The current government target stated in the Leitch report of 40% level 4 by 2020 can only be achieved if part-time student numbers increase (Leitch, 2006). This is partly due to funding considerations and partly due to the potential size of the full-time undergraduate marketplace (traditionally 18-20 year olds) shrinking. Between a tenth and a fifth of the UK population is still functionally illiterate in terms of reading a newspaper, filling out a form, or reading a timetable (Mayor and Binde, 2001).

A 10-year time series analysis of HE information (1997-2007) has shown growth in HE enrolments of 28% at undergraduate level and 45% at postgraduate level (31% overall) (UUK, 2008e). China is the best recruiting ground for international undergraduate students and India for postgraduates. There are increasing proportions of mature students and a slight increase in minority ethnic groups and low socio-economic groups. Women are in the majority in all modes as at all levels. There has been a decline in male enrolments by, on average, 3%.

Recent government policy for 14-19 year olds in likely to increase the proportion gaining level 3 qualifications and progressing to HE through the introduction of diplomas and the requirement that education or training continues to age 18. These measure could increase entry to HE by 25,000-70,000 across all years, but the decision to withdraw funding for students studying for a qualification equivalent to or

lower than one they already have will reduce numbers by 40,000 over 20 years (UUK, 2008d). Full-time undergraduate and international students from outside the EU are hence considered vulnerable segments of the market for the future, while part-time undergraduate and postgraduate taught numbers are expected to increase.

The rest of the world is also up-skilling relative to the position in the UK. For example, scientific and mathematical literacy in the Western world is falling in comparison to China and India, which could lead to a national crisis in capacity in critical areas (Jackson, 2004).

4.3 Demographic trends in the workplace

In addition to raw numbers, there are changes in demographic trends within the population. For example, we are seeing fewer married families with children, more people choosing to live alone and people living longer in the Western world, such that minority groups are likely to become the majority in Western countries by 2050 (Zolli, 2002). This will pose its own challenges for the academic workforce. The results of the CMI environmental scan of the workforce for 2018 suggests that the demographic changes of a shortage of young workers, increase in older workers, more women and more ethnic diversity in the workforce will result in few 'techies', more flexible working, more imaginative working arrangements, varied career paths and more creative talent management strategies (CMI, 2008a).

Three generations are currently represented in the workforce: the 'baby boomers' (now approaching retirement) are the post-war generation who 'never had it so good'. Generation X are the 1960s and 1970s children who grew up experiencing the end of the Cold War and are often characterised by their traits of independence, resilience and adaptability, and 'Generation Y' born 1978-1994 who are often described in the popular press as ambitious, self-absorbed, gregarious, demanding, confident and believing they can change the world (McLeod, 2008). The CMI tested some of these anecdotal assumptions and perceptions and found that of Generation Y young managers: 48% were female; all had considerable financial burdens from university fees; 41% lived in rented accommodation or with their parents; 31% had been in their current job more than six years; 63% work contracted hours and minor amounts of overtime only (not long hours) and 49% worked away from the workplace. Four factors were found to attract them to jobs: career development; working environment and values; lifestyle and the need for change. 90% want to work for an organisation that does something they can believe in and 97% believe that building transferable skills is important (ibid).

The CIPD has also published research that shows that each generation has characteristics that are not related to their stage in life (CIPD and Penna, 2008). Their research showed that the baby boomers now want to give up the long hours culture for a better work/life balance and half are considering working beyond retirement age. They are the least likely to opt for or value teamwork and are more likely to stay with their current employer but not likely to recommend them to others. Generation X see flexibility as core to their work ideal, are happy to work long hours

and are loyal to other members of their organisation rather than the organisation itself. Generation Y allow the competitiveness of their package to affect their performance effort and would work long hours if there was extra reward. They focus on a good work life balance while maintaining employability, like challenge and want personal development opportunities.

4.4 Key points that will impact on the future of the HE workforce

The key points to take forward from this section are:

- the population in the Western world is shrinking and aging
- the population in the Developing world is expanding and becoming younger
- minority groups will form the majority of the population in the West by 2050
- Generation Y are motivated by career development, working environment and values, lifestyle and need for change and want a good work life balance.

5. Social and political analysis

5.1 Introduction

The single factor that is impacting most on social trends is the use of technology, not just in terms of the learning, but also as a means of communication, particularly for the younger generations. This said, over 65s spend four hours per week longer online than 18-24 year olds, so any ideas about the younger generation needing to be online constantly are myths (Williams and Rowlands, 2007). While the specifics of technology and its role within higher education are discussed in section 4, the broader issue of the impact of technology on learning is discussed here. Finally, there is discussion around the political issues stemming from the role of education in promoting democracy or the spread of Western hegemony.

5.2 Technology and learning

The term ‘digital’ is used to refer to the underpinning technological base that allows ‘virtual’ learning to occur. Digital learning is an inevitable reaction to technological developments in other areas of society and hence it makes intuitive sense that education should try and ‘keep up’ with the presumed ‘ICT revolution’ and ‘information society’ (Selwyn, 2007). The field of digital learning, virtual learning, e-learning and so forth is littered with jargon such as: ‘blogs’, which are essentially electronically kept diaries which can be made available to the world to read; ‘wikis’ which are documents that can be generally shared so that other people can contribute to them as well as the initial author; ‘social networking’ and ‘chat rooms’ which are where people correspond with each other through text rather than oral conversation; and so forth. The important point to note is that there is now a digital alternative to most human interactions and where there isn’t, there is probably a new media being developed to allow it.

Each new media is met with a form of ‘moral panic’ in society. First we had the panic around the introduction of TV, then video, then videogames and then the internet. As each new media is introduced, a kind of historical amnesia falls over the previous panics and the technologies come to be accepted and embedded in our lives. These moral panics stem from a representation of children as vulnerable, innocent and in need of protection from the faults of society which no doubt the new media is going to enhance. They are underpinned by the middle-class assertion of the right to define what is good in society and the struggle for government and/or church authority to legislate for standards and values (Livingstone, 2002).

MP3 players, mobile phones and social networking on the internet are the norm amongst prospective university students who are still at school or college (MORI, 2007), although they were seen as tools that augmented rather than dictated their social lives. Equally, this age group suspects that if all learning is mediated through technology it would diminish the value of learning and hence have ICT expectations around university increasing access to data and research resources rather than using ICT for teaching and learning itself.

Miller (1996:40) suggests that: ‘In the traditional paradigm... technology serves two basic purposes. First, it extends the reach of the institution, increasing student access to the instructional process. Second, it offers opportunities to improve the effective presentation of knowledge to students.’ He argues that as education moves from a teaching to a facilitating role, technology’s role changes. While it continues to increase access, the nature of that access changes with the use of electronic media and the internet. This moves education to a ‘media-rich learning environment in which different technologies are brought to bear on the goals of the curriculum itself’ (ibid:41), in a way that is integrated, seamless and user-driven. It is the user-driven element that could ultimately separate the digital achievers from the non-achievers, or the digital learners from the digital players. The fact that the locus of control is with the user/learner rather than the teacher/facilitator means that the individual is more in control of their own destiny than they are in a more traditional school environment.

The right and left sides of the brain process different types of information simultaneously, but one side may dominate when we think. The left side processes verbal information, encodes and decodes speech. The right side processes simultaneously rather than linearly, is visual and spatial. The primacy of the word in education has endured for centuries and is left brain centric, while digital media offer a whole brain experience, including the eyes and ears in the learning experience (Romano, 2003). Human beings have always been conditioned to learn under the guidance of other humans and teaching and learning has been driven by emulation, shared aspirations and a special bond between a learner and a teacher. Hence Romano identifies four primary obstacles to the effective use of technology in education:

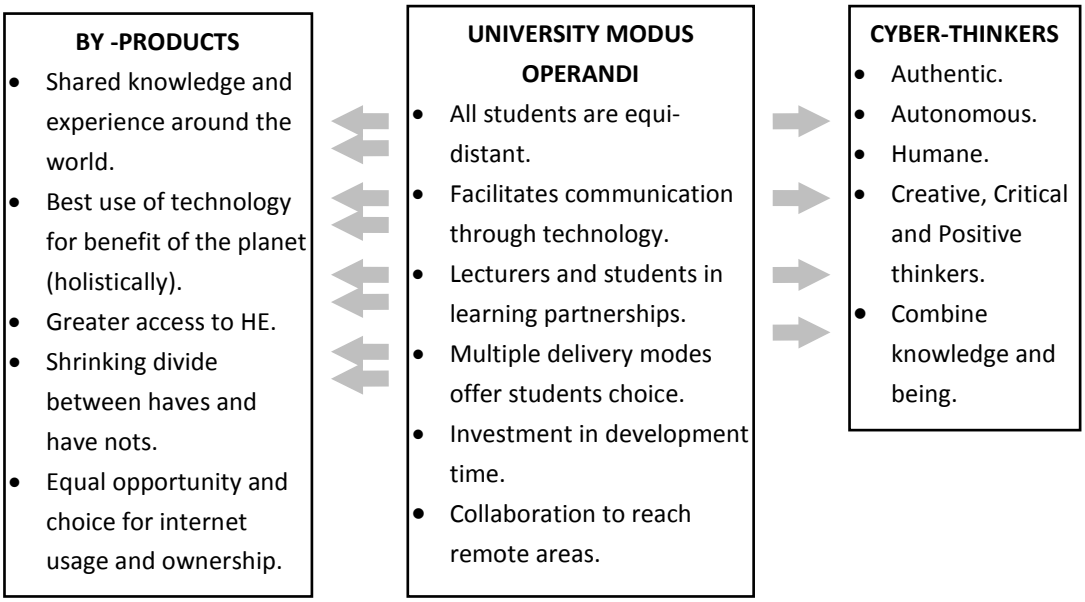
1. The expectations regarding ‘revolutions’ in education are unrealistic. We need to add technology to what is already there and build on that through skilfully managed evolution rather than search for a great leap.
2. Teachers lack a clear understanding of how technology would empower them, with some erroneously perceiving it as a threat to their professional security rather than an amplification of their capacity to function.
3. Efforts to train teachers to use technology are for the most part counter-productive leaving them feeling confounded rather than enlightened.
4. The crucial significance of course-specific software has not been generally acknowledged and most of the time software available off-the-shelf does not adequately integrate into the curriculum, hence negating its effectiveness. The curriculum needs to drive the whole brain technology enhanced curriculum, not the technology.

This course-specific software issue is echoed in other studies. For example, software development was found to be socially situated and intertextual in distinctive ways, such that in social settings which differ from those in which the software was designed, expectations, conventions and transactions do not necessarily follow the same procedural logic as is anticipated in the design (Snyder and Prinsloo, 2007). Another study looked at children’s use of a digital learning package in the classroom and found that the children’s goal shifted to being mastery of the software and the scoring function, finding a way to cheat, rather than the content of the learning itself as the content was not presented in a manner which was engaging enough for the children and therefore did not hold their attention alone, nor was it course-specific in its design (Walton, 2007).

Crossman (1999:111) argues that the ‘three Rs’ of Reading, wRiting and aRithmatic will be replaced by the ‘four Cs’ representing Critical thinking, Creative thinking, Comspeak (the oral replacement for the written language), and Calculators. He refers to VIVOlutionary learning, representing ‘Voice In, Voice Out’ communication with computers. Teachers will not be obsolete in this model but their role will change significantly from the class teaching role currently practised. ‘Teachers will act as intermediaries between students and the world of information, helping students draw on resources around the globe’ (Hines, 1996:9). There is clearly a role of basic literacy to underpin this four Cs curriculum as reading, in particular, becomes a core skill for digital interaction. Typing perhaps replaces the ability to hand-write and grammar and spelling can be corrected by the software being used.

Blass (2003) views the idea of a virtual university as a benefit to students, allowing them to develop as ‘cyberthinkers’, framing technology as an enabler rather than disabler in higher education.

The virtual university model for the future (Blass, 2003: 72)



Educational challenges in 2020 include availability and the constant updating of teachers' skills at all levels as the quality of education will depend on:

- the quality and commitment of the teacher and their relationship with the student and family
- educational content of all disciplines but especially civic education and the values required for shaping the attitudes of responsible citizens
- the introduction of electronic networks as tools for assisting learning
- the use of scientific knowledge and historical and social awareness to facilitate the construction of cultural and ethical points of reference for multiple forms of citizenship
- the gradual development of educational institutions towards a flexible, non-hierarchical form of management that will transform them into more autonomous educational enterprises with shared common educational standards (Mayor and Binde, 2001).

Schools also need redesigning to include spaces for creative ways of learning and ICT, blurring the boundaries with the outside world through sustainable design, rather than the dull, uniform, institutional look they have at present (SBDU, 2002).

5.3 Technology and knowledge production

The new world appears to be global and multidisciplinary. Digital search engines can select appropriate documents faster than any human could read through and synthesise them and, having mastered computation outcomes, the IT industry is now considering communications (Jackson, 2004). This shifts our skills base to one of needing to be able to critically review and evaluate data rather than becoming reciprocals of knowledge as it will be the value we give to knowledge that we review that will be important rather than the knowledge set itself.

Electronic publishing will increase in status and academic authors will be less reliant on mainstream publishers (Gunter, 2007). This could lead to a switch to non-exclusive copyright licensing for research articles to enable the emergence of a competitive market (Armbruster, 2008). Disruptive forces stemming from technology with regard to knowledge production which are challenging the university as an institution that provides access to knowledge include:

- unbundling (taking content from various sources, mixing it and creating new ways to produce it)
- the digital divide
- models of authorship and costs of production
- students taking a minimalist approach to browsing (Hilton, 2006).

However this does lead to opportunities to explore new models of scholarly communication, use copyright in the service of sharing and the embracing of mass digitisation to free up scarce resources, which would break down monopolistic practices and prevent the sector from becoming over commercialised (ibid).

Technology, however, should not be the solution to all knowledge production issues. As half of the languages in the world (particularly those with oral rather than written histories) are dying out in response to globalisation, urbanisation and industrialisation, the need for books to supplement and complement the digital age in offering a foundation in learning is irreplaceable (Mayor and Binde, 2001). Digital media are constantly being updated and replaced. Print offers a more permanent, historical record.

Knoke (1996) predicts that education will be in a multimedia environment in the future, where anything that is not cutting edge will be done by simulation, recording or database access and formal qualifications will disappear. ‘Employers will be more interested in what a student knows right now, than what he once knew. Because of the advancement of knowledge, learning will become not a one-time event like a vaccination, but rather an ongoing process for life’ (ibid:305). Therefore the ability to constantly re-evaluate knowledge in light of new knowledge production will become a core skill in the knowledge economy.

5.4 Technology and its impact on society

Ziegler (2007) argues that the effects of the many forms of media on children and young adults are having a cumulative effect that adds to the growing culture of disrespect in society. He defines mass media as a ‘socialising agent’ such that those who are exposed most to media are more likely to adopt the social realities portrayed by the media and cites a significant link between exposure to violent videogames and increases in aggressive behaviour coupled with decreases in helping behaviour. He also questions the extent to which such a relationship impacts on the process of moral evaluation and desensitises adolescents towards violence.

Cetron and Davies (2008a) found that young people have more in common with each other than they do their parents, no matter where they are located, as they communicate globally through social networking within their generation rather than conversing orally across generations.

Listening to rap and/or violent song lyrics has been significantly influential on 'risky' behaviour amongst young women (violence, sexual promiscuity, alcohol and drug use) and exposure to sexual storylines on television seems to be impacting on the incidence of STDs and unwanted pregnancies in American youths in particular (Ziegler, 2007).

5.5 Education and democracy

Marginson (1999) notes that globalisation is irreversibly changing the politics of the nation-state and its regional sectors, domestic classes and nationally-defined interest groups and yet modern education systems are creatures of the nation-building project. He argues that governments have moved to a new form of sophistication setting regulatory bodies that cause others to behave in the manner that achieves their objectives. Welfare states have come under pressure as the divide between the rich and poor grows. While the nation-state remains the key site of law, governance and politics and democratic organisation, it is also the location of social cohesion and the place where the politics of class and socio-economic distribution are fought out. In the global era, the politics of difference in education becomes more important than before with regard to the challenge of valuing diversity. Questions of access and exclusion remain crucially important because of the power of education in allocating life chances and these questions are now more likely to focus on culture groups and on concerns about the cultural character of curricula and assessment, particularly in light of the demographic trends outlined in section 1.

There are three ways that technology can impact on democracy and citizens: access to information; access to the political process; and access to the topics or issues that are debated, discussed and legislated. An informed citizenry is key to a healthy democracy and to make educated decisions in a democracy, individuals need to be able to evaluate the validity and reliability of information, synthesize multiple sources and determine a position or plan of action (Crowe, 2006). This highlights the role of education in helping people to understand the information they access and in evaluating the information they access and in emphasizing multiple perspectives. Becoming active in the political process does not happen due to increased access to the political process alone, education has a role to play. Students who progress their education beyond school are more likely to vote (Torney-Purta, 2001).

Education aimed at teaching 'good citizenship' has more to do with voluntarism, charity and obedience than democracy (Westheimer, 2008). Good citizenship to many means listening to authority figures, dressing neatly, being nice to neighbours and helping out at a soup kitchen – not grappling with the kinds of social policy decisions that every citizen in a democratic society needs to understand. Patrick (2005) asks: what are the characteristics of a good education for democracy? He

makes the case that a verbal cognitive proficiency, that enables one to use core concepts to interpret information and act effectively in political and civic life, is the most relevant cognitive ability in relation to democratic citizenship. Those with less of the intellectual capital needed for constructive engagement in political and civic life have less opportunity to seek and gain the benefits of democratic citizenship. They lack the capacity to participate (Patrick, 2005).

O'Brien identifies a need for future change in order to prevent societal breakdown. He claims that in the US a high percentage of the millions of students now in school have learnt to live by the bell and passively tolerate boredom, irrelevance and absurdity in their educational lives in order to achieve future material rewards accruing from selected occupations. Schools by and large do not help students to understand themselves or their worlds. They do not serve to open minds, open doors, open possibilities. They do not support the irrepressible possibility of humans. They do not help children ask and attempt to answer the essential question of 'who am I in the world?' Rather, he notes, the underlying function of US schooling is to indoctrinate children into a system of social engineering that trains them to be quiet in the face of authority, passive in the face of adversity, intolerant in a world of diversity (O'Brien, 2006). Thus democracy is subverted by a very un-democratic process of education. This picture could equally be painted of the UK.

Pike (2007) questions the role of citizenship education in the UK. He argues that the mandatory citizenship curriculum in England does not aim only to foster skills and transfer knowledge, but is designed to influence citizens' values and actions. If the beliefs, values and activities of some citizens are to be influenced by other citizens, this raises a number of legitimate questions. What happens when the ways in which children are taught to live and exercise their citizenship at school runs counter to the ways in which parents and communities teach their children to live? What role should the state have in inculcating certain commitments, beliefs and values if these differ from those of the child's family? Does the state have the moral right to be involved in the lives of its citizens in such a way? If learners are to be respected as citizens rather than treated as subjects, he argues that they should be encouraged to critique the beliefs promoted by and the practices associated with, the new citizenship curriculum they are now required by law to study (Pike, 2007).

Education institutions are more politically central than ever, yet they also seem to be weakened as the nation-state's room to move in the global arena is fiscally curtailed. The global education players are emerging as the global elite. As technology continues to emerge as one of the political battlegrounds in terms of who controls cyberspace, education programmes are also becoming the site of new kinds of political contention (Marginson, 1999).

5.6 Key points that will impact on the future HE workforce

The key points to take forward from this section are:

- digital learning will become all pervasive allowing individuals to study at their own pace throughout their lives
- changes in copyright and knowledge sharing will stem from electronic publishing making knowledge more universally accessible
- learners will want whole brain learning experiences
- there will be a need for course specific software development on a common e-infrastructure
- the role of education in developing citizenship needs to be tempered with the development of democracy.

6. Educational analysis

6.1 Introduction

HEFCE outlines four core strategic aims[1] in its strategic plan 2006 to 2011: enhancing excellence in learning and teaching; widening participation and fair access; enhancing excellence in research and enhancing the contribution of HE to the economy and society (HEFCE, 2008). HEFCE views a diverse sector of autonomous institutions working with the full confidence of its stakeholders as the key to success. Each of these is considered in turn in this section, with the addition of international students as the international student experience of HE in the UK could impact the future shape of the sector.

6.2 Teaching and learning

UNESCO suggest there are four pillars of education which should run throughout a person's life: learning to know; learning to do; learning to live together; and learning to be (Delors, 1996).

By 2050, education will have become interdisciplinary as children are encouraged to think from multiple perspectives to solve problems and teachers facilitate the learning of their students through multimedia classrooms where students study at their own pace. The physical setting will allow for groups of peers to learn together and teachers will be team-teaching in learning spaces. Testing will become non-standardised to foster creativity and students' development of interests. Freelance online instruction will increase as laptop learning becomes the norm. In essence,

[1] The most recent HEFCE strategic plan 2006-11 (updated June 2009) now identifies seven core strategic aims: Enhancing excellence in learning and teaching; Widening participation and fair access; Employer engagement and skills; Enhancing excellence in research; Enhancing the contribution of HE to the economy and society; Sustaining a high quality HE sector; and Enabling excellence.

everyone will become a distance learner and shared new meanings will be constructed through the use of collaborative tools via the internet. Global literacy will be redefined away from the three Rs to accessing, analysing and evaluating communication in a variety of forms (Zolli, 2002). The boundaries between school and university will become blurred, as learners progress at different paces throughout their lives. This vision is already developing as a reality for some, but it may take until 2050 for it to be the norm for all.

The curriculum will also be experiencing change. DIUS is now defining science as all-encompassing knowledge based on scholarship and research undertaken in the physical, biological, engineering, medical, natural and social disciplines including the arts and humanities, which is underpinned by methodologies that build up and test increased understanding about our world and beyond (DIUS, 2008b). It notes a barrier in getting academics to engage with the public, perceiving 'the public' as being for those not good enough to engage with other academics and see a key role for academia and business in explaining how science is developed and used as part of adult learning due to the strong demand for scientists and technicians in the labour market.

A Becta[2] study on Next Generation Learning sees five key themes with regard to harnessing technology in education: promoting a technology-related learner entitlement to close the gap for disadvantaged learners; putting in place universal access to power learning tools, content and support for family and informal learning; helping to secure better teaching by exploiting the benefits of technology to support teaching; mobilising leadership to support innovation and knowledge transfer; and developing a fit for purpose system-wide national digital infrastructure (Becta, 2008). It calls for collaboration in provision to achieve economies of scale and also recognise the blurring of boundaries between different levels of education.

The internet has become the first source for information for young people with their studies and also for social networking/meeting new people and downloading music which now exceeds sales in shops (Williams and Rowlands, 2007). However, they do need guidance on how to formulate search terms and carry out rigorous searches rather than simply browsing (see research below). They also have difficulty evaluating the relevance of the search find and the quality of the content of the literature. Power browsing and flicking through texts rather than reading in depth is becoming the norm in their studies. They also use older library materials more often than recent publications but whether this is due to poor researching skills is unknown (Tenopir and Rowlands, 2007). They underutilise print information sources and rely on each other for personal recommendations, downloading articles and printing them off to read them.

[2] Becta is the UK government's agency leading the national drive to ensure the effective and innovative use of technology throughout learning. For further information see: http://www.becta.org.uk/

Until the internet boom, higher education was mainly offered in three formats; full-time, part-time and a traditional form of distance learning involving self-directed study around paper-based guides (with telephone tutor support), supplemented with residential blocks and summer schools providing an interactive element. There were also some bespoke corporate programmes being provided but these were delivered in the form of a combination of the above. E-learning differs from the other forms of delivery because it changes the element of tutor:student and student:student interaction such that it occurs through computer-mediated technology, rather than face to face or even over the telephone. Margules (2002:3) argues that 'like it or not, the storage and distribution of information and the associated teaching and learning pedagogy aided by technology, is now undermining the more traditional methods of teaching, learning and research'. Given the focus on knowledge transfer at the expense of behavioural skills currently being witnessed in e-learning qualifications (Birchall & Smith, 2002), there is a danger that a proliferation of such qualifications will result in a form of social de-skilling in the workplace. Blass et al. (2007) argue that e-learning offers a new teaching and learning paradigm and as such requires a new qualification system to recognise this difference; they propose a BE (Bachelor by e-learning) to sit alongside the traditional BA (Bachelor of Arts) or BSc (Bachelor of Science).

A report on measuring and reporting student achievement has already concluded that while the UK honours degree is robust and a highly valued qualification, the classification system itself is no longer fit for purpose (Burgess, 2007). It cannot do full justice to the range of skills, knowledge, attributes and experience of a graduate in the 21st century and acts as a summative, simple numerical indicator which is at odds with lifelong learning. Burgess recommends a Higher Education Achievement Record along similar lines to the European Diploma Supplement along with an academic transcript. The Quality Assurance Agency for Higher Education (QAA) offers broad guidance in the form of a framework and table of comparators of credits across different systems and credit accumulation and transfer (CAT) points, clarifying that institutional freedom will be maintained in terms of approach to learning, learning outcomes, module credit size, assessment and so forth (QAA, 2008).

6.3 Widening participation and access

The government mantra on HE is 'never have universities been more important to Britain' (DIUS, 2008a:3) proffering the idea that local provision will reach out to those who have missed the opportunity of HE in the past and proposing to establish 20 more HEIs in areas that are underrepresented by HE and in need of regeneration – possibly in partnership with FE. Using Essex and Birmingham as examples of economic development of a region and Kent and Suffolk as examples of community engagement, DIUS are not being prescriptive about what the new HE centres will look like, but are aiming to draw in the estimated 5 million adults who are qualified to go to university but don't (DIUS, 2008a).

Gorard et al. (2007), in their wide ranging review and evaluation of the widening participation (WP) literature, with others (Newman, 2008) also argue that WP initiatives, interventions and support strategies are best focussed on the pre-entry qualification arenas, in particular schools and FE. They suggest that almost every person qualified to HE entry level actually goes on to HE: 'The qualified age participation rate is near 100 per cent' (Gorard et al., 2007). There is also some evidence that GNVQs, vocational courses and possibly the new diplomas can hinder progression into HE. Whilst GNVQs are designed to have more open assessment mechanisms, to be competency based and include problem based learning and key skills development, the transition to more academic study for these students is often difficult and these qualifications are not necessarily recognised or given equal status by admissions tutors (Sinclair, 2006). Applied knowledge generally remains lower in status (Smith, 2000) and this is one of the 'barriers' to HE progression that is recognised as significant by Aimhigher (2006). This lack of progression for students with vocational qualifications may also in part be explained by the recognition of those who hold them that they are thought less of than A-levels, that their holders would be 'negatively labelled' within HE environments, and that they are 'a less good preparation for university study' (Hutchings & Archer, 2001:87).

Overall there is strong evidence that non-traditional, disadvantaged and under-represented groups of students are less likely to successfully complete their courses (Yorke, 2005; Quinn et al., 2005; Forsyth & Furlong, 2003; Gollins, 2005). Strategies cited in the WP literature as effective in retaining students include the use of active learning techniques, creating a sense of achievement and a sense of belonging both on a student's particular course and within the institution as a whole (Parmar, 2005). Students need to be academically prepared, have at least adequate study skills, to have chosen the right course for them, not be experiencing financial difficulties and be able to form good relationships with tutors and peers. The approachability and helpfulness of academic and administrative staff also has a strong influence on retention, as does useful and timely feedback on course work (Parmar, 2005). Burke, Ahmed & McKenzie (2005) recommend the provision of learning advisers as an aid to retention, while Hannan (2005) found that WP students in receipt of bursaries had higher rates of completion than those without them, even if the amount of the bursary was relatively small.

UNESCO seeks great cooperation and solidarity within HE around the world and aims to: widen participation and access to HE around the world; develop a global approach to quality assurance; mobilize stakeholders to widen the funding base; promote synergy between teaching and research; protect academic freedom and institutional autonomy; and respond effectively to the communities it serves (Daniel, 2003). It calls for reforms with regard to governance, finance and the balance between public and private higher education.

6.4 Research

In 2005, the EU identified an innovation gap stemming from a bottleneck to universities contributing fully to the Lisbon strategy due to the uniformity of

programmes offered and conformity to a standard model, insularity from industry with limited knowledge sharing and mobility, over-regulation and under-funding. Four major categories of university were identified as: comprehensive (some of which are research-intensive); regional; specialist (some of which are research-intensive) and private. In research-intensive universities, research is driven by organisational culture and internal competition facilitated by external reputation. At non-research intensive universities it is more difficult for individual academics to get research off the ground and to sustain it. Although universities may claim to make research a priority in their mission statements, the actual drive comes from the individual. Research represents a prime area of interest for the academic intrapreneur[3].

The interaction between universities and the private sector, which has increased contract research and the expectation of immediately applicable research results, has given rise to various new types of units in universities (Rinne and Koivula, 2009). Entrepreneurialism in the UK means for the most part income generation and the main reasons for change have been market competition and responses to external pressures. The entrepreneurial university can be seen to be more responsive to social and economic demands than the traditional university. Entrepreneurialism in the area of research is dependent on a secure funding base and the creation of supportive infrastructure; a reliance on market forces alone does not generate a research culture (Shattock, 2009c).

The fifth annual survey of HE-Business and Community Interaction shows continual increases in third stream activity[4] with contract research being the largest growth area in terms of value (HEFCE, 2006a). Much of the activity has been with non-commercial organisations and income from the sale of spin-off companies is falling rather than increasing, although the actual number of spin-offs is increasing.

In their report 'Trends in Scholarly Information Behaviour', Rowlands and Fieldhouse identify and track some of the main trends in scholarly information behaviour over the critical period from 1995 (the beginnings of the impact of the internet) to the present (Rowlands and Fieldhouse, 2007). They report a shift from Mode 1 to Mode 2 knowledge production being reported in the literature and more articles being cited within other articles (i.e. we are reading more) and more articles being collaboratively written. They question whether availability of articles is driven by costs, efficiency, over-production and expansion of sources, or by public good, arguing that open access publishing would lose the academic prestige associated with restricted access. Electronic is replacing print because of its increased functionality in terms of searching, remote and multiple access and so forth. Within two years, usage of electronic journals outweighed print journals by a factor of eight and the print journal is in severe decline. Electronic books are largely rejected by the academic community at the present time. The introduction of electronic databases has led to a

[3] An academic with a flair for innovation and risk-taking who is given unusual freedom to develop products or subsidiary business within an HEI.

[4] interaction between UK higher education institutions (HEIs) and business and the community

shift from browsing to searching and researchers appear to read more primary source materials than previously from a wide range of sources. End-user search tools and changing work practices are the main drivers.

The European Commission sees a need for researchers to be more mobile between member states as a means of establishing networks and increasing mobility (UUK, 2008f). Short term mobility for attendance at workshops and conferences appears good, but long term research contract mobility is poor and hence the EU is losing the benefits that would accrue from knowledge exchange and the sharing of teaching and learning experiences. Social security provisions and funding incentives are major barriers to mobility and hence early-career researchers are the focus of most initiatives.

Half of UK HEIs receive less than 2% of quality-related research funding (UUK, 2008e) and between 2003 and 2007, research funding increased by a greater proportion than teaching funding in the sector.

6.5 Contribution to the economy and society

The modern university is arguably participating in the breakdown of human communities and the destruction of the natural world, impoverishing rather than enriching the world, through its adoption of the dominant economic paradigm (Ford, 2002). By adopting an underlying assumption that HE should help make the world a better place by enabling human beings to live more meaningful and satisfying lives, by helping promote social justice and environmental sustainability, Ford argues for a curriculum focussed on the state of the world, sustainable cultures and social movements, which is a huge change to those that argue that there is nothing fundamentally wrong with the university and that the problems are relatively superficial.

The need for societally-connected thinking that involves mandatory interdisciplinary courses at every level of education, systems (non-linear) thinking and commitment to problem-solving is also proffered as a solution by those who argue that our current educational system is not teaching students how to think critically or preparing them for a long-term commitment to solving major societal problems (Louria et al., 2003).

The Institute of Directors commissioned a survey of 500 of its members regarding the skills and qualities they particularly valued in graduates and how prevalent these have been in recent recruits and how prepared young people are for employment in general. Employability skills were taken as skills, knowledge and attributes other than technical competence which makes a graduate an asset to their employer. Only 25% thought that young people were prepared for work and 40% felt they were unprepared. While 52% had employed graduates in the last five years, 68% were satisfied with the occupational skills and knowledge while only 55% were satisfied with wider employability skills. The biggest skills gaps occurred in business acumen, leadership, negotiating/influencing and decision making. Deadlines, literacy and numeracy were the worst performed of the top 10 skills required (IOD, 2007).

Entrepreneurialism in HE stimulates external collaboration, most notably with industry and commerce, but not exclusively so and reinforces academic performance by attracting additional resources and widening the research agenda (Shattock, 2009a). It is also often referred to as innovative, proactive or adaptive. Shattock offers a definition of entrepreneurialism as 'a drive to identify and sustain a distinctive institutional agenda which is institutionally determined not one which is effectively a product of a state funding formula' (ibid:3). He refers to intrapreneurs as those academics who build substantial research and teaching enterprises outside traditional structures funded largely from external sources.

Williams (2009) identifies five categories of entrepreneurial behaviour within the HE sector: new private HE institutions; new development in public universities stimulated by government; major institution-wide initiatives by public universities; smaller-scale departmental, faculty and centre ventures and freelance teaching, research and consultancy. He notes that a lack of money can force new ideas to come forward and raises the question of whether it is financial need or personal interest that drives entrepreneurial behaviour.

Institutional entrepreneurial activities are encouraged when:

1. Core income from government is tight but not inadequate for some new initiatives.
2. Governments promote and support third mission activities.
3. A significant part of any income earned from new initiatives goes directly or indirectly to the groups and individuals that have the ideas, take the risks and do the work.
4. A commercial culture is acceptable to a significant number of the academic staff.
5. Unofficial private entrepreneurial or freelance ventures are regulated.
6. The university is active in subject areas where continuous professional development and research findings are commercially or socially valuable (Williams, 2009).

Knowledge economies need techno-preneur academics who have three over-lapping sets of attributes: techno-scientism combining scientific rationality with instrumental and opportunistic sensibility; commercialism/entrepreneurism which sees academics not only commercialising new knowledge and contributing to the growth of the economy but also contributing to the flow of capital of the university itself; and knowledge networking with other leading researchers and with industry such that interactive learning is a driver of innovation (Kenway et al., 2004). The techno-preneur therefore has networking skills, techno-scientific orientation and an entrepreneurial sensibility.

Universities UK showcase 26 leading business-facing universities giving examples of specialist degree provisions to meet industry requirements, remote degree provisions

to dispersed organisations, degrees run in collaboration with industry sectors and employers, use of work placements and start-up incubators, arguing for greater promotion of entrepreneurialism throughout all curricula (UUK, 2006). In the business world, HE would be considered a mature enterprise, increasingly risk averse, at times self-satisfied and unduly expensive (White and Glickman, 2007). Innovation would be the introduction of a new method, idea or device and in HE could include quality mechanisms, technology, ways to reach learners with disabilities, and curricular innovations. While IT may come with a higher price tag than administrators might hope, the efficiency games and economies it allows should enable it to pay for itself.

One third of graduates responding to a graduate survey by the CIPD[5] say they would choose a different course when reflecting on their time at university, of these around one fifth would opt for a more scientific/technical course (CIPD, 2006).

6.6 The international student experience

While three discourses can be identified with regard to the recruitment of international students (Bolsmann and Miller, 2008), that of economic competition dominates in the UK, while the academic internationalism and developmental discourses are unplanned by-products of the competitive discourse in action.

The international mobility of students and academics is growing and new technologies connect scholarly communities around the world (CHERI, 2007). Curricula and credentials are now required in order for an offering to have international currency and English is becoming the international language.

Some universities in the UK rely on overseas students to keep them solvent, particularly in postgraduate studies (CHERI, 2007). However, international students complain about the UK host culture, social activities, informal welcome atmosphere, local orientation, friendships and money – including difficulties with the banking sector (Bone, 2008). The demand for postgraduate programmes amongst international students depends very much on the reputation of the sector worldwide (UUK, 2008c).

The HE sector currently contributes £4bn per annum to exports of research activities, transnational activities and international students and a quarter of the EU framework programme comes to the UK (UUK, 2008g).

6.7 Key factors affecting the future HE workforce

The key points to take forward from this section are:

- teaching will be transformed into facilitation of learning for all age groups

[5] Two samples of recent graduates were surveyed for their views – the first sample of 331 respondents graduated in 2000, and the other, of 545, graduated in 2005.

- the curriculum will be developed further around a broader definition of science to include the arts and humanities
- the internet will become the primary source of information in society and information evaluation will become a core skill
- qualifications expressed as summative grades will lose relevance as wider expressions of achievement mean more in the workplace
- increasing numbers will achieve HE entry qualifications
- an increase in contract research will be necessary to support funding for research activity
- research funding will be inequitably distributed amongst institutions
- entrepreneurialism will be promoted as a new funding base
- international experience of students needs reviewing if the UK is to retain its international student base.

7. Business process analysis

7.1 Introduction

This section focusses on the business processes underpinning the HE sector, individual HEIs and the world of work more generally. Areas of concern are infrastructure, HRM from the HEI's perspective and working conditions from the employee perspective.

7.2 Infrastructure

The UK is losing ground in terms of being world class in its provision of e-learning infrastructure and innovation within digital learning provisions (Cooke, 2008). There is a need for open access learning materials so that students can use them to complement the courses they are taking. Such a free bank of materials is being developed in the USA and Australia and can help, for example, with attracting international students in addition to supporting current students. ICT needs to be seen more as a shared resource rather than a sense of individual institutional competitive advantage.

HEIs do not cater well for part-time students in terms of catering facilities, timetables, or with regard to financial support. Some do not even have the facility for students to pay by monthly direct debit and little consideration is given to the fact that they are usually working full-time in employment (King, 2008).

The CBI estimates the annual potential training and development budget for organisation is approximately £5bn per annum and current activity with universities accounts for £400m only (not including sponsorship on part-time courses) (CBI, 2008). It identifies potential growth areas for the future as: tailored or customised individually negotiated learning and development; accredited programmes delivered on a part-time basis in the workplace; accreditation of in-house learning towards a full award at HE level; and integrated programmes that offer progression opportunities from apprenticeship to foundation degree to undergraduate degree; with some non-

accredited, informal learning targeted at SMEs. In order to meet these potential markets, the CBI claims that universities need to improve their management of business-to-business relationships, improve the speed of responsiveness to enquiries, enhance delivery mechanisms, provide better learner support, ensure relevance of programmes, build staff capacity and capability to respond and provide better customer relationship management systems. In essence, HEIs need to improve the efficiency of their infrastructure all round and become more student or customer focussed.

Without real autonomy and accountability, universities will be neither really responsive nor innovative, as there is a relationship between their level of autonomy and capacity to be entrepreneurial (Mora and Vieira, 2009). Full autonomy is a necessary condition for entrepreneurialism but is not in itself sufficient, as is shared governance. Private institutions view themselves as less entrepreneurial than public ones as having a diversified funding base does not seem to work for them and they are highly financially dependent on a single source of income (usually teaching) which makes them prone to financial problems (Kwiek, 2009). Hence almost all private institutions are only marginally involved in research.

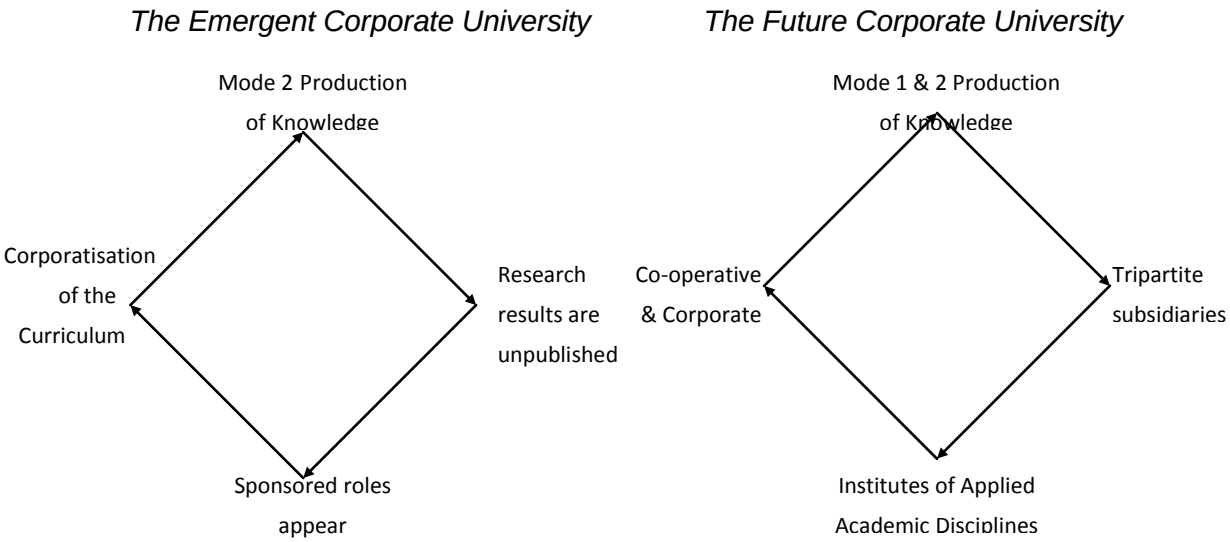
While internationalisation and entrepreneurialism can be closely linked, the correlation between the two concepts is ambivalent and multifaceted (Martinez and Kitaev, 2009). Internationalising can be seen either as an activity within a framework of market competition, or in a more traditional framework of networking and collaboration, of which the UK favours the first.

HE needs to reap the rewards of operating in virtual worlds and shift from doing autonomous work in collaborative settings to collaborative work in autonomous settings (Collins, 2008). However, difficulties in intellectual property right negotiations hinder progress in relationships between industry and academia (Wellings, 2008) and this is likely to be the same in other collaborative initiatives.

The term ‘corporate university’ is applied to three kinds of organisations: established, mainstream non-profit universities adapting to economic and technological pressures by adopting managerial practices of modern for-profit corporations; newly established, highly innovative universities that operate as for-profit corporations but satisfy the political and legal requirements for university status and meet the standards of accrediting bodies (e.g. University of Phoenix) and new educational organisations operating within and providing education and training services for, for-profit corporate firms (e.g. Marriott University, Motorola University, Unipart U) (Waks, 2002). While organisations of the latter two types provide a different product than traditional universities, they having an impact on traditional academic practices and affecting recruitment and retention patterns, academic standards, pricing in the sector and managerial culture, such that more mainstream institutions are aligning with the first type outlined above. Waks argues that corporate universities are shadow organisations in that they are either invisible or appear as imperfect copies or imitation of the ‘real thing’ but by responding to inescapable external pressures

resisted by the HE sector, they foreshadow the future and are omens of things to come.

Blass (2003:69) proposes a future model of a corporate university that is based on collaborative partnership as an alternative to the emergent model based on corporate domination.



The growth of non-prescribed courses at level 4 within FE is considerable (e.g. professional qualifications) but at the moment they do not attract HE funding. There is the opportunity for expansion in the provision of HE within FE, focussing on higher level skills and employer engagement, locally and regionally focussed in terms of community impact and more likely to attract under-represented groups in HE through progression routes rather than single qualifications. This needs a strategic rather than opportunistic approach, with partnerships between providers, appropriately qualified staff, adequate learning resource availability and avoidance of competition with each other (HEFCE, 2006b).

7.3 Workforce considerations

There will be a need for a more flexible workforce in the future (Ramsden, 2008) in which teaching is recognised and rewarded, careers are more adaptable, scholarship is reintroduced and professional training is aligned to reforming the curriculum and assessment to be interdisciplinary, transferable and global. At the moment, HE employers provide among the better employment conditions when compared to the whole economy in terms of holiday, sick pay, contractual hours, maternity pay and paternity leave (IDS, 2008). Indeed, HE staff have received the best pay rises in the public sector for several years and the sector currently continues to offer final salary pension schemes (UCEA, 2008).

The current system of developing researchers in the UK appears to be working reasonably well and hence does not appear to need a complete overhaul according to Thrift (2008). However, research careers are not always attractive to the best

graduates. The points of potential talent loss are many and go beyond funding, salaries and contracting conditions, too often intangible issues that could stem back to limitations regarding resources, status, etc. There is no clear mechanism for establishing supply or demand of researchers over the longer term in the UK. The numbers opting for research careers in the UK is comparatively low compared to USA, Australia and other countries, so the idea of a research career needs to be introduced at school as well as at university. Growth of PhDs amongst UK residents is less than for other EU and non-EU residents within the UK and the Russell Group have a different researcher profile to the post-1992 universities. The doctorate is no longer viewed as a route only to a traditional research career but as a more widely relevant qualification to gain employability and skills. There is a need for stitching together initiatives to develop clear career paths for researchers in the future in order for them to remain in the UK (Thrift, 2008).

Relatively little research has been carried out recently into the views of academics as a profession. Given this report is to support a study on the future HE workforce, the question of what motivates academics to join the profession appears pertinent, but is not something for which data was readily available. To this end, a small, opportunistic sample were questioned to shed some light on this area and although by no means representative of the sector as a whole, do give some indication of the factors that contribute to their joining, remaining and intending to remain in the sector for the foreseeable future. Factors that were commonly mentioned, in no particular order, include:

- autonomy
- challenging working environment with lots of personal learning
- research and development opportunities
- collegiality and great people to work with
- real love of working with students and helping them succeed
- work-life considerations (location, family, flexibility, pay)
- career progression opportunities including leadership/management.

Loyalty appears to be stronger towards colleagues and students/the sector for the academic staff and to the institution itself for professional and managerial staff. Also, many of the academic staff happened across jobs rather than specifically setting out to be academics (apart from a few who came straight in from PhDs). Those that entered the profession from the public or private sector were looking for a change of job generally, not specifically looking to undertake academic careers – although they do all come from professions and teach in professional subject areas.

7.4 Human Resource Management

The total number of academic staff in the UK increased by 11% in recent years, but the proportion over 55 is greater than that and up to a quarter are international staff (UUK, 2007). Students are the major source of new entrants into the profession, with increasing numbers being international. Inflow to the UK is at lower levels, with more

senior levels moving overseas. Other countries are reforming their HE systems which will offer greater competition to the UK academic labour market.

There has been an overall rise in the numbers employed in universities over the last 10 years and the age profile has remained relatively stable. There has been an increase in the numbers of staff from non-white ethnic backgrounds and from non-UK nationals and the gender disparity is slowly starting to be redressed (HEFCE, 2007).

HEIs typically spend 70% of their total resources on staff costs and although retention rates are high, challenges are arising in areas where pay and opportunities are often better elsewhere in the labour market (HEFCE, 2006c). Recruitment into the sector comes from students, staff joining from the private sector or overseas recruits. Career progression needs attention and more flexible reward systems will become necessary.

Human Resource Management (HRM) needs to take account of key economic, social and cultural constraints, as well as the academic tradition in HE and needs to be adapted to the policy context in which an institution finds itself (Shattock, 2009b). HEIs have full, legal independence and employ their own staff and pay them on terms created by themselves. Academic communities on the whole favour the application of equity in reward structures (hence national salary negotiations) but a balance needs to be struck between collegiality and recognising excellence. Professorial appointments have never had prescribed salaries. Academic intrapreneurs thrive when their efforts are admired, but they also need financial incentives for themselves and confidence that the institution will invest in the academic infrastructure that supports them.

Academics are becoming more globalised, professionalised and entrepreneurial, often moving away from traditional disciplines to new identities and loyalties (CHERI, 2007). There is a growing need for academics to justify and account for themselves in terms of outputs as well as activity, as their relevance is being defined by other people. The shift from the traditional academe to the relevant academe is based on strong interdependencies between the goals of HE, the rules for distributing resources and the nature of academic work and will affect the nature and locus of control of power with the academe. While the sector is resistant to change as it is steeped in tradition and traditional loyalty is to subject discipline and knowledge creation, professional managers have been brought in to manage the finances, estates and so forth. The management of academic work helps define the nature of academic roles. This could be interpreted as a victory for managerial values of professional values as academics lose control over both the goals of their work practices and their technical tasks, or a marriage where academics lose some control over the goals of their work, but retain autonomy over the technical skills of undertaking the work.

Organisational life can be a story of aspiration, altruism and endeavour, or it can be insensitive, unresponsive and frustrating and bureaucratic at the mercy of managerial

whims. Hence organisations need to let go or disorganise, otherwise the bright talent that they all need will gravitate to more open, flexible set-ups that suit their values and respond to their aspirations (Miller and Skidmore, 2004). Disorganisation unravels the routines and controls that organisations have been founded upon and upon which predictability and security rely and require three areas of focus: individualism and identity; flexibility and human scale; and leadership and participation.

7.5 Key factors impacting on the future HE workforce

The key points to take forward from this section are:

- there is a need for better infrastructures within HEIs to deal with e-learning, part-time students and business services
- institutions need to be more autonomous and accountable in terms of the governance and funding
- the corporate university model should be developed as a collaborative endeavour rather than a competitive mode
- HRM within the sector is good in terms of terms and conditions but poor in terms of processes for the future
- senior academics migrate out of the UK while overseas recruits come in at more junior levels
- loyalty to colleagues is a key factor in motivating academic staff to stay within the sector rather than particular institutional loyalty.

8. Futures analysis

8.1 Introduction

This section presents an overview of some futures studies which cover the next 25 years, drawing on multi-disciplinary studies, to give an overview of the sort of world in which the future academic will be living and working. This largely sets the context for the future university, the future academic and the future student and is presented here with a prior warning – future studies never tend to be particularly optimistic or bright.

8.2 The world we will live in

Planetary projections map an increase in desertification, decreases in available clean water, an inability to produce food for everyone as nutritional demands change and a need for a shift in energy production to more sustainable forms (Mayor and Binde, 2001).

For more than 40 years, Forecasting International has conducted an ongoing study of the forces changing our world to track shifts as either seismic transitions or temporary anomalies or fads. Some of these trends examine different aspects of very

wide-ranging developments which may overlap but overall provide a portrait of the general environment in which we live and work (Cetron and Davies, 2008a):

- the world's population will grow by 9.2 billion by 2050 and of these extra people 40% will live in sub-Saharan Africa and 30% in the Muslim world [sic], while the developed world declines by 10%
- technology is creating a knowledge dependent global society and the global economy is growing more integrated
- industrialisation raises educational levels, changes attitudes towards authority, reduces the number of children people have, alters gender roles and encourages broader political participation
- Generation X and the millennial generation dominate culture and have more in common with each other than their parents as they value and display self-reliance and cooperation
- without HE, young peoples' expectations of economic success may not be met
- people around the world become increasingly sensitive to environmental issues resulting in greater restrictive regulations to serve the interests of the community at large, but environmental concerns are still trumped by industrial development in many parts of the world
- by 2100 half of all species could disappear and continuing urbanisation will aggravate most environmental and social problems.

A global survey of 600 futurists is undertaken annually by Jerome Glenn and Theodore Gordon and published as the 'State of the Future Index' or SOFI. Variables included in the index include infant mortality rate, food availability, GNP per capita, households with access to safe water, carbon dioxide emissions, annual population addition, percentage unemployed, literacy rate (adult total), annual AIDS deaths, life expectancy, number of armed conflicts, developing country debt, forestlands, rich/poor gap, terrorist attacks, violent crime rate, population in countries that are not free, secondary school enrolment and population with access to local healthcare. The first calculation was based on two decades of historical data extrapolated and modified to take account of perceptions about the impact of future unprecedented developments such as biotech in agriculture improving food availability, inexpensive long-lasting contraceptives becoming widely available, global economic depression, etc. The outlook for the future is getting better due to the past 20 years of improvement in infant mortality rates, food availability in low-income countries, GNP per capita, secondary school enrolments, etc. At the same time it is getting worse due to carbon emissions, percentage unemployed, forestlands, AIDS deaths, etc (Gordon, 2003).

In TechTv's Catalog of Tomorrow, five themes are presented: new domains of design; hybrid areas of knowledge and invention; the rising power of the small; the rise of new agendas and the centrality of values (Zolli, 2002). Our tools will include genomics, cognetics (the mental analogue of ergonomics), artificial intelligence, wireless technology, nanobots and smart materials. E-government will increase

democracy as it allows interaction, orchestrating the collective will while protecting the rights of minorities and individuals.

A study carried out by IIR Future Trends identified eight catalysts shaping 2018, some of which will impact significantly on education (Abraham, 2008). What they call 'just in time life' is the notion that infotech is allowing people to live in the moment, making instant decisions on real time information and immediate access to products and services. This in turn changes the role of 'place' as a concept, removing the importance of physical location. Women are also out-preparing men for the future workforce in the knowledge economy with rising educational attainment and this in turn changes the role of men in society. Societal values will shift towards 'enoughness' with consumers seeking happiness rather than possessions and being more environmentally concerned and the distinction between virtual worlds and real worlds will become less apparent as goods from one enter the other. Finally, they predict an education revolution with more home schooling and virtual learning, outsourcing of tutoring and games used for learning with testing for results.

In the next 50 years, scientific development is expected to give us a better understanding of how the universe began, whether there is intelligent life elsewhere in the universe and greater gene and transplant development to prolong life and genetically enhance future generations (Brockman, 2002). Despite all these normative interventions becoming widely available, there will still be issues with depression and other psychiatric illness and although there may be new treatments, they will still not be preventable and the disease of old age will still not be understood.

8.3 The world we work in

The Chartered Management Institute outlines three scenarios for the future of work:

- the 'probably future' which represents the world continued in which business models and structures change and polarise from global conglomerates to virtual community based enterprises and knowledge management technology is essential to success as talent markets become more complex
- the 'unexpected future' which represents the alternative world where unforeseen events take the world to an extreme state of division of some form with the world of work shrinking
- the 'desired future' which represents the vision of the future with more virtual organisations with greater fluidity of skills and movement across environments through collaboration (CMI, 2008b).

The third scenario needs leaders and managers who personalise the workplace to enable people to succeed through greater understanding of future challenges, drivers and culture.

Focussing on the workplace, Forecasting International suggests:

- technology increasingly dominates both the economy and society

- research and development play a growing role and many students will come to the West to learn skills they can take back home to teach and exploit
- only half of patents will be granted to Western nationals
- telecommuting will continue to grow and specialisation will continue to spread throughout industry and the professions
- education and training will expand – as knowledge becomes obsolete, retraining and updating of knowledge will become essential
- the traditional age of retirement will lose significance
- labour unions will lose their remaining power
- second and third careers will become common and the work ethic as a value will diminish
- time will become the world's most precious commodity
- the big organisations will get bigger and the small will survive while the mid-sized get squeezed out (Cetron and Davies, 2008b).

In an attempt to give a voice to future generations, Tough (2003) gives us a best guess at what future generations might ask for if they were able to speak today and identifies four areas to concentrate on in order to give equal opportunities in the fattier:

1. Adopt a long-term perspective – detect and study the entire range of potential catastrophes or trends that could eliminate or severely harm human civilisation; try to eliminate warfare; stabilise the size of the human population and end the rapid deterioration of the planet.
2. Future-relevant research – the effort going into creating knowledge relevant to the long-term future is about a third of what it should be; we need to increase our knowledge of world problems and social change much faster than they themselves are increasing.
3. Future-relevant education – learning and teaching about the future provide an essential foundation for building a better world, accepting the need for change and taking a cooperative and constructive approach to dealing with hard choices.
4. Learning, caring and meaningfulness – developing a strong sense of meaning and purpose in life; caring based on deep connectedness to people, the planet and future generations.

Individual behaviour, social structures, economic assumptions, paradigms and worldviews will all need to change (Tough, 2003).

8.4 The HE sector

As we saw in the new century, Duderstadt outlined the impossible task ahead for universities: 'Beyond the traditional missions of teaching, research and service, the university is now expected to provide the intellectual capacity necessary to build and sustain the strength and prosperity of our society. Through its research, the university produces the new knowledge so necessary to the well being of society. It trains the teachers and scholars, the leaders, the managers and the decision makers

necessary to apply this knowledge. And it provides the key to knowledge transfer, through its graduates, through traditional scholarly mechanisms such as publications, through public service and through companies spun off its research activities.' (Duderstadt, 2000:33).

The HE sector is dominated by strategic plans which rely on simple extrapolation future techniques based on current trend data, leading to stereotypes such as:

- more concentration of research resources in elite institutions
- greater competition to work in or with these institutions
- difficulty in other institutions to attract and retain high calibre staff
- pressure on other institutions to undertake contract research rather than blue-sky research
- pressure on HEIs to massify teaching
- teaching focussed HEIs become less visible
- private sector competition for vocational programmes
- more pressure for employability of graduates
- more pressure for satisfaction with teaching and learning
- less public funding per student
- increased student fees
- more pressure for value for money
- more need for remedial classes in maths and English at entry points (Lefrere, 2007).

It implies a war of all against all which does not benefit anyone. Ideally, scenarios for higher education would be developed with due attention to the complexity of the issues affecting HE. Definitive information would need to be gathered about: who are the key actors in a globalising world – not just the current elite institutions? What are the policies, missions and goals of each type of actor? What leverage does each actor have? Managers need to focus on what their future student body will be and cut costs that are wasting expenditure (Lefrere, 2007).

While many authors may raise concerns or issues for the future university, there is no single definitive model to date. A number of different models are presented here. Duderstadt (2000), for example, offers a range of possible futures including: the world university (global); the diverse university (addresses access and levels of education); the creative university (the need for innovation and creativity in society); the cyberspace university (virtual); and so forth. Wildman (2000) on the other hand simply raises seven issues for the future university, each of which is addressed within the future university model:

1. The emergent knowledge economy – the need for insight, hindsight, foresight and wisdom (which in itself justifies the need for futures studies such as this one).
2. Globalisation – the model of the global university.
3. Community capability – the need for the global university to be locally contextualised.

4. Pedagogy of alternatives – the need for differing modes of delivery and education.
5. The post-market economy – an emerging North/South or rich/poor divide which may be addressed through the spread of digitalisation.
6. Fragment futures – the 'broken vase' picture: how can the pieces be reassembled to work in a different manner?
7. New Renaissance – the need to undo the narrowing of rational enquiry; the move from knowing to being.

Skolnik (2000) analyses the concept of the virtual university and the effect it will have on the professoriate. He has three virtual 'visions' which are the move from campus-centric education to consumer-centric (a shift in stakeholder power towards the student); from local protection to global competitiveness (a further shift in power away from the local market to the global arena) and from marketing to mergers (the idea that universities will merge in order to tackle the other two visions as they will be unable to market themselves credibly within this field). With regard to the future of the academic, Skolnik paints a bleak future: 'The competitive pressure, insecurity and instability that will likely threaten many colleges and universities in the world of the virtual university may lead them to adopt one or more of the following three strategies in dealing with faculty: economising, controlling and restructuring (ibid:59). Inayatullah (2000) agrees with this forecast, but questions whether such 'mergers' could actually lead to academic bliss. He sees the drivers for the future as being virtualisation, globalisation, multiculturalism and politicisation.

Vincent-Lancrin (2004) offers six scenarios for universities in the OECD area stemming from the driving forces of: demographic and participation trends; governance and funding; the knowledge economy; and new actors in HE. His six scenarios are:

1. Traditional university for young, high calibre, career success with lifelong learning and e-learning remaining outside the sector.
2. Entrepreneurial university which responds to a range of funding sources and has a market-oriented approach without the loss of basic academic values.
3. Market forces university in which a private tertiary sector is regulated and corporations grand degrees for corporate training and research moves to public research centres.
4. Lifelong learning and open education which sees universal access for all ages and much less research, being a source of continuous professional development for the knowledge economy.
5. Global network of institutions where learners select modules from anywhere to put together a course and institutions work in partnerships with e-learning being a strong mode of delivery and academic status being reduced.
6. Diversity of recognised learning which sees the disappearance of universities as practical, hands-on learning of skills and knowledge through technology become the norm. Knowledge is pervasive and hence not paid for through

tuition fees and research takes place in publicly funded centres of corporate R&D (Vincent-Lancrin, 2004).

A Universities UK commissioned study of the future shape of the HE sector outlined three scenarios for the future (UUK, 2008d):

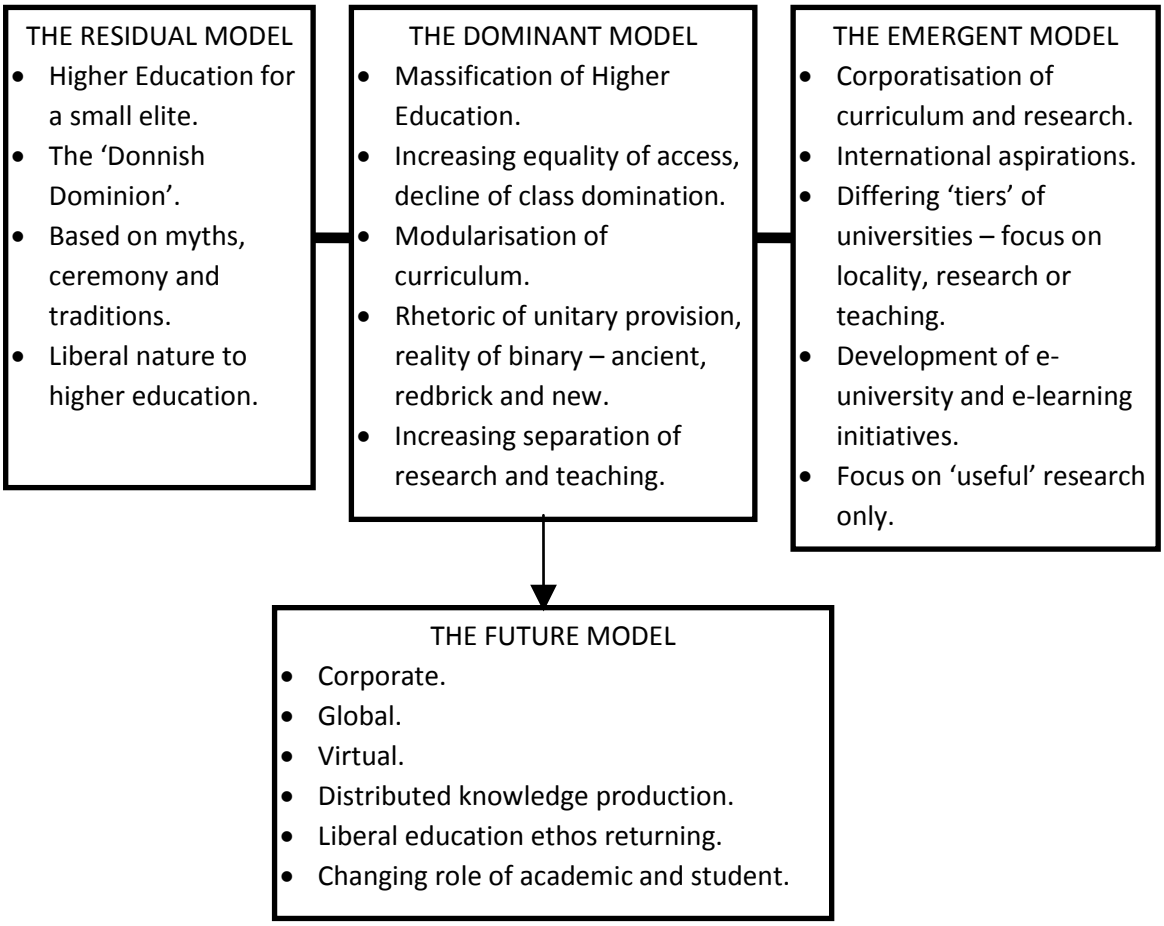
- the slow adaptation to change scenario sees the sector remaining pretty much the same but shrinking due to the inability of some institutions to secure long term financial stability
- the market-driven competitive scenario which sees a wider variety of institutions than now, of smaller scale, operating in niche markets with widespread use of ICT for delivery of provision
- the employer-driven flexible learning scenario which sees the sector more stratified as institutions pursue the most financially sustainable strategy with much undergraduate provision being provided by FE.

A report by PA Consulting for HEFCE (HEFCE 2010) identifies five archetypes of strategic positions that HEIs may gravitate towards in the next 10 years. Each has a differing funding base and interrelationship of research and teaching as follows:

1. Primary research institutions with a world class reputation for primary research based around leading edge research teams that recruit the most academically able students and colleagues.
2. Research led teaching with an international reputation for research-informed education which is highly respected by the public and achieves excellent student experience allowing them to select highly able students only.
3. Professional formation based around national and sector based development of research-informed practice in a vibrant community of academics and practitioners, the choice for current and aspiring professionals.
4. Research-based solutions for national and international clients maintaining a flow of project based income from blue chip companies for whom they are the partner of choice.
5. Specialist/niche development of research-informed practice focussed on specific niche sectors with the agility and foresight to predict changes within the niche sector.

Blass (2003) developed a model for the future university as distinct from the residual model, the dominant model and the emergent model. The specific elements of corporate, virtual and global have already been illustrated in this report, but the full model is presented here for completeness.

Mapping the models of the university (Blass, 2003:66)



8.5 Key factors impacting the future HE workforce

The key points to take forward from this section are:

- planetary issues to consider are environmental regarding sustainability and energy sources
- the development of scientific knowledge will allow genetic modification of future generations and human enhancement
- there will be an increasing incidence of mental illness in Western society
- the concept of retirement will disappear as individuals opt for second and third careers
- organisations will become more polarised in size – there will be massive conglomerates and small niche players
- models of future HEIs polarise towards research or teaching or niche markets as the prime focus
- future models of HEIs will be positioned within corporate, virtual and global contexts.

Of particular interest was the fact that futures studies within higher education have focussed on institutions and taken forwards institutional models and analysis rather than sectoral analysis.

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LIST OF ACRONYMS

CAT	Credit accumulation and transfer
CPD	Continuous professional development
CV	Curriculum Vitae
DIUS	Department for Innovation, Universities and Skills
EU	European Union
FE	Further education
HE	Higher education
HEFCE	Higher Education Funding Council for England
HEIs	Higher education institutions
HR	Human Resources
HRM	Human Resources Management
ICT	Information and Communications Technology
NET	National Education Tax
NHS	National Health Service
PG	Postgraduate
PR	Public relations
R&D	Research and development
UCEA	Universities and Colleges Employers Association
UCU	University and College Union
UG	Undergraduate
UUK	Universities UK
VAT	Value Added Tax
WP	Widening participation