

Exploring the synergistic potential in entrepreneurial university development: towards the building of a strategic framework

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This article aims to provide a framework for exploration of a strategic approach to entrepreneurial university development. It draws on earlier reviews by the author of the entrepreneurial concept and of the now considerable global literature on the theme of the entrepreneurial university, although there is a strong focus in this article on the UK. It also draws lessons from practice in exploring with several universities the potential for creating strategic synergy between existing activities in the institution not all of which would be labelled entrepreneurial in the conventional sense. Each of these key activities are briefly reviewed in turn and presented as a basis for action in drawing together a strategy for the university.

Keywords: *entrepreneurship and enterprise education; Entrepreneurial University; strategy; synergistic potential*

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This article is focused on providing a conceptual base for practice in entrepreneurial university development. It briefly explores the opportunities for creating strategic and operational synergies between the various ‘entrepreneurial’ and ‘enterprising’ activities being undertaken by universities as a basis for the building of a ‘real time’ entrepreneurial development strategy. It argues that such a review can lead to the development of a more soundly based strategic orientation towards entrepreneurship.¹ It is written with the objective of providing a briefing for those in the higher education sector wishing to review the potential of their own institution to become more entrepreneurial. It is therefore in part unashamedly normative in seeking to provide a guide for action.

The article is derived from both concept and practice. Concept issues are dealt with at greater length (too substantial to be recorded in this article) in two articles written by the author (one supported by others) published online by the then National Council for Graduate En-

trepreneurship (NCGE).² The first, ‘Towards Entrepreneurial University: Entrepreneurship Education as a lever for Change’ (Gibb, 2005) was written as a policy article for the Council and explores the argument for a basic redefinition of the entrepreneurial concept and the associated various stages that might be there in entrepreneurial university development. The second ‘Leading the Entrepreneurial University’ (Gibb, Haskins, & Robertson, 2009) is a substantial review of the international literature on university entrepreneurial development and was written to provide a conceptual frame for an ‘Entrepreneurial University Leadership Programme’ based mainly at Oxford University in 2009/2010 for senior UK and International university staff.³ Further supportive references for some of the key issues identified can therefore be found in the above papers.

The practice base for this article derives from several experiences. The first is a review by the author of the potential for the development of a ‘whole university’ integrative approach to entrepreneurship education at Kingston University, UK.⁴ The second derives from experiments by the author in involving participants in

¹ The expression ‘strategic orientation’ is preferred to ‘strategic plan’ in recognition of the nature of decision making and planning in entrepreneurial companies and in the present context of high levels of uncertainty and complexity (see Gibb & Scott 1986; Shattock, 2000).

² Now known as the National Centre for Entrepreneurship in Education (NCEE).

³ ‘Leading the entrepreneurial university’ see NCEE website www.ncee.org.uk.

⁴ The support of Debbie Lock Head of Enterprise at Kingston University is acknowledged.

the NCGE International Entrepreneurship Educators' Programme (IEEP)⁵ in a comprehensive review of influences on development of entrepreneurship activity in their higher and further education institutions. The third results from reflection in using the framework set out below as the basis for senior university staff workshops.

It is argued that a review of the kind proposed has become highly relevant in an environment of much greater uncertainty and complexity for higher education institutions – a result of the deep impact of globalisation compounded by the financial crisis and cuts in public expenditure, across Europe and beyond. This scenario is likely to last for some years. Against this backdrop, it is important to recognise that universities have different priorities, cultures, norms, knowledge and research emphases and traditions. For example, in the UK context, there is evidence to support the view that staff of post-1992 UK universities (former polytechnics) are more likely to engage with a wider range of external stakeholders than their more traditional counterparts (Buckland, 2004; McCaig, 2006). The composition of the university in terms of disciplines will also considerably influence the nature of entrepreneurial engagement. Universities are pluralistic organizations, and cultures and 'ways of doing things' vary between disciplines and departments. Many universities now have a substantial number of vocational degrees. In the older universities, there is often an emphasis on areas that might broadly be described as 'professional', including medicine and health, law and accountancy as well as perhaps engineering. Even in some of the more traditional areas of the humanities such as music, art and divinity, there are strong elements of vocationalism and professionalism. These scenarios influence considerably the scope for enterprise and entrepreneurial initiative.

In undertaking a review as the basis for developing institutional strategies, it is, therefore, recognised that each university will have its own perspectives. Consequently, not all of the issues noted below will have the same weight of significance. The article might, therefore, be used by readers as a basis for exploration of those areas of particular concern to the institution and the identification of leadership challenges.

In all universities, there exist a range of 'entrepreneurial related activities', although they may not be labelled as such. It is argued below that a major challenge is to explore synergy between them and by this means draw them into a 'whole university' approach to entrepreneur-

ial development. Key areas to be explored are set out under the broad headings as in Fig. 1.

The paper is set out as follows. First, there is a brief descriptive background to each key area as in Figure 1: this is followed by a short list of potential key issues, drawn from both the literature and experience, that could provide a template for strategic exploration. A possible 'audit' document is provided in Annex 2 although it is the author's view that this should be used with some caution. The article concludes with a view as to the potential for synergy. It is first important to clarify the basic 'enterprise' and 'entrepreneurship' concepts to be used.

Agreement on concept and philosophy

Concept is key to the development of an appropriate level of shared understanding of the words entrepreneurship and enterprise. Often there are confusions, with the former word associated with commercialisation of university intellectual property (IP) and the latter sometimes seen as confined to business-related activity. Moreover, there will be much entrepreneurial and enterprising activity in a university that is not labelled as such. The definitions in Annex 1, expanded from those adopted by the NCGE, are designed to assist (for a fuller discussion of this, see Gibb, 2002, 2005).⁶ Innovation is proposed as an outcome from entrepreneurial and enterprising behaviour coupled with the degree to which these behaviours are enhanced by organisation design, culture and the environment in general. Innovation in the university context can include among other things: new programme development; new innovative pedagogy; new forms of stakeholder relationship; new developments in alumni relations; new approaches to and developments from, research; new transdisciplinary ventures in research and teaching; new forms of partnership with business; new forms of international relationships; new social enterprise activity; and, importantly, experiments in governance and organisation design.

The degree of acceptance of the relevance of the enterprise, entrepreneurship and innovation concepts to the future of a university will be a function of its basic philosophy pertaining to: the importance it attaches to the direct utility of its work in meeting the needs of society; the associated contextualisation of its research and development activity; its focus on the related integration of knowledge as opposed to preserving the boundaries of existing disciplines; its concern to be a 'learning' (as opposed to 'learned') organisation (Senge, 1990; Kristensen, 1999); and its associated degree of openness to the acquisition of knowledge from any source and in any form,

⁵ The IEPP is aimed at the development of university educators from all disciplines to equip them with a mastery of a number of 'leadership competencies' in the entrepreneurship education field. The programme involves an 'audit' of institution entrepreneurial activity likely to influence the capacity of the institution to effectively absorb educational initiatives. It forms the basis for a strategic 'bottom up' review to identify opportunities and constraints. For a review of the programme and its conceptual underpinning, see Gibb (2011).

⁶ While in English, it is possible to make distinctions between enterprise and entrepreneurship as set out in Annex 1, in many languages, for example, Spanish, Croatian and Danish, there is no word for 'enterprise' with the same meaning as given in the Annex.

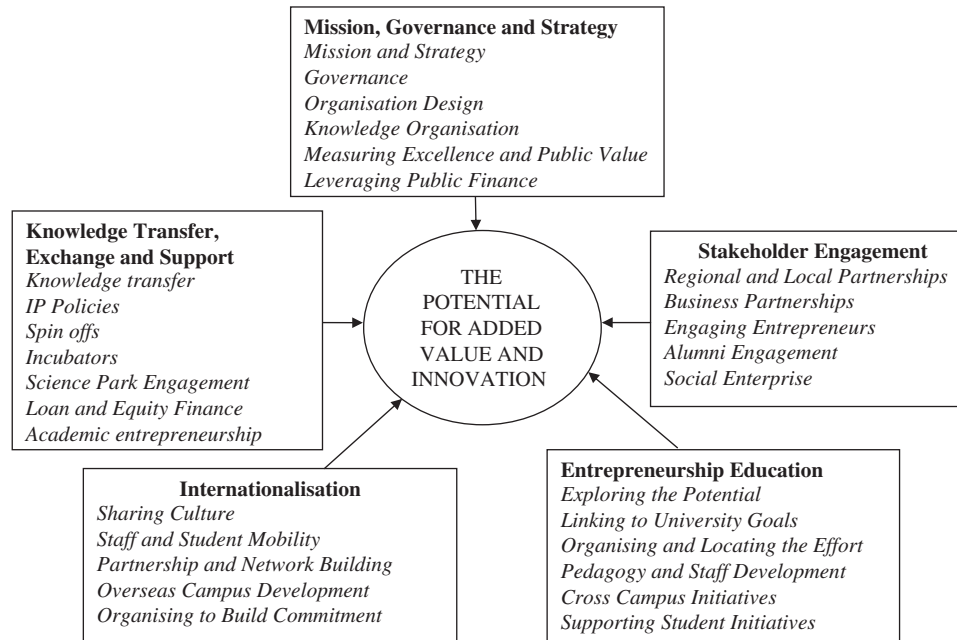


Fig. 1. Key areas of university entrepreneurial potential.

including tacit knowledge (Gibbons et al., 1994; Wenger, 1998; Nowotny, Scott, & Gibbons, 2003).

Issues of mission, strategy and governance

Mission and strategy

Many university mission statements and published strategies worldwide embrace the word ‘Enterprise’ or ‘Entrepreneurship’ (OECD, 2001; Currie, 2002; Barsony, 2003; Jacob, Lundqvist & Hellsmark, 2003; Etzkovitz, 2004; Kirby, 2006; Bridgeman, 2007). There are often several contexts associated with this commitment, including the university’s concern with: knowledge exchange and transfer; support of development from research; the level and nature of business and community engagement; the need to compete internationally; the development of enterprising students within the employability agenda; and the raising of finance/revenues from non-public sources. A key factor is the degree to which, formally and informally, the notion of enterprise is accepted as part of the ‘Idea’ of the university and not alien to views of its autonomy (for different views on this see, for example, Mawditt, 1998; Viale & Etzkowitz, 2005; Berglund, 2008; Crow, 2008).

The major issues shaping the incorporation of enterprise and entrepreneurship into the university’s strategic plan seem to be: its stated mission; its degree of concern for the relevance of its research output; its recognition of its role in, and level of commitment to, addressing the problems of society; the strength of its associated commitment to knowledge transfer and exchange; the related commitment to business development; and more

recently its focus upon graduate employability. Fully integrating these concerns into the detail of a plan seems to be a major challenge.⁷ A key strategic issue is the degree to which university leadership seeks to embed responsibility for the above issues within the faculties and departments (Blackmore & Blackwell, 2008; Kweik, 2008).

Governance

Key issues relating to the enterprise/entrepreneurship concept adopted and its degree of influence on the university strategy in this respect seem to be: the nature and strength of the influence of the council or management board of the university on the commitment to partnership with business and the community (Miller & Katz, 2004); the degree of active engagement of ‘external’ members of boards (as opposed to attendance at meetings) (Committee of University Chairs, 2009); the level of active engagement of university staff with external stakeholder initiatives (as opposed to staff being members of associations/agencies and merely attending meetings) (Bleiklie & Kogan, 2007; Geuna & Muscio, 2008); the strength, compactness and credibility of the executive team (Ackroyd & Ackroyd, 1999; Bleiklie & Kogan, 2007); the levels of cooperation and trust between professional and academic staff in dealing with such issues as knowledge transfer, employability and business relations/development (Kweik, 2008); the degree of ‘ownership’ of the issues, by faculties, deans and

⁷As reflected in the experience of participants in the above-mentioned leadership programme.

departmental heads and individual academics (Kohler & Huber, 2006, p. 112); and the nature and strength of leadership in supporting an enterprise culture in the university (Todorovic, McNaughton, & Guild, 2005 also see below).

Organisation design

Organisations can be designed to constrain enterprising/entrepreneurial behaviour or facilitate it (Gibb, 2005, Barrie, 2007). Key factors shaping the latter include: the levels of decentralisation of decision making and responsibility for strategies as well as operations; the associated flexibility in integrating strategies and action; the degree to which individuals, bottom-up, are empowered to innovate; the associated level of support for autonomy and the taking of responsibility, for example, in building a personal network and working with key external stakeholders; the degree to which departmental heads and faculty leaders are prepared to support risk taking and share responsibility for that risk; the degree to which staff are rewarded for a wide range of innovative behaviour (as described above under ‘Concept’) as opposed solely for research and publication; the level of support, operationally and strategically, for cross-departmental and trans-disciplinary research, teaching and development; and the degree to which the university shares, and is held together, by a culture that embraces the above (Bratianu & Stanciu, 2010).

Knowledge organisation

The stance taken on the disciplinary nature and, therefore, structure of the university is fundamental to its organisation and arguably also to its potential for entrepreneurialism. A distinction can be made between multi-disciplinarity, inter-disciplinarity and transdisciplinarity (Nicolescu, 2008). The first implies a juxtaposition of disciplines, the second an interaction between established disciplines and the last the creation of a new set of axioms to confront, explore and explain a phenomenon. Arizona State University, for example, has organised itself wholly around trans-disciplinary centres (Crow, 2008).

The merging of, and interaction between, disciplines has been a feature of the US research university scene over the past decade or so, stimulated by the public research foundations and Federal and State imperatives for solutions to societal problems (US Department of Education, 2006). Such initiatives are not solely the domain of science faculties but extend also into the humanities. The focus, and some argue the driver, for this is a desire to respond more closely to issues of importance to society (for example, in the US, for example, focus on black studies, women’s studies, disability studies, sustainability studies, health studies and third-age studies). In developing countries, this trend also is being followed –

the example of Sri Lanka being in line with an urge to discard the ‘old colonial’ concept of a university of ‘learning for its own sake’, which does not seem to match the needs of the country.⁸

Key issues in leading universities to this transition in knowledge organisation include: the publicly articulated demand for universities to demonstrate value to society and align themselves with policy goals (Lambert, 2003); a stronger focus on a creative problem-solving approach that demands transdisciplinarity; an imperative by this means to defend academic freedom; a drive for intellectualism rather than narrow scholasticism (Cherwitz, 2002, 2005); student and professional demands for career relevance; and a search for innovation (McInnis, 2001; Etzkowitz, 2004; Greenhalgh, 2008).

In the UK, there has been a growth of interdisciplinary research and teaching centres: but overall, internationally, the development has been cautious and is still the focus of much debate (US National Academy of Science 2004). However, it can be argued that such an approach to teaching and research opens up considerable potential for adding entrepreneurial value to the work of the university.

Measuring excellence through public value

The concept of public value has its origins in the work of Mark Moore, Professor of Non-profit Organisations in the Kennedy School of Government at Harvard University (Moore, 1995). The concept has been highly influential in debates in the UK government concerning impact measurement of public expenditure. It eschews conventional cost–benefit analysis in emphasising three aspects of performance: delivering actual services; achieving social outcomes; and maintaining trust and legitimacy in the delivery agency. It is the last mentioned that is particularly innovative in that it focuses on the processes by which the institution creates its legitimacy in society including, for example: funder relationships and their diversity; visibility and legitimacy with the public in general; relationships with government regulators; reputation with the media; credibility with civil society sectors; and volunteer roles and relations. It is these ‘aims’ that dictate the building of operational capacity, combining together to determine and create public value outcomes. The key issues for the university in this respect are, therefore, the degree to which it seeks to measure its own excellence as perceived through the eyes of the ‘legitimate’ stakeholders and whether this is reflected in its vision, mission, strategy and process (ways of doing things).

⁸ Opening Address of the Minister for Higher Education at a ‘Policy Dialogue on Higher Education in Sri Lanka and The UK’. ‘The Entrepreneurial University’, (Organised by the British Council Sri Lanka) Colombo 27–29, March 2008.

Leveraging public and private finance

Throughout the Western World and in the European Community as a whole, it is forecast that universities will face a continuous upward cost pressure, at rates in excess of inflation (Schwarzenberger, 2008). Costs are likely to outpace the potential trajectories of increasing revenues – at least without a supplementation of governmental revenue.

This scenario most probably holds for the United Kingdom and creates additional pressure for wider stakeholder engagement. The public policy focus for this engagement over the past decade has been through funding from the UK Higher Education Funding Council (HEFCE) for what has been designated ‘Third Stream Activity’ aimed broadly at enhancing the direct and indirect economic contribution of Higher Education. Monies available under this programme, the Higher Education Innovation Fund (HEIF), were small relative to the total HEFCE financing of universities – in 2008/2009 £110mn. compared with £7.3bn. Third stream activity is defined in terms of: joint and contract research including spinouts, engagement in networks of stakeholders, contribution to community activities and placement of students and staff with business and social enterprise.

Under the new UK funding arrangements, where most of teaching costs are to be covered by student fees the emphasis will be on attracting students and their fee income. But, there will also be an increasing challenge to find new forms of revenue from: renting out of under-utilised assets; the broadening of the activities of available human resources, in particular pursuit of a more substantial level of consulting activity across all departments of the university not just business schools; more vigorous pursuit of research contracts particularly commercial research and development contracts; sales of IP; spin-offs; philanthropy; closer partnerships with private providers and in some cases privatization; cost savings by subcontracting out of a wide range of services; and seeking new forms of leveraging from existing private resources. In the United Kingdom, in general it would appear that non-tuition fee and research income constitute less than a quarter of revenue in many universities (Williams, 2009).

Stakeholder engagement and partnership

This has several components covering: relationships with regions and cities; engagement with business; links with social enterprise; approaches to alumni engagement; media linkages; relationships with professional bodies; and, importantly, the interface with entrepreneurs. Overall, the nature and level of engagement with the above is a function of the degree of focus of the university on creating value in society, linking its goals, research and organisation of knowledge around key areas of societal need and concern as described earlier. This is what has been described as the philosophy and pursuit of wisdom rather than the philosophy of knowledge (Maxwell, 1984).

Regional and local partnerships

Over the past decade, there has been a growing emphasis in higher education policy across the world on the role of universities in local and regional development, extending from the more established policy focus of their role in the commercialisation of research (Boucher, Conway, & Van Der Meer, 2003; Charles, 2006; IHEP, 2007; Arbo & Bennenworth, 2008). In the United Kingdom, in response to this shift, the Regional Development Agencies (now abolished) have increasingly seen universities as hubs of regional development and innovation strategies. Some argue that this places universities instrumentally as part of the governance of regions rather than merely purveyors of knowledge (Smith, 2007). The entrepreneurial role in this context relates to finding innovative means to contribute to regional social, cultural and community development. Not all universities would wholly buy into this scenario.

Key issues for consideration in this respect include: the degree of university focus in its strategic plans and mission on the particular strengths, weaknesses and distinctive culture of a region and recognition of the ‘need to know’ associated with the region’s economic, social and cultural development; the degree to which the university sees its international activity as bringing opportunity to the region and providing the means for working in partnership with regional and local institutions in this respect; the focus in university research and development on areas of potential regional endogenous knowledge-based growth; the degree of emphasis on engagement with specific clusters of local industry and services; associated emphasis on linking graduates with local companies, particularly Small and Medium Enterprises (SMEs); the level of active engagement of the university in local civic and cultural events; and the strength of relationships with former local alumni.

Partnerships with business

A major component of the above is engagement with business. Key manifestations of engagement include: the level of business research grants; the number of active partnerships in development from research and problem solving; levels of consultancy; business active (as opposed to notional) engagement in the governance of the university; business engagement with the teaching of the university; joint degrees with individual businesses or groups of businesses; levels of graduate placement with companies; university ‘extra-mural’ programmes focused on management and/or business development; as well as levels of knowledge exchange and transfer activity (Etzkowitz, 2008).

The policy agenda over the past decade in the United Kingdom has been strong in this respect with numerous white papers and reports urging stronger collaboration (Dearing, 1997, Lambert, 2003, Sainsbury, 2007).

Engaging entrepreneurs

In the USA, the level of local business philanthropy is considerably higher than in Europe reflecting the strength of entrepreneurs' engagement over time with US higher education institutions (Sutton Trust, 2003). This is an area of arguably great weakness in the United Kingdom, particularly with respect to involvement of local SME owners (Hughes, 2006). Key issues in a UK context include: the level of teaching company activity with SMEs; the use of entrepreneurs in teaching; joint entrepreneurial ventures in research; the offering of status to entrepreneurs as Fellows and Professors of Practice; levels of graduate placement with SMEs; the degree of real engagement with local SME-dominated associations for example Small Business Clubs and Chambers of Commerce; and the numbers of SMEs located in university technology and science parks and actively linked in to university activity.

There have been experiments on a national scale in Scotland to give entrepreneurs a more prominent role in the delivery of university entrepreneurship education, based on the US Babson model, but with mixed success (Hayward, 2000). There are experiments in entrepreneurial professors of practice in a number of UK universities, including Newcastle, Anglia Ruskin and Cambridge (based on the MIT model), but there is no widespread programme of substantial embeddedness of entrepreneur engagement across the universities.

Alumni engagement

Almost all universities have commitment to engagement with alumni. But the level and intensity of this effort varies substantially. A major component is the quality of information recorded by the alumni office, key measures of which include: the width of coverage of any data base; the ability to trace, record and sort data in terms of career structures and locations, and particularly, in the context of the entrepreneurial university, to know how many of former students own their own company or organisation. Perhaps the best of alumni engagement practice in these respects can be found in the USA (Cabrera, Weerts, & Zulich, 2005).

Key components of sound alumni practice include: the use of webtools for continued social and professional networking; 'graduation year' regular reunions; alumni conferences and meetings and support services; alumni 'Halls of Fame'; awards for alumni excellence in performance in their community; regional and international country clubs; careers and lifelong learning support; magazines; entrepreneur alumni associations; regional social and cultural events; focused discussion groups; publication of directories; and volunteering (Baade, R.A., & Sundberg, J., 1996). Several UK universities have initiatives focused on engaging alumni and entrepreneurs, in particular, in mentoring and other support activity in

the university (Reading, York and Teesside Universities for example).

Social enterprise

Social enterprises are organisations with primarily social objectives whose surpluses, if any, are reinvested for that purpose in the organisation or the community. They do not set out to create profits for shareholders. Social enterprises are becoming an important part of economies in many countries. In the United Kingdom, they now constitute over 5% of all businesses (Chipperfield, 2009). University engagement with social enterprise is one sign of its commitment to the community and the broader goals of a civil society. Key issues in university engagement include: the benefits perceived by the university in terms of its reputation in the community and opportunity for building relationships; support for opening gateways to academics who wish to use their research for the broad benefit of society; the provision of opportunities for student engagement in exploring the value of their disciplinary knowledge in society (which has been labelled as 'intellectual entrepreneurship'); enhancing the potential for student exploration of career options in the sector; providing an attractive gateway for alumni involvement personally and financially; and, particularly, providing opportunities for staff and students in departments of humanities to engage with the community.

Social enterprise activity can become an intrinsic part of knowledge transfer/exchange activity, thus broadening the reputation of the university in this field (Denny, 2011).

Knowledge transfer, exchange and support

Knowledge transfer

Over the past two decades, there has been considerable public policy emphasis on university processes of knowledge transfer in both developed and developing economies (Lee, 1996; Shane, 2004; Kwiek, 2005). Yet, as has been noted above, in the United Kingdom, university income from commercial knowledge transfer activity is very small compared with other forms of revenue. Recently, the term 'knowledge transfer' has been supplemented, and sometimes replaced by, 'knowledge exchange' in recognition of the fact that universities do not hold a monopoly on knowledge and indeed have much to learn from sources external to the university (Delanty, 2003; Senegés, 2007). Knowledge transfer can be defined as the formal and informal transfer of new discoveries and innovations resulting from research (usually scientific) conducted at universities to the commercial and non-commercial sector for public benefit.

Key issues in this area include: the openness of university IP policy (see below); the existence of formal gateways of access to areas of university expertise (see for

example Knowledge House in the north of England – www.knowledgehouse.ac.uk); the strength and degree of personal entrepreneurialism in technology transfer offices; the levels of informal and formal networking and the building of relevant social capital of university staff; the existence of career paths and rewards for staff who engage in such activity; levels and modes of doctoral student engagement with ‘real world’ problems; the extent and depth of undergraduate and graduate project-type work particularly in SMEs; the degree of embeddedness of responsibility for knowledge transfer/exchange in faculties and departments, the strength of external, particularly business, partnership in research and development; and overall the degree to which the research agenda of a university focuses on visible societal opportunities and problems. Physical proximity of external partners and ‘clients’ may be particularly important in the case of SMEs (Muscio, 2007). The jury is still out on the value in practice of university-based science and technology parks in this process (see below).

Overall, a key issue to be confronted by many strong research performance universities is the degree to which academic researchers may be distracted by the pressure to make their work directly transferable. Time management in this respect is, reportedly, critical. It is of relevance to note that the vast majority of technology transfer offices do not create net revenue, even in the USA (Mars, 2005).

IP and licensing policies

It is claimed by a number of authorities that the impact of this activity in universities on national competitiveness and on job and company growth has been exaggerated (Hughes, 2003). Most if not all universities will have policies relating to the ownership of IP, inventions and the regulation of licensing activity. The degree to which the policy allows ownership of IP by the individual academic varies: but in general in the United Kingdom, in contrast to much of the practice in Europe, IP rights are vested primarily with the university (Harman, 2007). Key issues include: where responsibility for ownership of IP is located in the university (in some universities in a research services office); whether or not to establish a separate company to handle the process of commercialising IP; the degree to which the issue is complicated by the range and nature of any partnerships in the research process (for example levels of external involvement, business, government and international, in action, funding and sponsorship); and specific problems that arise when research is funded by a company (relating particularly to further developments arising from the original invention), such problems arising from the fact that a patent or indeed product or process license may need considerable time and investment before proof of concept is established and it is incorporated in a formal product or

service acceptable to a consumer. Often, this process results in numerous modifications. A further problem may subsequently be that of governance, relating to individual academics who have an ownership stake in companies in areas relating to their research and the conflicts that might arise between publication and disclosure of company IP (Duberley, Cohen, & Leeson, 2007).

Spin-offs

Spin-offs (new university-connected ventures) represent a direct form of knowledge transfer and movement of IP into new organisations. As with the IP and licensing activity noted above, their scale and national impact compared with other forms of technology transfer is small, even in the USA (Hughes, 2003). Most new research-based spin-offs remain small, and the time horizon involved in those growing into substantial businesses may extend to as long as 20 years. Spin-offs may also embrace university knowledge and practice outside of research-based activity, for example in finding wider application for ‘internal’ practices in areas of IT, educational pedagogy and laboratory testing.

The major key issues are: how to raise awareness of the potential and the process and create reward systems for such activity; how to ensure that the process is easy enough and supportive enough to eliminate deviant behaviour (the pursuit of company formation via third party and university unrelated means); and how to manage the process organisationally (via a specialist office?). The research on this issue emphasises the paramount importance of academics building formal and informal network relationships with business and other stakeholders in smoothing the transfer process (Hughes 2003).

Incubators

In general, incubators are most commonly aimed at providing a supportive environment for new business/organisation ventures. The major performance indicator, about which there is remarkably little evidence, is whether they can be shown to add real value to the start-up process in terms of improving survival rates, growth, employment and profitability. Incubators can be physical or virtual. Physical incubators conventionally embrace: shared office space rented often on favourable terms; shared business services (office and secretarial, accountancy, fax, telephone and printing); professional business support (coaching); support for building networks (internally within the incubator and externally); and occasionally, specialist finance availability. Virtual incubators focus on providing mainly online business and network development support.

Key issues in incubator management include: selection of target groups (these may be open to any kind of business or organisation or focused more precisely on particular client groups such as technology-based firms,

IT businesses, specific sector groups, students, staff, social enterprises or joint university/business ventures); criteria used for selection in relation to stage of the proposed business development (is the incubator, for example to be only open to those with 'proof of concept'); funding and degree of subsidy if any; length of tenure of space and exit strategy/criteria for tenants; and the degree of utilisation of external business support services and agents (Bergek & Norrman, 2008). Incubation processes can be linked with promotional activity such as business plan competitions and formal training programmes. Pre-incubator models can be provided for potential university technology spin-outs where the focus is on 'proof of concept'.

Science and technology parks

For some, a major manifestation of a university's commitment to entrepreneurial engagement is the existence of a university Science Park. There are now around 50 such parks in the United Kingdom. The model was originally based on the experience of US Stanford and MIT models. The most common form in the United Kingdom is that of a partnership between the university and external investors (public and private): in this model the university may have only limited involvement in the day-to-day management. Site management is usually by professionals. The initial focus of Parks was on new technology-based firms. The original aim was to add value by promoting university technology transfer, attract firms with leading edge technology and foster networks and linkages, internal to the university and Park as well as external. Evaluation studies do not in general support the notion that parks have created considerable added value to the process of university knowledge transfer and engagement in knowledge exchange (Siegel, Westhead, & Wright, 2003). The evidence also indicates that most companies on parks are not heavily involved with the university as measured by: active engagement in processes of technology transfer and exchange; joint R and D programmes; hosting of numbers of companies set up by university staff and/or students; and numbers of doctoral and other students working with firms (Angle Technology, 2003).

Key issues are, therefore: the degree to which the university is really engaged with firms as above; the degree to which the activities of the firms align with the major research and teaching strengths of the university; the degree of collaboration between firms; and, importantly, the levels of informal social and business engagement of academics with staff of the companies. Parks have been criticised as being mainly real estate operations attracting firms to pleasant, prestigious, locations at reasonable rents.

Loan and equity finance

It has long been argued that a barrier to the success of university spin-offs has been the lack of venture capital, particularly that capital needed to ensure 'proof of concept'. The negative cash flow in a technology-based new venture can last for several years. Yet, it has already been noted above that many spin-offs do not grow and 60% will fail (Hughes, 2003). Only a small percentage (6%) will develop into growth companies. Notwithstanding this data, an argument frequently presented is that part of the survival and growth problem is the lack of seed equity capital, although problems with loan capital are arguably also of considerable importance.

There are numerous examples of venture funds linked with universities particularly in the USA but also in some major universities in the United Kingdom. Cambridge University for example has its own seed fund, Cambridge Enterprise Venture Partners, and also links with angel investors. In general, however, few universities in the UK have developed their own funded mechanisms to increase the availability of venture and loan finance to internally generated new ventures. They have, however, responded to government initiatives in this area in particular the University Challenge Fund (Jennings, 2009). This has provided relatively small amounts of funding to universities who can demonstrate that they can harvest ideas with commercial potential and are willing to seek partnership with external investors. The Fund is aimed at supporting the establishment of commercial viability, the development of business propositions and incorporates some initial funding for start-up. The Fund has clearly acted as a stimulus to some universities in developing major external partnership initiatives of which the £32mn Premier Fund at the University of Manchester is an example (said to be one of the largest of its kind in Europe).

Key issues therefore include: the degree to which a university has been able to use policy initiatives as above to leverage resource and interest from private companies, venture capital organisations and angel investors; the level of commitment of the university in using its own resources; and the location of venture funding initiatives particularly their links with technology transfer offices. A major problem remains, however, in terms of the length of time needed to achieve a viable business that can then offer an exit strategy for formal venture capital companies. In this respect, engagement with angels may be of greater advantage.

Academic entrepreneurship

A major challenge in moving a university towards a more entrepreneurial stance is finding champions to play the role of change agents in faculties and departments across the university. This is also a key to the success in

developing cross-campus initiatives. As noted in the introduction to this article, it is not uncommon to find many academics who are ‘enterprisingly’ engaged with the external stakeholder community. Research demonstrates that such personal interfaces are not confined to vocational, professional or business-related disciplinary areas (PAPEC and Centre for Business Research Cambridge, 2009). Research also supports the view that the increasingly outward-facing profile of universities, backed up by central professional management services, has been largely accepted by academics, some being more enthusiastic than others! (PAPEC 2009) It is also argued that this ‘shift’ demands re-consideration of career development and reward structures for academics, particularly those heavily engaged with the wider stakeholder environment. This is already a route actively pursued by some universities. The importance of exemplars and leadership by Deans has been emphasised (Bercovic & Feldman, 2008). Finally, even the more research-minded academic is being challenged by a growing demand for graduate and particularly doctoral education to be more formally concerned, than hitherto, with the ‘enterprising development’ of the individual student. This can be seen not only as an intrinsic part of managing the research process but also as essential preparation for the wider world of work and even a future career in a more entrepreneurial university (Research Councils UK and Vitae, 2011).

Entrepreneurship and enterprise education

Exploring the potential across the university

Universities are increasingly being challenged by governments and funding agencies to expand entrepreneurship and enterprise education across the whole institution (OECD, 2008). Many universities have confronted this challenge by the creation of senior posts of responsibility at dean, senior professional manager and/or pro vice chancellor level. Following from the challenge of defining, agreeing and communicating the appropriate concept, noted above, there becomes a need to address a number of key issues including: identifying what kinds of programmes and pedagogies are needed right across the university, linking entrepreneurship education to the dynamic of the university’s strategy, mission and goals; determining where these programmes might be located in the university; knowing how to create ownership for a whole cross-campus approach with the associated need to demonstrate how such programmes can add value to the work of individual faculties and departments; developing staff competency to deliver new programmes and pedagogies; building on related areas of existing activity in the university, for example careers/employability programmes and knowledge transfer and business development services: expanding, the role of student project and work

experience programmes; and seeding student society initiatives.

Identification of the potential and need for entrepreneurial and enterprise education across the university covers six key areas:

- (A) *Creating wide awareness* among the student population and staff of the need to develop a range of personal enterprising competencies in preparing students for a future personal and employment world of greater uncertainty and complexity. These competencies are not the same as those commonly designated as transferable skills. In master classes, and in research supported by the author, students see entrepreneurial attributes as being very important to their future personal and work life world in general. But, when asked to consider the degree to which they are developed by the existing university experience, there is an apparent gap to be filled (Centre for Entrepreneurial Learning, 2009).
- (B) *Developing capacities to embed* the delivery of these competencies contextually within the curriculum and pedagogy of different departments throughout the university.
- (C) *Developing self-efficacy* (awareness, know-how, confidence and intention) to start a business or pursue self-employment at some time in the future (in recognition that one in seven graduates are likely at some time to be self-employed in their future career and that most graduate start-ups are likely to be pursued by those in the age bracket 30–40). In this respect, it should be noted that much of the growth in the micro sector of employment in jobs across Europe has been in the white collar and professional occupations, for example, health, leisure, financial services, sport, IT, business services in general and there has been a growth in portfolio and contract employment.
In enhancing self-efficacy a critical analogy is with teaching people to swim in that should they be placed in future in a position where they need to do this they will have a stronger possibility of survival. Moreover in developing individuals’ entrepreneurial self efficacy some may like it so much that they search for opportunities to ‘dive in’: thus entrepreneurship becomes ‘vocational’. It is rather difficult, in any case, to teach people to swim on land!
- (D) *Supporting current start-ups* – developing the capacity of those who wish currently to find/exploit an idea immediately and start a venture. There will always be a small group of staff and students who wish to pursue this.

- (E) *Creating understanding of the life-world of work in the micro-, small- and medium-sized organisation.*
- (F) *Supporting directly the transition to employment in SMEs and small organisations in general, including social enterprises.*

Linking entrepreneurship education to university goals

All of the above directly relate to an employability agenda and all are relevant to the future experience of all students.

(A) and (B) relate more directly to teaching and learning goals in that their successful pursuit is dependent particularly on the way (pedagogy) knowledge is organised and delivered contextually within departments.

(C) and (D) in particular should be heavily focused on 'know how', 'know who' and personal 'know why' not just 'know-about' as currently appears to be much of the case. In this respect, the notion that theory and concept cannot be completely embodied in practice and 'learning by doing' seems often to stand in the way.

(C) should ideally be designed to fit into the particular context of a department, for example: in Divinity on 'running a church', in Media in managing a portfolio world of work, in Design in setting up a design company, in Engineering in running a project-management services company, in Nursing in running a Primary Health Care Trust or being an 'independent' midwife.

(C), (D), (E) and (F) in particular relate to university goals of engaging the community and building business relationships.

The pursuit of (C) to (F) in particular will demand active engagement with social and business entrepreneurs, advisory service providers, development organisations and business associations in the region.

However, all of the above need to be delivered in an 'enterprising' manner. It can be shown that much of what is currently delivered in the United Kingdom in business schools relating to small organisation creation (C) and (D), for example, is not particularly enterprisingly taught (see below).

Locating and organising entrepreneurship education initiatives

(A) and (B) and most probably (C) can only be fully achieved within departments.

(B) in particular requires the embedding of enterprising pedagogical approaches within the curriculum. It demands staff recognition, competency, motivation and a champion for this activity. (C) might emerge in the form of a number of specific accredited electives. The development of these might be supported from a central source. (C) could also, however, be delivered via a

partnership between a central and departmental source and may or may not be academically accredited.

(D) can be offered across the university by a central source with internal and external partners as noted above.

(E) and (F) are essentially the domain of careers services but will also demand partnerships internally and externally and particularly the engagement of leaders/entrepreneurs of small organisations.

All of (A) to (F) can be said to be of central concern to careers and the employability agendas. There are good examples of careers departments taking substantial cross-university initiatives in entrepreneurship education (see, e.g. the Newcastle University web site www.ncl.ac.uk/careers/develop/bem.php).

Pedagogy and staff development

All of the above-mentioned potential areas of programme development will demand innovative pedagogical approaches designed to stimulate and simulate the practice of entrepreneurial behaviours and the life-world of the entrepreneurial firm and, therefore, require staff development. The UK NCEE has set out a number of associated competencies for students and has developed educator programmes designed to stimulate staff from any department in a university to develop entrepreneurial approaches to their curriculum and programme development. Of particular importance is the simulation of the entrepreneurial life-world of ownership, intuitive decision making and risk taking, initiative taking, holistic project management, 'know-who' network development and relationship management and commitment over time to see things through (Gibb, 2011).

A major challenge in the above is developing the use of web-based learning and the linking of programme delivery and backup to the personal Internet world of the student. There are a growing number of examples of virtual learning programmes and centres.

Developing a cross-campus approach?

The notion of developing an approach that embraces the whole university was initially captured by the Kauffmann Cross Campus Initiative in the USA (<http://www.kauffmann.org/research-and-policy/entrepreneurship-in-american-higher-education.aspx>). A private but wealthy foundation provided a number of substantial grants on a competitive basis to US universities with the aim of taking the focus of entrepreneurship education away from business schools (which it claimed from its research had a poor track record of creating entrepreneurs) and locating it centrally, with a commitment to embed programmes across the university and also, importantly leverage the Kauffmann Foundation grant.

There is probably considerable potential in most universities for enterprise and entrepreneurship education to be a means for creating greater synergy between, and therefore adding value to, many areas of existing activity, including: knowledge exchange and transfer; international network development; regional development partnership; student enterprise activity; business school programmes; college student personal development activity; alumni liaison; postgraduate student development; business engagement; and career's 'future development' programmes. This potential can, most probably, only be achieved through trust-based partnership and will demand committed leadership in this respect. There is probably underdeveloped potential in these respects in many universities.

To realise this potential, there will be a need to find and support strong champions in faculties/departments to develop (A) to (C) in particular. This might be done by offering bursaries for pedagogical/knowledge re-configuration of existing programmes or the development of new electives. This effort will need to be supported, in most cases by a central source with experience and contacts with national and international best practice. These offers will need to be substantially contextualized to the culture and curriculum of individual departments although the development of (C) in particular can be on the basis of any existing experience in start-up programmes within or without the university. (E) to (F) in particular will demand great attention given to creating partnerships between careers, knowledge transfer, alumni, graduate society initiatives, some business school and other related activity that has existed hitherto.

Student entrepreneurship initiatives

A potentially powerful tool for student engagement is the creation of a student entrepreneurship society. The number of such societies is growing across the United Kingdom, and there is now a national student-led network of support through the National Consortium of University Entrepreneurs (NACUE, www.nacue.com). Launched in 2009, it now has links with over 50 university student societies. It provides society start-up support, leaders training, an entrepreneur's portal, links to investors, conferences, guides to events and awards programmes for societies and mentorship programmes. The initiative has its origins in the success of the Oxford Student Entrepreneurs' Society that has several thousand members, a full-time president and a wide range of programmes and activities as above, including an incubator. Student societies are in some cases supported financially by the university: often a key component in their start-up success is support from university staff champions.

Internationalisation

The internationalisation of higher education is a key part of the scenario of the entrepreneurial university. It can be

defined as: 'the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of education' (Knight, 2003).

The process brings uncertainty and complexity and opportunities and threats. It demands a response involving: use of key entrepreneurial attributes such as risk and initiative taking; the finding and grasping of new opportunities (Shattock, 2009); the building of new trust-based networks and relationships; holistic project management; flexible strategic planning; and entrepreneurial leadership (Knight, 2003). The process can also provide new rewards in terms of income, reputation, research opportunity, new partnerships and enhanced cultural understanding. Its operational portfolio includes: new degrees; franchising of existing degrees; international student inflow; new campus initiatives; student exchange; linguistic programmes; faculty mobility and exchange; research partnerships; and company linkages.

Sharing culture

Perhaps the major challenge of internationalisation is that of adapting to different cultures. The process includes ensuring that: the university truly internalises the learning from international experience; staff adapt to new cultures of learning and pedagogy (Green & Baer, 2000); and students and staff are enabled to understand their own culture in a global context and develop empathy with other cultures. As a result, it is argued: they learn to communicate more effectively with different communities (including language development); there is developed an appreciation of the art, religion and material philosophy of other cultures; and they gain knowledge of factors shaping these in a global context (Morris, 2009).

Staff and student mobility

Mobility of staff and students is at the core of most university international cooperation. In 2009/2010, for example, there were 406,000 overseas students studying in UK higher education institutions (approximately half in postgraduate education), according to the UK Council for International Student Affairs: this number had grown by almost one-third over the previous 5 years. Another 408,000 were in the process of obtaining UK university qualifications overseas, over one-quarter by distance learning, Asia being the major focal region. In contrast, the estimated number of UK students studying abroad was 22,000, the majority in the USA and the EU. Mobility is, therefore, considerably biased one way. The same bias is claimed to exist for staff mobility with approximately 10% of UK university staff being from outside the EU, although there is no complete detail of UK university staff serving abroad (International Focus, 2010).

Key issues of UK concern, shared by other EU countries are: the possible short-term nature of the inflow

of students seeking national degrees; the challenge of developing more opportunities for students and staff to study and work abroad in partnership with overseas institutions; the opportunities for distance learning partnerships with new technologies; and the provision of wider opportunities for staff and students to volunteer for overseas work assignments. Very few universities operate the last mentioned on any scale (Baskerville, MacLeod, & Saunders, 2011).

Partnership and network building

In response to the above it has been argued that there is a strategic shift underway in UK higher education in terms of international collaborative activities in that it is moving from a focus upon international student recruitment towards a forging of long-term, sustainable partnerships (Baskerville et al., 2011). But, the review, undertaken in 2011 by the UK International and Europe Unit, reveals that there is a long way to go to catch up with the United States.

Key issues in creating successful partnerships are seen to be: the existence of a clear strategy and criteria; the degree of collaborative research; the sustainability of existing partnerships; quality control; clarity of objectives as to goals and content of the partnership; mutual understanding of the relevant regulatory environment; and a sound financial plan and backing.

Individual academic initiatives often provide the base for bottom-up internationally collaborative research. These also can provide the means for building a multi-disciplinary focus in tandem with multi-national research. Such initiatives may also be enhanced by the trend towards split-site doctoral programmes (Baskerville et al., 2011).

Overseas campus development

The number of universities, globally, establishing campuses overseas is growing, but from a small base. In 2009, the UK representation was 13 out of a global total of 162 (Lasanowski, 2010) of which almost half were from the United States. The development is not without risk in that a small number have failed and others have not got beyond the negotiation stage. The main drivers to this trend are: revenue through enhanced student numbers; staff student mobility; creating visibility and gaining prestige; anticipating competition; opportunities for research and the development of new curriculum; staff development; and securing a student flow to the home base for higher degrees. Key issues include: choosing quality partnerships and sustainable commitment; careful assessment of the regulatory environment; quality control; recruitment of quality local staff (the vast majority of staff are recruited locally); and sponsorship on the basis of a sound revenue-generating business plan. Overseas campus establishments may also offer opportunities for closer engagement with business and local development agencies.

Organising to build commitment

Based on reviews of performance and practice (Reichart & Wachter, 2000; Green, 2005; Morris, 2009; AUCC, 2009), it is possible to identify key factors in pursuing successful international processes, which include: the building of truly international faculty; developing appropriate support services for international students; seeking out and managing dedicated new income streams; creating distinct budgets and contract formats for overseas work; maximising the opportunity for new worldwide alumni relationships; developing new forms of distance education and support; balancing central, departmental and individual initiative appropriately; creating, where appropriate, new forms of accreditation and assessment; building staff promotion and reward systems for international effort; the identification and support of champions; holding deans and departmental heads responsible; and maximising the potential for enhancing domestic student international experience in anticipation of their operating in future in a global employment market place (Seitz, 2007).

Conclusion: building a university strategy from synergistic exploration

The above review has attempted to identify many key issues to be considered within a framework of entrepreneurial university development. It should be clear from the review that there is already a considerable degree of activity centred on the entrepreneurial concept in the higher education sector in the United Kingdom and internationally. It should also be clear from the lists of 'key issues' under each heading that there is much overlap and therefore potential for synergy. The framework introduced above can accordingly be used in practice for an 'audit' of a wide range of university entrepreneurial activities many of which often occur in isolated and sometimes competing (for resource) pockets. Bringing the various activities together may well reveal that the whole could be much greater than the sum of the parts. An example of how exploring one area raises issues for others is provided below in respect of entrepreneurship education.

A strong university commitment to entrepreneurship education as described earlier will involve a number of strategic decisions. One such decision is that of *organisation design*, namely the degree to which ownership and practice of concept and delivery should or should not be embedded in individual departments and what should be the role of any central support group. Any central support resource would need to have a degree of entrepreneurial flexible autonomy. But there will also be a demand for *strong senior leadership* from the top in driving much of the education agenda as described earlier. A major *governance* challenge may arise in that central support units will most probably not be able to accredit academic entrepreneurship programmes, but they can, in partnership, contribute substantially to

accredited programmes (as has been done in the past by linking business schools with other university departments). A *research* agenda will be created focused on areas such as needs identification, evaluation, assessment, programme design and delivery (pedagogy) and best practice nationally and internationally. This may be undertaken in partnership with academic and other professional areas in the university as well as with external partners, thus potentially involving wide *stakeholder* participation. *Alumni* involved in entrepreneurship activity can be identified and involved. Engaging those alumni running entrepreneurial organisations overseas can add considerably to the *internationalisation* agenda.

There is, however, an even wider perspective. Enterprise/entrepreneurship education ideally needs to be particularly close to matching *careers* and *employability* agendas even when it is being embedded in departments (this process is happening in several universities), which raises the challenge of creating closer *internal professional/academic partnerships*. For all those concerned, there will be a need for continued effort to build and reinforce *networks in a region* and beyond, so that resource and experience of good practice elsewhere can be utilised to bring continuous benefit to the university. Moreover, there will be major opportunity to partner with *knowledge exchange and transfer activity* internally and business, local development and social enterprise stakeholders externally. Wherever the location of responsibility, there will be a need to work closely with, and take leadership in, support of *student entrepreneurship societies*. There will usually be a major need for staff development in the delivery of innovative pedagogy and

forms of assessment and for active engagement with entrepreneurs with an associated ability to offer *rewards and status* to those entrepreneurs who engage with the university in this process. There may also be numerous *transdisciplinary opportunities* demanding partnership between departments. A ‘whole university’ entrepreneurship education initiative may also be fully engaged with *research and doctoral training*.

The same kind of exercise to demonstrate the potential for synergy can be conducted from other ‘activity’ start points. For example, there is considerable evidence that ‘structural gaps’ in knowledge transfer activity are best dealt with not solely through sometimes isolated technology transfer office activity but by the creation of a culture of individual and departmental stakeholder (particularly entrepreneur) engagement on a regular basis to build social capital alongside pursuit of risk-taking behaviour supported by departmental heads.

The framework as shown in Fig. 2 can, overall be used to re-visit key aspects of the strategy of the university. The figure sets out the potential for exploring the contribution of the entrepreneurial concept to such broader strategic goals of: enhancing innovation, strengthening and building stakeholder relationships, enhancing student employability, improving teaching quality and perhaps, by closer involvement with entrepreneurs, building more revenue generating project work as well as enhancing the competitive image of the institution.

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Fig. 2. The potential contribution of an entrepreneurial university review to key strategic goals.

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Annex 1⁹

Entrepreneur, Enterprise and Innovation Definitions

In developing a strategy for Entrepreneurship Development in Higher Education, there is often a need to resolve a conceptual confusion concerning the relationship between Enterprise, Entrepreneurship and Innovation. This confusion impacts adversely on efforts to develop Entrepreneurship Education not only in the HE context but also across the whole education field.

The Enterprise Concept focuses upon the development of the 'Enterprising Person and Entrepreneurial Mindset'. The former constitutes a set of personal skills, attributes, behavioural and motivational capacities (associated with those of the entrepreneur) but which can be used in any context (social, work, leisure etc). Prominent among these are; intuitive decision making, capacity to make things happen autonomously, networking, initiative taking, opportunity identification, creative problem solving, strategic thinking, calculated risk taking and self efficacy). The latter focuses upon creating empathy with the life-world of the entrepreneur and entrepreneurial ways of doing, thinking, feeling, communicating, organising and learning.

The Entrepreneurship Concept focuses upon the application of these enterprising skills etc. to the setting up a new venture, developing/growing an existing venture and designing an entrepreneurial organisation (one in which the capacity for effective use of enterprising skills will be enhanced). The context might be business, academy, social enterprise, NGOs or even public organisations (e.g. Local Government)

The Innovation Concept is the product of the above. Innovation is defined as creating and exploiting

opportunities for new ways of doing things resulting in better products and services, systems and ways of managing people and organisations. As per Schumpeter, the successful pursuit of innovation is a function of individual enterprising endeavour and entrepreneurial organisation capacity. Innovation is impossible without these. They are both necessary conditions, sufficient only when combined with an environment that is conducive to such activity. Innovation in the university context can include among other things; new programme development; new innovative pedagogy; new forms of stakeholder relationship; new alumni developments; new developments from research; new transdisciplinary ventures in research and teaching; new partnerships with business; new international relationships; and new social enterprise activity.

Annex 2

The University Entrepreneurial Scorecard
(Assessing the Entrepreneurial Capacity of a University)

The Scorecard embraces all of the issues in the paper. It can be used for a comprehensive analysis of the university or for a more focused review of a number of key areas of particular interest to users and exploration of areas of potential synergy.

It can also be used to test staff awareness of entrepreneurship activity in the university and/or to gain an impressionistic view of the perceived 'state of play'.

If the Likert scale is used, then the points can be connected up to give a visual display of areas of strength and weakness.

⁹For an academic defence of these definitions, see Gibb (2002) and Gibb (2005).

The University Entrepreneurial Scorecard
(Assessing the Entrepreneurial Capacity of a University)

		Low		High		
		1	2	3	4	5
		Strength of:				
CONCEPT VISION, MISSION STRATEGY	<ol style="list-style-type: none"> 1. Strategic commitment in the university's vision statement to the 'imaginative use of knowledge' and development from research 2. Strategic commitment to achievement of university status via wide stakeholder credibility 3. Clarity in the strategy of recognition of the scholarship of relevance and integration 4. Clarity of shared concept of Enterprise and Entrepreneurship across the university 5. Degree to which Enterprise and Entrepreneurship are seen as central in University strategy 6. Degree to which innovation in the broadest sense is seen as central to all university work 7. Strategic commitment to knowledge exchange 8. Strategic commitment to local and regional development 9. Strategic commitment to business development and partnerships 10. Strategic commitment to leveraging public and fee income 11. Strength of university strategic and practical focus upon the problems and opportunities of society 12. Commitment to a broad stakeholder view of university excellence (as per the public value concept) 					
GOVERNANCE	<ol style="list-style-type: none"> 13. Understanding of, and support from, the VC/Principal and executive team for the entrepreneurship/enterprise concept 14. Level of understanding of the relevance of the entrepreneurial agenda by the Council or Board 15. Level of understanding of the Chairperson of the Board or Council of the relevance the entrepreneurial concept and its associated agenda (including active engagement) 16. Strength of entrepreneur membership of Board or Council 17. Level of active engagement of entrepreneur members of Board or Council with the University 18. Strength of active engagement of university staff in local/ regional economic, social and cultural development 19. Level of trust and active relationships between professional staff charged with external links and the academic staff 20. Existing working relationships and synergies between those engaged in employability, business development, knowledge exchange and regional and local development 21. Level of commitment of faculty heads and departments to the entrepreneurial agenda as above 22. Overall active leadership of the enterprise and entrepreneurial agenda in the university 					
ORGANISATION DESIGN	<ol style="list-style-type: none"> 23. Organisation design to facilitate and support bottom-up entrepreneurial and innovative behaviour 24. Decentralisation in decision making 25. Devolvement of responsibility for the employability, knowledge exchange, local and regional interface and business and organisation development agendas to departments 					

		Low		High		
		1	2	3	4	5
		Strength of:				
	26. Degree to which bottom-up risk taking behaviour is rewarded and protected in general					
	27. Reward systems for wider forms of innovation in the university					
MULTIDISCIPLINE TRANSDISCIPLINE	28. Levels of active co-operation between faculties and departments in teaching and research					
	29. Numbers of multidisciplinary degrees					
	30. Numbers of transdisciplinary research and/or teaching centres focused upon societal issues					
	31. Number of departments engaged in vocational/professional development areas					
	32. Level of commitment across the university to creating opportunities for students to explore the relevance of their knowledge					
	33. Levels of intellectualism (as opposed to scholasticism) in the university					
LEVERAGE	34. University commitment and capacity to raising revenue from non-fee and traditional public sources					
	35. Existing ratio of private to fee and public funding					
	36. Delegation of revenue raising activity to departments (with targets)					
	37. Proactivity of Deans and Faculty heads in fund and revenue raising					
PUBLIC VALUE AND STAKEHOLDER ENGAGEMENT	38. Focus across the university on areas of societal and cultural concern					
	39. Degree to which university assesses its value on the basis of wide legitimacy with stakeholders					
	40. Active partnerships with key regional stakeholders across the university					
	41. University active engagement with individual SMEs					
	42. University active partnerships with SME associations					
	43. Level of active engagement of arts and humanities departments in regional culture initiatives					
	44. Levels of consultancy activity (and revenue from) across the university					
	45. Relative scale of R and D funded work with business					
	46. Strength of students, interface (across faculties) with local business and civic organisations					
	47. Numbers of degrees with active business and professional engagement					
	48. Strength of university extra mural training partnerships with external organisations excluding the business school					
	49. Engagement of the business school in SME and local enterprise development					
	50. Active partnerships with local vocational colleges					
	51. Level of active engagement with local entrepreneurs in teaching and research					
	52. Status given to local entrepreneurs through 'associateships', 'fellowships', professorships or teachers of practice					
	53. Engagement across the university in Social Enterprise					

		Low		High		
		1	2	3	4	5
		Strength of:				
ALUMNI	54. The university as a learning organisation (porous to active learning from a wide range of sources)					
	55. Strength of Alumni office and its related activity across the university					
	56. Ability of alumni department to identify and build relationships with entrepreneurs locally, nationally and internationally					
	57. Active engagement of alumni in the university					
KNOWLEDGE TRANSFER	58. University technology transfer and knowledge exchange activity					
	59. Degree to which knowledge transfer and exchange is deeply embedded in departments					
	60. Level of active student and staff engagement with science park companies					
INCUBATION, ACROSS ALL DEPARTMENTA SPIN OFFS VENTURE FUNDING	61. Openness of IP policy for staff and students					
	62. Support office for IP and licensing					
	63. Numbers of patents and licenses and revenues received					
	64. Student engagement in knowledge transfer activity					
	65. University rewards for knowledge transfer performance					
	66. Doctoral student exposure to the relevance of their research to the 'real world'					
	67. Staff numbers with business ownership stakes or stakes in social enterprise organisations.					
	68. Numbers of spin offs recorded					
	69. Support for spin-off activity					
	70. Incubator support, physical and/or virtual					
	71. Clarity in incubator targeting					
	72. Clarity in incubator performance indicators					
	73. Incubator mentoring and service support					
	74. Joint venture funding partnership arrangements – angel connections					
	75. Links to and/or provision of, special loan arrangements for graduate/staff enterprise					
76. University engagement in UK Challenge Fund or other public/private seed capital activity						
INTERNATIONALISATION	77. University focus upon internationalisation					
	78. Level of activity?					
	79. Levels of international staff					
	80. International research and development links					
	81. Engagement with local players in international activity					
	82. University support system for international activity					
	83. Impact of internationalism on the curriculum of the university					
	84. Revenue from International activity					
	85. Numbers of joint ventures with overseas universities					
	86. Overseas licenses and joint degrees					
	87. International campus initiatives					
	88. Overseas alumni relations					
	89. Student exchanges					
	90. International distance education					
	91. International business partnerships					

		Low		High		
Strength of:		1	2	3	4	5
ENTERPRISE ENTREPRENEURSHIP EDUCATION	92. Entrepreneurial skills agenda accepted across the university					
	93. Each department with entrepreneurial curriculum champion					
	94. Entrepreneurship education embedded in each department curriculum					
	95. Entrepreneur self efficacy training embedded across the university					
	96. Start up new venture training availability for all staff and students					
	97. Enterprise educator training opportunity for all staff					
	98. Student entrepreneurship society activity					
	99. Active student engagement and leadership in the entrepreneurship field					
	100. University personal development contract and related activity with students in general					
	101. Central support unit activity for entrepreneurship and enterprise education					
	102. Placement activity in SMEs and small organisations across the university					
	103. Careers services engagement with SMEs and entrepreneurship training					
	104. Employability agenda addressing the self- employment and entrepreneurship option					
	105. Use of external partnerships in enterprise training					
	106. Wide use of enterprising pedagogies across the university (embedded in Teaching and Learning strategy?)					
	107. Capacity for entrepreneurship education beyond the business school					
	108. The university as an entrepreneurial organisation					