

Towards the Entrepreneurial University?

Professor Allan Gibb

**Professor Emeritus University of Durham
10 Kimblesworth Grange
Durham DH1 5SL
UK**

Tel. 00 44 (0)191 371 8723

00 44 (0)191 3719373

e-mail <enterprise@allangibb.com>

website www.allangibb.com

and

Professor Paul Hannon

**Director of Research and Education
National Council for Graduate Entrepreneurship
3, Priestley Wharf, Holt Street
Birmingham B7 4BN, UK**

Tel: 044 121 380 3545

**Email: paul.hannon@ncge.org.uk
www.ncge.org.uk**

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Abstract

The paper explores the concept of an entrepreneurial university. It has its rationale in the growing focus of public policy, not only in the UK but also in Europe, North America and globally on enhancing the role that the Higher Education sector might play in social and economic development. It pursues the objective in a number of stages.

First, it reviews the nature of the pressures upon the sector linked with globalisation and the resultant creation of greater uncertainty and complexity for individuals and organisations in social and economic life.

Second, it briefly traces the history of policies from the 1980s onwards aimed at influencing the relationship between universities and the market and the changing imperatives. It notes that there has been a lack of consistency and commitment over time, which has limited the impact.

Third, to explore the basis for argument for more sustained policy development, it reviews, very briefly, the evidence in support of the case for linking Higher Education with entrepreneurship and growth in competitiveness. It concludes that there is a case to be made but that much of the supporting data is soft. There is also missing a notion as to what fundamental institutional changes are required over time.

Fourth, to address this issue, it considers international, in particular US experience, as it relates to the issue of extending entrepreneurship education across the university and discusses some of the conceptual issues in this respect.

Fifth, it attempts to sum up the key components of what might be said to constitute an entrepreneurial university. Finally it considers the role of foundations in the US in providing a sustained input into the process of change, something that has been arguably missing in the UK, and then it makes a number of recommendations for action.

Key words:

Entrepreneurial University, Entrepreneurship Education, Competitiveness, Concept of a University, Higher Education, Entrepreneurship Outcomes

Towards the Entrepreneurial University?

Introduction

This paper describes the search for a model of entrepreneurship and a model of an entrepreneurial university appropriate to the needs of the 21st century. The case for such a search rests fundamentally on recognition of the central role that entrepreneurship has been allotted to play by policy makers in the UK's drive for international competitiveness and the lead that the Higher Education (HE) sector seems to be expected to take in shaping institutional development and culture change (CIHE, 1997; Levie, 1999; DTI, 1998).

This challenge to universities is not a UK phenomenon but one shared in North America (Doutriaux and Barker, 1996; Menzies and Gasse, 1999; US National Commission on Entrepreneurship, 2001; Kuratko, 2003; Schramm, 2006) and in Europe (Johannisson, 1991; Beranger et al., 1998; Berlin Institute of Entrepreneurship, 1999; European Commission, 2000; Alasaarela et al., 2002; Higher Education in Europe, 2004) and arguably throughout the world (DfID, 2000). Yet it raises numerous issues of concept and practice, many of which are discussed below, but perhaps most importantly, that of how the concept of entrepreneurship fits with the traditional notion of a university and whether it needs to be refined. The paper draws greatly from the work being undertaken by the National Council for Graduate Entrepreneurship¹.

Over the past decade the UK government has done much to try to shape the way that the HE sector serves the wider aims of society. Many publicly funded initiatives have been targeted on processes of commercialisation of institutional intellectual property (for example through the Office of Science and Innovation, previously the Office of Science and Technology (<http://www.dti.gov.uk/science/>), and through Knowledge Transfer Partnerships (<http://www.dti.gov.uk/science/knowledge-transfer/index.html>) – previously, Teaching Company Schemes).

There is also encouragement for wider engagement of the HE sector with the stakeholder community, in particular with regional and local development agencies and local business. Further, there have been substantial efforts to support development of entrepreneurship education for graduates through various national government initiatives (DfES, 2003; DTI, 1999) including Higher Education Innovation Funds in 2001, 2004 and 2006/7 (<http://www.dti.gov.uk/science/knowledge-transfer/heif/page12054.html>), Science Enterprise Challenge in 1999 and 2001 (http://www.dti.gov.uk/science/knowledge-transfer/schemes/Science_Enterprise_Challenge/page12138.html), the creation of Higher Education Academy Subject Centres in 2004, previously the Learning and Teaching Subject Network (<http://www.heacademy.ac.uk/SubjectNetwork.htm>) and more recently, specific Centres for Excellence in Teaching and Learning in 2005 and funded for 5 years (<http://www.hefce.ac.uk/Learning/tinits/cetl/>).

Notwithstanding how such efforts relate to the key issue of the traditional notion of a university, discussed below, it is clear from the extensive US experience in this area

¹ The NCGE was launched in September 2004 by Chancellor Gordon Brown to enhance the conditions for student enterprise and graduate entrepreneurship in the UK. Further details from www.ncge.org.uk.

(Wade, 1984; Bok, 2003; Kirp, 2003) that the process of achieving significant results in any of the above areas is a generational one. The widely acclaimed successes in Stanford, MIT² and North Carolina³ (CVCP, 1999; Sandelin, 2004) are the result of several decades of consistent effort. The US experience also demonstrates that there is still a considerable challenge to the process of embedding entrepreneurship education right across the university sector (Schramm, 2006). This is a challenge increasingly recognised across Europe, although there are grounds for arguing that the UK is somewhat ahead in its public response⁴.

The paper addresses the issue of a model of entrepreneurship appropriate to the Higher Education sector in the following manner. First, it reviews the rationale for taking a long-term view, by examining the pressures for change in the HE sector associated with globalisation. Second, it briefly describes the UK response to date and some of the key lessons that can be learned from it. Third, it reflects upon the key assumptions that need to be explored and evidenced in order to underpin policy. In a search for approaches to institutional embedding it summarises some of the lessons to be gleaned from experience elsewhere, in particular the USA, which seems to be acting as a lead mentor in shaping UK policy. Finally, it sets out a possible vision for the future. There are a number of supporting Annexes.

The paper is based upon a review of the literature, discussion with focus groups of academics in the USA⁵ and discussions with representatives of the Kauffman and Coleman Foundations in the USA.

The pressures for change in HE

Much has been written and discussed about the nature of the pressures for change in the HE sector both from the viewpoint of the internal organisation of universities and, more fundamentally, their changing role in society (Bok, 2003; Clark, 1998 and 2004; Kirp, 2003). There has been a great deal of philosophical reflection revisiting the 'Idea' of a university (Graham, 2002; Smith and Langslow, 1988; Maskell and Robinson, 2002) and also more pointed debate as to the role of universities in delivering professional and vocational education and the notion of the utility of university research (Hager and Hyland, 2003). There is no space in this article to review these debates except to note that there remains a divide, which impacts considerably upon attitudes towards entrepreneurship education.

There is, however, a broad consensus as to the nature of the pressures on higher education throughout the world to become more entrepreneurial or enterprising. They, by and large, follow the policy imperatives noted above. There are pressures to play an enhanced role in contributing to the international competitiveness of economies particularly via a process of commercialisation of research (European Commission 2005b). There are increasing demands made on the sector to contribute more substantially to local economic and social development (see proceedings of UNISO 2002 –4). Universities are increasingly being urged to take centre stage in regional development strategies in the UK and indeed elsewhere in Europe.

² <http://entrepreneurship.mit.edu>

³ For information on the research triangle see <www.rtp.org>

⁴ See the various papers from the UNISO conferences (references)

⁵ Access to the results of these discussions can be gained through the ncege

There is also pressure to prepare students for a life world of much greater uncertainty and complexity involving: frequent occupational, job and contract status change; global mobility; adaptation to different cultures; working in a world of fluid organisational structures (Ghoshal and Gratton, 2002; Westwood, 2000; Worrell et al., 2000); greater probability of self employment; and wider responsibilities in family and social life (IPPR, 1998; Rajan et al., 1997). This has also become associated with pressure on the sector to do more to prepare students for a world of life long learning (EC, 1996).

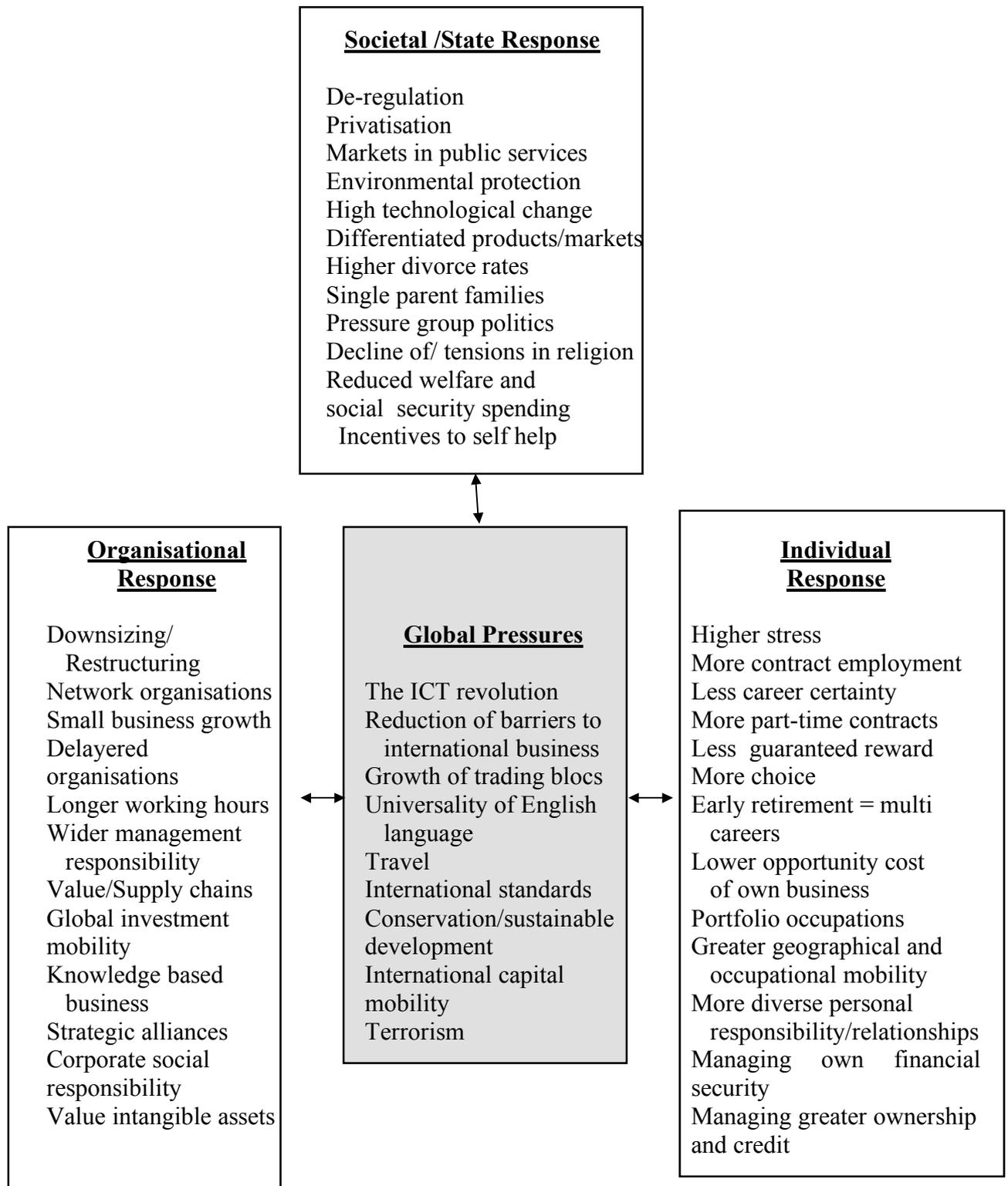
In this scenario, the university degree is regarded as no longer a voucher for life-long employability but merely an entry ticket into the world of work. A key component of this view is the encouragement of students to consider a career in entrepreneurship, with an emphasis upon managing independence and the capacity to develop growth businesses or 'high-impact' ventures (on the possibly questionable assumption that graduates are more ambitious people than other segments of the population). Universities are urged to respond to these pressures by giving greater weight to the scholarship of relevance and integration (Carnegie, 1990). The former creates impetus for working in partnership with external stakeholders with a stronger focus upon development out of research rather than just publication. The latter demands a greater emphasis upon interdisciplinary research and teaching (Ghoshal, 2005).

The pressures described above derive in turn from the demands that global competitiveness is making on governance, organisation and lifestyle structures as set out in Exhibit 1 below.

How these pressures have been transferred into action in the UK is discussed in more detail below. What is clear, however, is that not only have they created a world of much greater uncertainty and complexity for business but they have also impacted upon the full spectrum of public and private organisations, communities, families and individuals.

The entrepreneurial paradigm derives its importance from this scenario. It can be seen as a central means for organisations and individuals to cope with uncertainty and complexity but also as the mechanism for them to create and thrive upon it. In general this scenario translates into a need to equip individuals with personal entrepreneurial capacities but also with the capability to design organisations of all kinds, public, private and NGO, to support effective entrepreneurial behaviour. It is arguably also associated with fundamental change in the norms of governance at all levels of society (Kooiman, 1993), and therefore the 'life-world' into which graduates will enter.

Exhibit 1
Pressures Moulding the 'Entrepreneurial Society'



From Gibb (1999)

The basic challenge to the HE sector and its students

This scenario challenges the HE sector in several ways. In the world of global corporations and information technology, universities can no longer claim to be the sole or possibly even the main source of intellectual property. To retain their status will require partnerships with other stakeholders in society. Nor can they expect to be insulated from the demands of society by the public purse. In the USA for example, in most public universities, direct funding from the state purse is down to as little as 20% (NCGE, 2006). Traditionally, UK universities have been guaranteed their autonomy via state funding. Increasingly the pressure will be to earn this autonomy by other means.

While the detailed argument cannot be pursued here (see Gibb, 1999), seen from an individual graduate perspective there will be increasing pressure for them to display personal, organisational, and social capacities associated with entrepreneurship as below.

Personal and organisational entrepreneurial capacities

- to demonstrate a wide range of personal entrepreneurial skills
- to engage actively in processes of entrepreneurial learning
- to demonstrate strong emotional intelligence
- to have empathy with, and motivation towards, entrepreneurial values and the life world of the entrepreneur to work effectively within and design and develop entrepreneurial organisations of all kinds but particularly to start up an independent venture
- to manage entrepreneurial organisational development through processes of start up, growth and internationalisation.
- to manage effectively stakeholder relationships under dynamic conditions

Social entrepreneurial capacities

- to manage socially in an entrepreneurial life-world characterised by high levels of uncertainty and complexity in work, family and community activity,
- to develop sensitivity to 'ways of doing things' in different cultures and across conventional boundaries.

In support of the above, there is tentative evidence that University graduates see all of the major entrepreneurial behaviours as central to their future needs (Annex 1). There is also tentative evidence that undergraduates do not presently see the formal aspects of university experience making as great a contribution as might be, to enhancing these (NCGE, 2005). More research needs to be done here.

It has been argued by one of the authors (www.ncge.org.uk and Gibb 2002, 2006) that this scenario of entrepreneurship is the key to facilitating a positive response to uncertainty and complexity at the societal, organisational and individual level and that it demands a substantial rethink of the present business school and business context-dominated paradigm of entrepreneurship in favour of a broader societal model. It is argued that this will not only better fit emerging needs but will be far more

appropriate to a the traditional notion of a university being at the centre of the imaginative use of knowledge (Newman, 1852).

The entrepreneurial capacities associated with this model and identified above have been captured by the NCGE in a template to be used for the design of graduate entrepreneurship education programmes (Annex 2). Whether they can be developed inside the HE structure or adjacent to it is a key challenge for HEIs.

How far still to go? A brief review of past experience

Changing policy imperatives

Support for enterprise and entrepreneurship development in higher education is not a new phenomenon. For nearly three decades a series of mainly publicly funded initiatives have explored different mechanisms for its application. There have also been substantial shifts in policy rationale. In the late 1970s and 1980s a major policy focus throughout Europe was upon employment creation (EEC, 1987) and in the UK, in particular, against a backdrop of major contraction in the heavy end of the industrial and manufacturing base (coal, steel, shipbuilding, heavy engineering and industrial chemicals) and rising unemployment (Association of British Chambers of Commerce, 1985; Bannock, 1987; Hart, 1987). The policy imperative, reflecting the above, was substantially upon job creation as a driver of social and economic regeneration complemented by incentives to inward investment, particularly foreign investment, in peripheral regions. There was much emphasis in training initiatives upon self employment in particular. There was, however, only marginal engagement with higher education in this respect other than in the support of a limited number of graduate New Enterprise Programmes (see below).

In the 1990s against a backdrop of impact of globalisation and the need for market reorientation and labour flexibility, as described above, a wider ideology of self-help became a policy imperative. This merged into a competitiveness agenda model driven by the desire to prosper in a global market place, with a linked 'ideology' described as the Third Way (Giddens, 1998; Blair, 1998). This model has become associated with notions of: intervention by government only where there is market failure; reduced government expenditure; private sector led initiatives; marketisation of public services; and further incentives to self help.

The changes that have taken place in the HE sector over the past three decades, described briefly below, reflect these shifting imperatives. They can broadly be summarised under the headings of: easing the capacity for technology transfer into and out of the higher education sector; stimulating engagement of the sector with the local and regional economy; and, influencing graduate aspirations towards self employment and careers in the small and medium enterprise sector.

Technology transfer

The Industrial Liaison Offices and Teaching Company Schemes of the 1980s were gradually transformed or enhanced during the last decade of the last century by the growth in numbers of formal knowledge and technology transfer units. An initial science park concept was deepened to embrace technology parks, innovation centres and incubators (virtual and real) of all shapes and sizes. This transition was fuelled not only by UK government support but also by EU initiatives. Most of these developments involved partnerships between universities, industry and local and

regional government. To some degree this forced a shift in focus from real estate revenues and institutional contracts with industry towards one of exploitation of local assets through 'home-grown' ventures and opportunities. The 'movement' was initially influenced by a strong interest in the Cambridge phenomenon (Segal, Quince, Wicksteed, 1995) with its subsequent impact upon attitudes to intellectual property and licensing and the noted successes of US Institutions such as MIT and Stanford.

Over the past decade the UK government has stepped up its efforts to stimulate technology transfer within the HE sector through both the DTI's Office of Science and Technology and through the Department for Education and Skills (DFES). An ongoing stream of government funding from University Challenge Funds, through to Science and Enterprise Challenge Funds and currently Higher Education Innovation Funds has enabled a diversity of experiments to take place in stimulating enterprise, mainly but not exclusively within the context of the exploitation of opportunities deriving from an institutions' science, engineering and technology intellectual assets (DfES, 2003; DTI, 1999).

Engagement with the locality and other stakeholders

While engagement of the HE sector with its local region in general has grown, stimulated by policies over the past decade (Local Economy, 2003), it can be argued that this development has been imbalanced in terms of creating equal involvement of all stakeholder groups. Local small firms and entrepreneurs and their associations, local communities and associated non-government organisations (NGOs) and alumni have played a smaller role relative to that of corporate business and local authorities. There has been very little policy imperative to remedy this imbalance. This is not helped in the English system where, unlike in Scotland, students have not particularly been drawn from the local area and therefore not embedded in local economic and social communities. The introduction of tuition fees across HEIs in England in 2006 may affect this behaviour.

It can also be argued that, over time, there has been some policy incoherence in efforts to influence the HE sector to engage with the local community. For example the polytechnics, which were set up on the principles of local engagement, were converted into universities. As a result there has been pressure for 'mission drift' (Booth, 1999) away from achieving status by contribution to local economic and social development towards gaining prestige through research and publication routes underpinned by the Research Assessment Exercise (RAE) (Graham, 2002).

The UK Government has more recently stepped up its efforts to create a more regional dimension to the HE sector by the reshaping of funding mechanisms, particularly for innovation and enterprise, and by encouraging Regional Development Agencies to have greater leverage in the disbursement of funding. Additionally, New Entrepreneurship Scholarships have sought to bring universities together with local support agencies to create enterprise opportunities in disadvantaged communities⁶.

Access to funds has a major influence on institutional behaviour, if only for the duration of the fund. Embedding sustainable change in institutional behaviours is a

⁶ NES is a local partnership between a Business School, Local Enterprise Agency and Princes Trust to support enterprise development in the most disadvantaged communities in England

rather more fundamental challenge and although HEIs are now in principle more connected to regional economic strategies in England there seems room for further experiment in creating specific regional long-term entrepreneurship action plans as demonstrated by the experiences in Wales⁷. International experience (see below) also supports the view that local funding and engagement are powerful players in changing the orientation of higher education.

Influencing graduate career aspirations

The employment creation imperative of the 1980s⁸ led to an experiment with publicly funded Graduate New Enterprise programmes. While aimed at all graduates these were primarily run by business and management schools. The political expectations were high, focused rather naively on the notion that such an investment in training would lead to graduate growth businesses. After 5 years of funding and an expansion of provision across the sector, the programmes were abandoned (even though the model upon which they were based was found to generate a sound return on investment (Johnson and Thomas, 1984). They were perceived as expensive when compared to general employment training. Nearly 10 years of valuable experience and tacit knowledge was virtually lost.

Over the decades there has been a stronger recognition of the need for career service support for self-employment orientations, particularly in the light of a number of studies that have shown that, in the main, graduates have had little understanding of, or feel for, what it is like to work in a small business, never mind the creation or ownership of one (Gibb and Scott, 1984; Gibb, 1986; CIHE, 1997). During the 1980s and '90s there was a growth of schemes designed to link students and graduates with small businesses in order to provide insights, understanding and experience. Pioneering work at Durham Business School led to the Graduate Associate Programme (GAP) and the Shell Technology Enterprise Programme (STEP, www.step.org.uk); the latter which still runs today. These aimed to provide experiential learning not only for the student but also for the small business owner-manager.

In 1988 the government funded the 'Enterprise in Higher Education' Initiative which provided another opportunity to embed the concept of enterprise (in its broadest sense) throughout the core activity and provision of a university. Its focus was substantially upon developing more 'enterprising' modes of teaching and learning across all departments. While there was some impact (Brooks, 1991; Hale and Pope, 1993) its relatively short term funding life meant that it struggled to achieve a lasting impact.

More recently a graduate version of the Young Enterprise schools programme has been introduced into the HE sector and is currently engaging approximately one-third of the UK HE sector. Strongly supported by the HSBC bank with government help, it aims to bring real 'learning by doing' experience of starting a new company and

⁷ The Welsh Development Agency in consultation with Welsh HEIs has implemented a 10-yr Entrepreneurship Action Plan which provides direction and outcomes supported by resources and funding.

⁸ Derived from government concerns that UK graduates were less enterprising than those of industrial competitors such as USA and Japan – from M. Fletcher and P. Rosa '1998

performing as a company director for an academic year, founded on a corporatist model with various functional responsibilities established in a team.

From a demand perspective it is now clear that a growing number of students arriving at HEI have high entrepreneurial aspirations (for example, in West Yorkshire a consortium of HEIs conduct an annual Student Entrepreneurial Intentions Survey demonstrating high levels of aspiration – nearly 50% of all respondents) and this is likely to continue to grow as government interventions supporting enterprise in schools take hold. Furthermore, as the GEM 2005 report confirms, those individuals receiving positive experiences of enterprise at a young age are more likely to engage in entrepreneurial activity in later life.

Efforts are now moving into a new phase of seeking to grow enterprise activity and develop teaching programmes that can be embedded across the university with many different models. The new Centres for Excellence in Teaching and Learning in Enterprise⁹ and the recent pilots of the Higher Education Academy's Subject Centres seeking to embed entrepreneurship within subject curricula¹⁰ are examples of how the landscape is changing in the UK. Most recently the government has supported the creation of the National Council for Graduate Entrepreneurship (NCGE) to shape the environment for graduate entrepreneurship across the UK¹¹.

It can be argued that, as a result of the above effort, universities are now more fully engaged in student enterprise clubs, running business plan competitions, providing enterprise fellowships and creating entrepreneurship champion posts. Regional networks and events, such as NCGE's Flying Start Rallies, link to national support such as Shell LiveWire and NCGE's investment-ready programme¹². Other national niche programmes from NESTA (the National Endowment for Science, Technology and the Arts) and the Design Council target enterprise in specific industries. Enterprise Insight aims to provide a national focus for stimulating a demand for enterprise amongst young persons across all stages in the UK education system through its annual Enterprise Week (www.starttalkingideas.org.)

In summary, a growing number of HEIs are beginning to recognise the long-term importance and benefits of strategically engaging in stimulating enterprise in their student populations. There appears to be a growth in the number of Deputy Vice-Chancellors and Pro-Vice-Chancellors (DVCs/PVCs) for enterprise or entrepreneurship and there is explicit articulation of enterprise as a core and fundamental pillar upon which the HEI will succeed (see for example recent approaches at Liverpool John Moores, Sheffield, and Sunderland Universities). It can be argued, however, that this process is just at the beginning and it remains to be seen as to whether it will be translated into sustainable organisational practice. The present position is that entrepreneurship related activity reaches only a very small proportion

⁹ Three 'enterprise' CETLs were awarded to Nottingham, Leeds Met and the White Rose Consortium (Leeds, Sheffield and York)

¹⁰ 10 of the 24 Subject Centres ran pilot projects during 2004/2005 and their experiences are being disseminated to other Centres during 2006

¹¹ See www.ncge.org.uk for further information

¹² One day Flying Start Rallies support entrants to NCGE's 3-day intensive investment-readiness programme for those students close to starting a new enterprise. For further information visit www.ncge.org.uk

of the graduate population. The first online in-depth national view of England was published in August 2006 by NCGE. Reported data from the HE sector suggested a total penetration rate of 7% of all enrolled students (see <http://www.ncge.com/imreports/index.htm>).

Reflection on what might be achieved? The evidence base for policy

All of the initiatives described above were, and are currently, designed to bring about institutional change. Institutional change, after North (1990), can be defined broadly in terms of both changes in formal and informal ways of doing things. It therefore embraces not only changes in organisations and organisational relationships but also changes in governance systems and the underpinning culture. Such change, if it can be made at all, is not easily achieved in the short run but is the result of sustained and sustainable pressure and intervention. Organisation theory suggests that for progress to be made the pressures for change need to be clearly understood, felt and owned within the organisation (Schein, 1992). Many of the policy initiatives to date have been of a short-term 'project' nature and there has been little assessment as to any fundamental institutional impact they have made in the sense described above. This is a point that will be developed later in this article.

Before finally approaching this issue there are a number of 'a priori' questions that need to be addressed as to the underpinning assumptions behind the stream of policy-based actions noted earlier. It has been argued above that the current imperative to work with the HE sector in developing entrepreneurship derives from its potential impact on the UK's capacity to compete internationally and respond entrepreneurially (socially and economically) to the pressures of uncertainty and complexity induced by globalisation (DTI, 1998). Implicit to this imperative are a number of assumptions as follows:

- that entrepreneurship is a major key to growth and competitiveness
- that education and particularly higher education can influence aspiration to entrepreneurship
- that policies and programmes can be designed to raise intentions towards entrepreneurial action and impact upon the conversion of these intentions into successful action

There has been a substantial growth in entrepreneurship research and publication over the past decade that ideally might help to verify, or otherwise, these assumptions. Yet while the public rhetoric is substantial, the hard evidence base remains thin (Hannon, 2005). Each of the assumptions is dealt with briefly below:

The contribution of entrepreneurship to growth and competitiveness

The international evidence as to the contribution of small businesses (seen by Schumpeter, 1943, and others as a key component of the entrepreneurial economy) to employment growth in the US and Europe over the past two decades is substantial although the impact across Europe has been rather uneven (EC, 2005). While only one in twenty small forms create most of the employment growth, out of any given cohort in any period¹³, it is the growth of the micro sector as a whole that provides the

¹³ But see Gibb (2000a) for exploration of some of the misinterpretations that seem to be associated with this.

seed bed for the growth firms and also the aggregate growth in employment (Wernekers et al., 2002; EC, 2005). Moreover, many of these new micro firms are in white collar professional business areas such as leisure, health, IT, business and engineering services and environment protection, jobs in which graduates dominate¹⁴. This reflects in part the late 20th Century changes in the structure of the public and private sectors with many of service activities being outsourced (Ascari et al., 1995; Berggren, 1988; Grimshaw et al., 2000).

Evidence as to the contribution of entrepreneurship to GDP and productivity growth is harder to come by. The GEM report 2005 (London Business School, 2005) makes the bold statement that:

‘Several studies as well as the 2004 GEM Global reports show the existence of a systematic relationship between per capita GDP, its growth and entrepreneurial activity’.

But it is difficult to demonstrate causality as opposed to correlation in the relationship.

There is a case that the ‘new’ industry/service structures created by the substantial downsizing and restructuring activity in the 1980s and 1990s means that the role of entrepreneurship has become paramount in managing restructured larger firms and their value chain interdependency on smaller organisations, along with new forms of inter-firm relationships in clusters (Ashkenas, 1990).

It might be reasonably concluded that entrepreneurship as manifested in small firm growth and employment can be demonstrated to be fundamental to the workings of new industrial and commercial configurations and indeed that the entrepreneurship concept is central to the organisational redesign of restructured large firms (Ghoshal and Gratton, 2002; Gibb, 2000b). It is also clear that entrepreneurship has an increasing role to play in ensuring that public, social and NGO type enterprises as well as the professional service sector provide a framework and climate in which enterprise can thrive (Gibb, 2005). But it is difficult to conclude that it is altogether the primary key to growth and productivity although strong attempts have been made to argue this in the US context (Schramm, 2006)

The influence of education on aspirations to entrepreneurship

The evidence concerning the contribution of education and in particular higher education as a whole to entrepreneurship is soft. There is some evidence to indicate an association between education and economic growth but the direction of causality is obscure. There is evidence from GEM reports (London Business School, 2004; 2005) that better educated persons are more likely to establish ‘opportunity’ as opposed to ‘necessity’ businesses, and that the former are more likely to grow. But it also shows that new business creation in higher income countries is not just the prerogative of the more highly educated classes. The proportion of graduates that aspire to own their own business is growing in the UK, although there is also evidence to indicate that the impact of university experience upon student aspirations towards self employment in the UK is currently negative (a much higher proportion of students in the first year aspire to entrepreneurship than in the final year - see the Barclays Banks survey data in the Student Debt study published by NCGE, 2006). However, evidence from

¹⁴ For details, see ‘What do graduates do?’ published by Graduate Prospects/AGCAS, and the GEM UK data for analyses of graduate career destinations

school level education provision suggests that those exposed to enterprise are more likely to engage in entrepreneurial activity later in life (European Commission, 2005a)

Evidence as to impact of policy interventions

Entrepreneurship policies in the HE sector can broadly be divided into those that seek to build links between the HE sector and its stakeholders and those that are more focused upon the entrepreneurship education of students. In respect of the former there is evidence to suggest that the impact of HE technology transfer programmes on overall productivity in the US and indeed in Europe is somewhat less than might be inferred from the rhetoric (Hughes, 2003). It is technology use that is important. This lends strength to the argument that breaking down somewhat artificial barriers between applied and discovery research and encouragement of interdisciplinary research and partnerships with external stakeholders are more important in terms of their contribution than patents, licensing and spin-off activity. The evidence therefore supports the view that policy interventions can have an impact in the area of commercialisation of university ideas but indicates that the nature of this impact is somewhat different from that of the conventional wisdom and might be measured in a different way. It is the creation of informal personal networks between academics and entrepreneurs that seems to hold the key (Hughes, 2003).

In the area of entrepreneurship education there are a number of studies internationally that indicate that appropriate entrepreneurship programmes in the university context do impact upon the aspiration to self-employment and business creation (see for example Charney, 2006). The act of business creation itself is not, however, likely to follow immediately post graduation. The optimum time for such activity seems to lie between 26 and 34 years of age (SBS Household Survey, 2005). Importantly, US research indicates also that business schools in general are not particularly good incubators of entrepreneurial aspiration (Schramm 2006). From the above, it is clear that higher and growing levels of aspiration may enhance intention but do not always lead to action suggesting that there are fundamental barriers to entrepreneurship for some, i.e. personal levels of self-efficacy and the lack of experience of what it feels like to act out entrepreneurial aspirations and intentions.

Overall therefore while there is somewhat tentative evidence to support fundamental policy assumptions the evidence base needs to be considerably strengthened. There is a need to consider more closely the impact of graduate management of SMEs on growth and to review the relevance of graduate entrepreneurship education to the demands of corporate business for managers of future flexible, decentralised, globally networked, value chain oriented and socially responsible business. With regard to the influence of entrepreneurship education on aspirations and action in respect of business and other organisation creation and development, more longitudinal studies are needed as well as cross sectional studies of adult graduate careers. Finally, and in line with the argument about institutional change at the beginning of this section of the article there is a need develop a framework for the monitoring of fundamental institutional change as it relates to policy goals so that progress can be monitored over time. The remainder of this paper seeks to address this issue, in particular drawing from US experience.

What can be learned from International Experience

This section of the paper reviews the value of international, and in particular US experience, in addressing the key questions arising from the preceding analysis of the UK scene. Data has been drawn from research and publications¹⁵, from conference proceedings and workshops (UNISO, 2002–4), and from a series of focus group interviews with carefully selected US academic staff and representatives of the Kauffman and Hughes/Coleman Foundations which are major sources of support for entrepreneurship education in the US (see note).

The key issues are addressed below under a series of headings as follows:

The Entrepreneurial University

- Is it possible to benchmark a ‘best practice’ model of an entrepreneurial university and extract the key components of such a model?
- How might such a model be developed?

The Entrepreneurship Concept

- What can be learned as to the most appropriate concept to be taught?
- How is it best introduced?

Change Agents

- Where might they be found?
- What can be learned from the role that US Foundations play in developing entrepreneurship in HE?

The Entrepreneurial University

A Best Practice Model?

Much has been written over the past decade about the concept of the entrepreneurial university (UNISO, 2002-4; Burton Clark, 1998; 2004). While it is not possible to extract an agreed comprehensive model as to what constitutes such an entity there are some guidelines but also some clear differences of perspective.

Drawing from the US and European literature and experience (Burton Clark, 2004) it can be argued that Universities are entrepreneurial when they are unafraid to maximise the potential for commercialisation of their ideas and create value in society and do not see this as a significant threat to academic values. Behind this lies recognition of the need for a diversified funding base involving raising a high percentage of their income from non-public sources (Burton Clark, 2004).

US state universities are raising as much as 70%-80% externally and many universities in the US are private. This does not mean that the latter do not raise public monies: both state and private universities bid for earmarked public funds. Engagement with the stakeholder community is actively pursued. This may take a variety of forms including: consultancy; training; research and development; technology transfer; related engagement with and/or ownership of science parks and incubators and pursuit of staff and student project work. It also means that there is an accepted responsibility for local development. This is considerably reinforced by the fact that in the US the public universities get their base funding from state, rather than federal, government. This makes them more sensitive and responsive to local need.

¹⁵ see references/bibliography

Private universities have strong financial pressure, derived from their sponsors and the market, to respond to local stakeholders.

It has been argued that, in terms of organisation, entrepreneurial universities are managed in such a way that they become capable of responding flexibly, strategically and yet coherently to opportunities in the environment. Burton Clark describes this as having a 'strong steering core with acceptance of a model of self made autonomy' (as opposed to it being bought by the public purse) across the academic departments. In his view within these departments there should be 'entrepreneurial champions'. The need to embed key aspects of entrepreneurship education right across the curriculum will be accepted and there will be departmental ownership of that curriculum: its delivery will rest with departmental staff. There will be a determined pursuit of interdisciplinary research and development not only demonstrated by the existence of numerous focused centres but also in the delivery of undergraduate and graduate programmes.

In theory, by commitment to the above, entrepreneurship becomes part of the university's core strategy. The ultimate outcome is the creation of an 'enterprise culture' defined particularly as one open to change and to the search for, and exploitation of, opportunities for innovation and development.

How might it be achieved?

The evidence from international experience indicates that there are a number of key guidelines that might be built into a model. The rather normative 'model' propounded below can be regarded as a speculative drawn from inference of mainly, but not exclusively, US experience.

It is evident from the work of Burton Clark and others that successful progress requires incremental change over a considerable period of time. There is likely to be much resistance from within 'traditional' departments. Change might be facilitated by the appointment of entrepreneurial academic leaders a strategy pursued by the University of Illinois in the US (see below). Such leadership is emphasised over and over again in the various studies (Clark, 1998; 2004; Sanyal, 1995). It is argued that the process of transition will be smoothed by the attraction of entrepreneurial staff and those who share the vision of a wider role for the university in society. Champions will need to be identified and provided with support. The experience of the University of Illinois, in undertaking a university wide audit to identify potential change agents and champions provides an interesting example of this (Mendes et al., 2006).

In this model, recognition of the need to actively seek external funding not by pursuit of philanthropy but by building credibility with key stakeholders in the environment underpins a process of active engagement. It is, for example, significant that, in the US, there are a large number of chairs in entrepreneurship funded by local entrepreneurs (not corporates). In the UK there are very few known to the authors, with others possibly emerging. By such engagement it can be argued that the university becomes more of a learning organisation. Much emphasis is placed upon this in the European rhetoric on entrepreneurship education¹⁶ largely in the context of HE organisations improving their capacity to prepare their graduates for processes of

¹⁶ See the series of papers on Entrepreneurship in Europe in 'Higher Education in Europe (2004) Vol. XXIX no. 2 Carfax Publishing

life-long learning. The learning organisation concept applied to the university implies that it must be open to learn from all stakeholders at all levels. It must be a porous organisation with a strong emphasis upon learning via the acquisition of tacit as well as explicit knowledge (Polanyi, 1966).

Where universities are locally, rather than centrally, funded it can be argued that there will be greater pressure for relevance and integration of knowledge in pursuit of this goal. There are numerous examples in the US of programmes that bring together teams of academics from different disciplines to focus upon societal problems and opportunities¹⁷. Thus in the entrepreneurial model of a university there will be active pursuit of inter-disciplinarity and a search for its relevance in the environment exemplified perhaps by a wealth of multi-disciplinary centres and programmes. The importance of interdisciplinary work in creating entrepreneurial opportunity has been recognised at a high level in the US (National Academy of Science, 2005). This links closely with the notion of moving towards a more holistic concept of entrepreneurship (discussed elsewhere in Gibb, 2002). In practice this means moving the entrepreneurial paradigm away from a narrow business focus more towards what has been labelled intellectual entrepreneurship (Cherwitz, 2005) and beyond (see below) with the aim of enhancing acceptability across the university.

The work noted above, begins to clothe the vision of a university organised on entrepreneurial lines. Such a model might be one where traditional individual freedoms are preserved but there is strong central steer to encouragement of diversity and initiative by the means described above. This in turn would imply widening the gateways to prestige. Competition between universities and within universities is dominated by the search for prestige. An entrepreneurial university might seek to achieve this by widening its perspective of 'who counts' in the prestige stakes. It might seek, by processes of engagement with a wide range of stakeholders, to boost its image in society. This in itself demands that it would be more likely to adjust its own internal 'prestige' systems to reward success and acclaim in a wider range of constituencies beyond the conventions of publication and internal teaching.

The Entrepreneurial Concept

What should be taught?

International experience indicates some major differences in approach. Such differences reflect the source of the impetus for entrepreneurship education. The more common route in Europe and the US has been via the business school. The business school model as largely practiced in the US and Europe has been critically reviewed elsewhere (Gibb, 2002; 2006). This emphasises in particular new venture creation, business growth, business planning and traditional functional areas of management. It can be regarded as weak in developing pedagogies and practices that stimulate entrepreneurial attributes and values, provide real insights into the entrepreneurial life-world, allow for practice of entrepreneurial behaviours, develop emotional intelligence and promote the value of acquiring of tacit (experiential) knowledge under pressure (Gibb, 2006).

¹⁷ For examples of these see the proceedings of the US Small Business and Entrepreneurship (USASBE) Conference January 2006 Tuscon Arizona (www.usasbe.org)

There is a noticeable movement in the US to relocate entrepreneurship programme delivery away from the business schools and into the office of the Provost or Principal. There is also a move to develop university entrepreneurship approaches that are more independent of the business paradigm. Lead members of the National Consortium for Life Sciences Entrepreneurship in the US¹⁸ are, for example, located in systems engineering, chemical engineering, pharmacy, biotechnology, medical/health sciences and centres for drug development. Here the entrepreneurial emphasis is upon identifying development opportunities and innovations, particularly by bringing different disciplines together to resolve societal problems. Opportunity recognition and grasping, which is commonly argued to be at the heart of entrepreneurship, is built on the back of this approach.

The process of refining the entrepreneurship concept has been driven one step further by the development of the notion of Intellectual Entrepreneurship, noted above, and the pioneering work of Richard Cherwitz, Professor of Communication and Rhetoric at the University of Texas at Austin in this field (Cherwitz, 2002). He argues that:

*‘Creating material wealth is only one expression of entrepreneurship.
Entrepreneurship isn’t a business. It is an attitude to engaging the world – a process of cultural innovation’*

The emphasis in this concept, which seems to have growing influence in the USA (visit website <http://webspace.utexas.edu/cherwitz>), is upon: forming partnerships with the community to solve problems and identify opportunities; cross disciplinary interaction in recognition that ‘a university’s collective wisdom is its most precious asset’; and academics as change agents embodying notions of breaking down barriers between research and development focused upon making contributions to the community as opposed purely to the discipline.

The Texas programme incorporates 16 cross disciplinary credit bearing elective courses and internships covering issues such as writing, pedagogy, consulting, ethics, entrepreneurship, communication and technology, community based programmes and faculty future development. It is argued that four values are at its heart, those of: vision and discovery; ownership and accountability; integrative thinking and action; and collaboration and teamwork. The concept of the Texas programme which seems to be increasingly endorsed by other schools is also underpinned by a 2005 report of the US National Academy for Science on interdisciplinary research referred to above (National Academy of Science, 2005). This places emphasis upon cross cutting reorganisation of departments, changes in rewards structures and the weakening of narrow disciplinary based forms of assessment.

While there are thus major differences in the concept being adopted, there is a common belief that the essence of entrepreneurship lies in creating and exploiting opportunities and pursuing innovation in practice. It is, however, the opportunity-seeking core of entrepreneurship, not the business plan concept that is being pursued in the ‘new’ initiatives described above. These are, importantly, not business school or externally provided ‘add-ons’ to the curriculum, but place the ownership of the entrepreneurial paradigm across the university and become instruments for change in organisation and culture.

¹⁸ Contact Professor Michael Fountain, University of Southern Florida (fountain@coba.usf.edu)

How is this concept best introduced?

International experience¹⁹ indicates that there are two critical steps. The first follows from the discussion above, namely that there needs to be clarity about the concept, although this can emerge over time via a process of engagement. This seems central to the issue of embedding entrepreneurship across the university. The pure business model and business school-led initiative may be more difficult to gain wide acceptability and create the necessary ownership of change across academe (Schramm, op. cit.). It also raises problems of creating an ‘add-on’ type activity referred to above. An approach that emphasises ‘opportunity identification’ for contributing to society, involving interdisciplinary and community engagement has a wider intellectual appeal particularly when combined with notions of developing the personal capacities of students – adding skills on top of disciplinary credentials and vision as to the future life and career possibilities for themselves (Cherwitz, op. cit.).

The second step is that of identification of champions across the university who will develop and buy into this model. The university-wide audit approach (as in the University of Illinois process) is an attractive concept. A more precise curriculum and a schema for its embedding and delivery may emerge from this process. While, in the UK an NCGE entrepreneurship template for entrepreneurship education has been devised, it is clear from international experience that the process of ‘buy-in’ may involve modification.

Finally there remains the issue of staff development for delivery. The Intellectual Entrepreneurship programme in Texas has a built-in faculty development component. Arguably, this development process would need to be supported by an appropriate reward system. It was not possible to identify from the research undertaken for this paper the key components of an appropriate teachers programme. One approach taken by the US foundations is to offer financial incentives to staff across the university to develop programmes and materials within the context of their own department’s curriculum²⁰. There are some examples of emerging approaches in the UK (for example, see the approach of the Enterprise Centre at the University of Newcastle).

Change agents– a US perspective

There is no space in this paper to deal thoroughly with the issue of who might lead the pressure for the kind of sustained change over considerable time that, it has been argued earlier, has been missing from UK publicly funded initiatives. It is clear from the above argument that funding almost of a sustained generational nature is a key element. This section will therefore focus upon what might be learned from the philosophies and approaches of two key entrepreneurship foundations in the US, the Ewing Marion Kauffman Foundation and the Coleman Foundation. They share a number of characteristics. Perhaps most importantly they are not beholden to voters, shareholders or bureaucrats, nor indeed to market competition. They are therefore free to:

- take risks and innovate, treating failure as a learning experience
- stay with projects and concepts over a considerable time

¹⁹ drawing from the results of the Various UNISO conferences (see references) and the work of Clark (1998 and 2004) in particular

²⁰ The Kaufman Campus Initiative – www.kauffman.org

- build from ideas, through a development and testing process to dissemination over time
- leverage their resources in a variety of innovative ways
- be proactive in social experimentation
- bring together stakeholders in processes of dialogue and exchange in an impartial manner
- engage in continuous dialogue with all key stakeholders

The Kauffman and Coleman²¹ Foundations play a lead role in entrepreneurship education in the US although the former has much greater resource at its disposal. In 2004 the Kauffman Foundation had net assets of \$1.8bn, income of \$305mn and made grants of \$57mn. The Coleman Foundation on the other hand had assets of \$155mn, income of \$11.2mn and made grants of \$7mn. Both foundations were established by entrepreneurs and reflect their philosophies. Their missions are not focused upon business development per se but on the role that education and entrepreneurship can play in sustainable community development through the efforts of independent individuals (see below). Interestingly they both have a strong local area commitment although they engage in national activity. The emphasis in their sponsorship of HE is now substantially upon encouragement of entrepreneurship across the campus. Kauffman in particular is shifting away from support of business school-led initiatives to wider university based programmes. The Kauffman Campus Initiative instituted a major national competitive bidding process for campus wide programme development in entrepreneurship and is moving into a second stage.

Key foundation activities include:

- the commissioning of 'leading edge' papers (on issues ranging from the health of the entrepreneurship sector to the role of angel investors)
- sponsoring of research designed to lead to development opportunity
- sponsoring of workshops and conferences – supporting the work of national associations
- web based information updates on the sector – the Kauffman 'National Dialogue on Entrepreneurship'
- sponsorship of chairs and centres in universities
- sponsorship of innovative programme development
- sponsoring of initiatives to develop teaching staff, develop materials and cross campus programmes
- support for creation of networks and encouragement of entrepreneur engagement with HE
- support for initiatives designed to enhance the commercialisation of technology and innovation.
- provision of doctoral fellowships

Both foundations also support programmes in the vocational, secondary and primary education sector although this is a small part of activity.

The discussions with US academics indicate that the activities of the foundations have a major influence upon the direction of entrepreneurship research and development in

²¹ www.colemanfoundation.org

universities. It is the view of one of the authors of this paper that it is a problem that much of the US effort in the past has been directed by academics based in business schools. This has led to a strong agenda to legitimise the research and teaching of entrepreneurship within the business school context of seeking academic recognition for a new discipline in turn reflected in career objectives of recipients of grants (Gibb 2006). While this may be a worthwhile objective it may well have been achieved at the expense of legitimising entrepreneurship in the wider university context and indeed legitimising it with a wider range of external stakeholders most importantly the entrepreneur community. The Kauffman Foundation, however, increasingly emphasises processes of engagement in particular with entrepreneurs and invests in programmes aimed at supporting their business development.

Both Foundations endorse a wider concept of entrepreneurship, transcending the pure business focus. Carl Schramm, the president of the Kauffman Foundation, argues that:

‘.....to succeed in entrepreneurial capitalism, everyone must learn to be entrepreneurial in any setting’²².

The Coleman Foundation states on its website

‘More and more it is clear that entrepreneurship is a style and general method of operating and not just a set of business skills’

This matches closely the quote from Professor Cherwitz given earlier.

Summary and Conclusion

A Vision for the Future- the Case for Action

The case for further action over time, to build upon current government initiatives in the UK, rests upon four key components. The first is that of the relative importance of entrepreneurship, in its wider sense as discussed above, to future UK economic and social prosperity. The second is that of the HE future role in contributing to such prosperity by entrepreneurial endeavour. The third is that of the kind of changes that might need to be made building upon existing initiatives. The fourth relates to the kind of sustained funding that might be needed to bring this about.

The central importance of entrepreneurship

There is now wide acceptance of the centrality of entrepreneurship to shaping the future competitive position of western economies²³. The European Union embraces this, as does the UK government. The evidence base for this policy orientation has been briefly reviewed and, despite the plethora of academic work, there is a paucity of hard data. What hard data does exist lends some support to a view that entrepreneurship in its business context is closely associated with economic growth and, via small business, with employment generation. The globalisation scenario painted at the beginning of this paper, based upon widely accepted analysis, provides a broader picture. This portrays a future society where personal, business, community and social entrepreneurial behaviour and organisations will be at a premium. This

²² Annex 1

²³ In the USA this seems never to have been in doubt. Recent celebrations of the life of Benjamin Franklin emphasise as much his role as an entrepreneur and his embodiment of the entrepreneurial spirit as his achievements as a statesman.

seems to be a view increasingly adopted in the US, and in particular by leading foundations. The concepts of 'Intellectual Entrepreneurship' and of the 'citizen scholar' present a visionary challenge to the HE sector.

HE and the wider entrepreneurial concept

This wider view of entrepreneurship has major implications for the way in which education in general and higher education in particular prepare individuals for a 'life world' of greater uncertainty, complexity and opportunity. Some of the key issues in this respect have been described above. Drawing down from this analysis the visionary challenges to the sector include those of: 'creating' its own autonomy in acceptance of the notion that less and less of its funding will be by the state; acceptance of the 'idea' of a university embracing relevance and integration of knowledge and sharing with, and learning from, the wider community; internal re-organisation to provide a stronger steer to entrepreneurial endeavour while building on the natural autonomy of individual academics.

Externally there would need to be: wider engagement with the stakeholder community as part of an organisational learning strategy; and recognition that the creation of science parks, incubators, technology transfer offices, patent protection arrangements are not as important as opening up and integrating into the university activity-based relationships with the relevant stakeholders in both a formal and informal institutional manner. This in turn would mean: encouragement of a wider range of interdisciplinary activity and degrees and creation of related centres; wider recognition of responsibility for the personal development of students and staff, particularly those capacities identified in this report related to future social, career and lifelong learning experiences; the recruitment of entrepreneurial staff and entrepreneurial leaders as change agents including the opening up of academic 'posts to a wider constituency via adjunct and visiting appointments; the building of rewards systems well beyond the current research, publication and teaching criteria; and overall, ensuring that the concept of entrepreneurship education is embedded in the faculties, owned by key staff and integrated into the curriculum.

Working towards future change – building upon the present

It would be wrong to infer, with regard to the visionary wish list above, that the UK HE sector is wholly deficient. The review of UK experience in this article demonstrates a wealth of experience, much of it stimulated by the present government. The analysis indicates that, benchmarked against the scenario above, a number of priority action areas arise to build upon this experience. These relate not just to the HE sector itself but to its many stakeholders, in particular, government, regional authorities, leaders and senior staff of universities and students as well as entrepreneur, business and professional organisations.

Of major importance is setting up a process by which clear agreement on the concept of entrepreneurship is reached and its relevance to the 'idea' of the future university explored. In this respect there is arguably a need to create wider awareness of the range of 'sound practice' models pursued internationally and in particular those relating to the role of inter-disciplinarity in the promotion of entrepreneurship. More fundamental is further development of the organisational concept and practice of the entrepreneurial university embodying acceptance of its role in regional development,

responsibility for the development of the personal entrepreneurial capacities of students, changes in rewards systems, associated staff development and its responsibilities as a learning organisation. In the field of technology transfer there is a need to explore from science park, technology transfer and incubator experience the notion of wider external relationship network building.

Each of these areas for action has major implications for HE stakeholders. For example, as long as the processes of Research Assessment Exercises reinforce narrow academic disciplinary performance by the publication route then much of the above vision will be extremely difficult to realise. Prestige as dictated by this exercise may well constrain the organisation and individual motivation to seek wider stakeholder credibility and may stand in the way of inter-disciplinarity.

The need for sustained funding

The weight of funding is also a major barrier. Third Way funding in England is a fraction of the total public disbursement into higher education for teaching – approx £3.5-4bn in 2005/06 (http://www.hefce.ac.uk/pubs/hefce/2006/06_47/#exec). The funding for Higher Education Innovation Funds in 2006/07 was £240m over a two-year period. Finding mechanisms to encourage universities to leverage funds seems highly relevant. Equally Government funding policies significantly influence institutional behaviour.

There are also lessons, in terms of ‘ways of doing things’, to learn from some of the US experience over time, for example, placing funds for innovation and development in the field of entrepreneurship too narrowly into business school academic pockets. It is now recognised that the disbursement off funds for curricula development to non-business departments has wider and potentially more sustainable benefits.

Finally, in terms of stakeholder engagement there is the somewhat neglected issue of the role of the entrepreneur. Awarding status to the entrepreneurs within the university and developing their capacity to contribute to teaching and to the harvesting of ideas is arguably a major issue yet to be fully confronted in the UK.

What can be done?

The authors end this paper with a few selected suggested actions that can be implemented in partially addressing a number of the issues raised above:

1. Steps are taken to bring together leading stakeholders in a search for clearer and wider agreement as to the most appropriate concept of entrepreneurship education to be delivered in Higher Education. The Template set out briefly in Annex 2 to this paper provides a starting point.
- 2.
3. The English RDAs, in partnership with each region’s network of HEIs and supported by national bodies such as NCGE, Enterprise Insight, collectively develop long-term entrepreneurship action plans integrated within the regional economic strategies focused on achieving agreed desirable entrepreneurship outcomes.
4. Greater emphasis is placed on monitoring and understanding the current and developing nature of entrepreneurship education provision across the UK’s

regions, including harnessing existing data collection activities within HE and RDAs.

5. Incentives and rewards are established at regional and national levels for the development and dissemination of good practice.
6. A national fund is established to award through competition a limited number of HEIs with resources for testing the embedding of an institutional model of an entrepreneurial university (designated as Special Entrepreneurial Universities).
7. The above is linked to a specialised leadership support programme for senior management
8. NCGE to work closely with the Government's Inter-Departmental Working Group to affect change in HE funding and policy support
9. A national professional development programme for entrepreneurship educators is offered to practitioners across the HE sector.
10. Serious consideration is given to establishing a US-style Foundation as a private/public partnership appropriate to the UK culture and environment with a mission described above to support generational change.
11. Finally, a bold move would be to set up a university college devoted wholly to the concept of independent business and entrepreneurship development, charged with research and development into the best of concept and practice in the field and with the capacity to act as an ongoing hub for the development of this area in the education sector in the UK. This indeed could be the focus for one of the new university/college sites in the UK currently being considered.

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ANNEX 1

Indicative results from an experiment in attribution of the importance of entrepreneurial attributes and the university contribution to their development

The attached diagram demonstrates the results of an experiment during a Masterclass on Entrepreneurship run by Professor Gibb with students from Brighton and Sussex Universities in November 2005 sponsored by SEEDA. After discussion with students as to the key attributes of entrepreneurs the students were asked to complete two questionnaires shown below. There were 33 usable responses.

Two questions were asked in sequence with the same template but with a separate questionnaire:

Part 1

An assessment of the importance of entrepreneurial capacity to your future. The questions focus upon a number of key entrepreneurial or enterprising capacities/attributes. Can you provide an estimate of the importance of these in relation to what you want to do when you leave university (work, leisure, social life). Please complete quickly, circling the appropriate number

7 = Highly important

1 = Unimportant

Part 2

To what degree do you feel that the following capacities/attributes have been enhanced by the university experience?

7 = greatly

1 = very little

Degree of influence*
Formal Informal*
(score out of 10)

**Formal = the formal study relationship with the university

Informal = other aspects of university life (social, leisure, living)

The sample is not random. It consists of mainly final year students who volunteered for the Masterclass and therefore had an obvious interest in entrepreneurship. The questionnaires were completed during the class.

The results demonstrate that entrepreneurial attributes are held to be very important to the future career life of students. They also show that the university experience is deemed to influence these attributes but not to the same degree as their importance. They also show that the main influence on their development is the informal, not the formal aspects of university life.

RESULTS

									formal (out of 10)	informal (out of 10)
Ability to see opportunities in problems	1	2	3	4	5	6	7		4.5	5.7
Ability to take initiatives	1	2	3	4	5	6	7		4.3	6.3
Ability to analyse data	1	2	3	4	5	6	7		6.3	5.4
Ability to think creatively	1	2	3	4	5	6	7		5.0	5.7
Forward looking	1	2	3	4	5	6	7		5.1	5.8
Being optimism	1	2	3	4	5	6	7		4.4	5.6
Sense of ownership (of events)	1	2	3	4	5	6	7		4.6	5.0
Determination to be independent	1	2	3	4	5	6	7		4.4	6.0
Capacity to make judgments on the basis of limited information	1	2	3	4	5	6	7		4.9	5.5
Ability to persuade others	1	2	3	4	5	6	7		4.8	5.3
Ability to use social networks for career advantage	1	2	3	4	5	6	7		4.8	6.4
Feeling can control own destiny	1	2	3	4	5	6	7		4.8	5.6
Capacity to work independently	1	2	3	4	5	6	7		5.9	6.0
Imaginative use of knowledge	1	2	3	4	5	6	7		5.7	6.6
Desire to see things through	1	2	3	4	5	6	7		5.8	6.2
Ability to persuade others	1	2	3	4	5	6	7		4.8	5.4
Having lots of ideas	1	2	3	4	5	6	7		5.2	6.6
Strong orientation to achieve	1	2	3	4	5	6	7		6.0	6.3

*Formal= the formal study relationship with the university
 Informal = other aspects of university life (social, leisure, living)

Part 1 _____
 Par 2 —————>>>

ANNEX 2

NCGE Framework: Desired Entrepreneurial Outcomes

DESIRED ENTREPRENEURIAL OUTCOMES							
Entrepreneurial behaviours and skills	Empathy with the entrepreneurial life	Embedded entrepreneurial values	Motivation to entrepreneurial careers/lives	Understanding venture creation processes	Developing generic entrepreneurial	Key business 'how-to's developed	Key relationship networking skills

A. Entrepreneurial behaviours and skills

- opportunity seeking
- initiative taking
- ownership of a development
- commitment to see things through
- personal locus of control (autonomy)
- intuitive decision making with limited information
- networking capacity
- strategic thinking
- negotiation capacity
- selling/persuasive capacity
- achievement orientation
- calculated risk taking

B. Empathy with the entrepreneurial way of life

- living with uncertainty and complexity
- having to do everything under pressure
- coping with loneliness
- holistic management
- no sell, no income
- no cash in hand – no income
- building know who and trust relationships
- learning by doing, copying, making things up, problem solving
- managing interdependencies
- working flexibly and long hours

C. Embedded entrepreneurial values

- strong sense of independence
- distrust of bureaucracy and its values
- self made/self belief

- strong sense of ownership
- belief that rewards come with own effort
- hard work brings its rewards
- believe can make things happen
- strong action orientation
- belief in informal arrangements
- strong belief in the value of know-who and trust
- strong belief in freedom to take action
- belief in the individual and community not the state

D. Motivation to entrepreneurial careers/lives

- understand the benefits
- can compare with employee career
- have some 'heroes' as friends acquaintances
- have images of entrepreneurial people 'just like them'

E. Understanding venture creation processes in any context

- can go through the total process and know what challenges will arise at each stage
- know roughly how to handle them

F. Developing generic entrepreneurial competencies

- how to find an idea
- how to appraise an idea
- how to see problems as opportunities
- to identify the key people to be influenced in any development
- know how to build the know who
- know how to learn from relationships
- know how to assess business development needs
- know where to look for answers
- emotional self awareness, manage and read emotions and handle relationships
- to constantly see yourself and the business through the eyes of stakeholders and particularly customers

G. Key business 'how to's' developed

- see products and services as combinations of benefits
- develop a total service package
- price a product service
- identify and approach good customers
- appraise and learn from competition
- monitor the environment with limited resource
- choose appropriate sales strategy and manage it
- identify the appropriate scale of a business to make a living
- set standards for operations performance and manage them
- finance the business appropriately from different sources
- develop a business plan as a relationship communication instrument
- acquire an appropriate systems to manage cash, payments, collections, profits and costs
- select a good accountant
- manage, with minimum fuss, statutory requirements

H. Key relationship networking skills

- understand the needs of all key stakeholders at the start-up and survival stage
- know how to educate stakeholders
- know how to learn from them
- know how best to build and manage the relationship.