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Knowledge capital: from concept to action

May, T and Perry, B

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KNOWLEDGE CAPITAL: FROM CONCEPT TO ACTION

REPORT TO THE CONTACT PARTNERSHIP GROUP

Prepared By

THE SURF CENTRE

MAY 2003

Tim May and Beth Perry
Centre for Sustainable Urban and Regional Futures
113-115 Portland Street
Manchester
M1 6DW
0161 295 4018

<http://www.surf.salford.ac.uk>

CONTENTS

Executive Summary	3
1 Introduction	6
1.1 The Brief	6
1.2 The Research	6
1.3 Structure of Final Report	7
2 Responding to the Global Knowledge Economy	8
2.1 The Development of the Knowledge Economy	8
2.2 Changing Notions of Scale	8
2.3 Universities: From Ivory Towers to Knowledge Factories?	9
2.4 Frameworks for Action	10
2.4.1 <i>Towards a Europe of Knowledge?</i>	11
2.4.2 <i>The National Picture: Building the Knowledge-Driven Economy</i>	11
2.4.3 <i>Regional and Local Capacities in the UK: Excellence with Relevance</i>	12
2.5 Addressing the Challenges: What are the Comparators?	14
2.5.1 <i>Boston and the New England 'Knowledge Corridor'</i>	15
2.5.2 <i>The 'Golden Triangle' and the 'Oxford to Cambridge Arc'</i>	16
2.5.3 <i>Knowledge Capitals, Corridors and Science Cities</i>	18
3 Understanding KC: From Aspiration to Potential	19
3.1 Thinking Concepts: What is KC?	19
3.2 Distinctive Strengths and Collaborative Potentials	24
3.2.1 <i>Representation, Attraction and Mediation @ UMIST/Victoria</i>	24
3.2.2 <i>Transformation, Recognition and Enhancement @ MMU</i>	27
3.2.3 <i>Enhancement, Engagement and Enterprise @ Salford</i>	29
3.2.4 <i>Collaborations</i>	31
3.3 Thinking Allowed: Challenges and Choices	33
4 From Concept to Contributions to Content	37
4.1 Thinking Contributions	37
4.1.1 <i>Science</i>	38
4.1.2 <i>Economy</i>	39
4.1.3 <i>Social</i>	39
4.1.4 <i>Cultural and Creative</i>	39
4.1.5 <i>Sustainability</i>	40
4.1.6 <i>Image</i>	40
4.2 Thinking Content	41
4.2.1 <i>Science in the City</i>	41
4.2.2 <i>The Entrepreneurial City</i>	43
4.2.3 <i>The Learning City</i>	44
4.2.4 <i>The Cultural City</i>	45
4.2.5 <i>The Sustainable City</i>	46
4.2.6 <i>The Networked City</i>	47
5 Summary and Recommendations	49
6 Selected Sources	53

EXECUTIVE SUMMARY

Introduction

In January 2003, the Centre for Sustainable Urban and Regional Futures (SURF) was commissioned by the CONTACT Partnership (the four Greater Manchester Universities) to carry out research in relation to the Knowledge Capital (KC) project - a joint initiative between key local and city-regional partners.

The vision of KC is:

“to create an internationally acclaimed “Knowledge Capital” within the Greater Manchester conurbation, which will position Manchester, branded as the Knowledge Capital, at the heart of the Knowledge Economy, significantly contributing to the economic growth of the nation and the North West region leading to a healthier city/region with a vibrant, safe and attractive environment in which to live, work and play, for people of all ages, social and cultural backgrounds.”

SURF 's work has been designed to feed into an Academic Action Plan, helping to shape and define the contributions of the four Universities to achieving the KC vision. The conclusions in this final report have been formulated on the basis of a series of interviews across the four institutions and beyond, supplemented by SURF's work in this area, secondary analysis and online research.

Responding to the Global Knowledge Economy

'Manchester - Knowledge Capital' can be seen in the context of two major changes which are fundamentally reshaping our society, economy and the institutions and practices of modern life: the development of the knowledge economy and changing notions of scale. These two factors have led to increasing attention being given to the role of universities in driving local and regional economies, reflected in a wealth of new policies being developed at international, national, regional and sub-regional scales. These policies raise many challenges for universities and for their localities and a number of different responses, as international and national comparisons indicate. In this context, KC represents a much needed and valuable opportunity for the universities to position themselves at the heart of the city-region's response to the global knowledge economy.

Understanding KC: From Aspiration to Potential

Interviews across the four institutions revealed a common enthusiasm and excitement about the potential of the KC initiative. This was, however, accompanied by uncertainty, confusion and limited engagement depending on institutional affiliations and positions. Aspirations are diverse and a number of issues were raised in respect to moving from rhetoric to reality, including those of clarity, communication and coherence. The differential roles of the Universities within the KC process can be characterised: for Manchester Victoria / UMIST, KC is about representation, attraction and mediation; for MMU the issues are those of transformation, recognition and enhancement and for Salford, KC offers the opportunity for enhancement, engagement and enterprise. Potential was also felt to exist for building on current

collaborative activity and creating new alliances, networks and partnerships between the Universities. However, sustained effort needs to be invested in creating the conditions for success. This must involve ensuring complementarity, achieving visible symbols of success, producing tangible outcomes, finding champions, spreading the benefits, improving engagement and mutual understandings.

From Concept to Contributions to Content

How can we move from concept to contributions and content? First, the functions of KC need to be considered. KC can act as a focus through which current work is channelled, magnified and given an interpretation according to the relationship between actual and potential activities and the distinctiveness it wishes to convey. In this respect it is *representative*. KC can act as an identifier of spin-out opportunities that are not normally part of everyday practices in HEIs. In this way it adds value to what is currently practised and does not seek to change well-established areas of activity. Here it is *additive*. KC can also act as a catalyst identifying current activities and re-configuring and adding to those for the benefit of the city-region and beyond and in this respect is *transformative*. Using these criteria, the final report identifies six cross-cutting themes to categorise subsequent work: science, economy, social, cultural and creative, sustainability and image.

With consideration to the issues of the nature of activity, scale, participation, benefit and consequence, six illustrative programmes of work are outlined, each with potential activities attached. ‘Science in the City’ comprises the Bio-City; Knowledge Capital Science Parks; City-regional Science; Networks of Excellence; Science for All and Public Understanding. ‘The Entrepreneurial City’ looks at Access to Knowledge; Who Wants to be an Entrepreneur?; Support for SMEs and Getting the Incentives Right. ‘The Learning City’ involves Attracting New Students; E-Learning; Education for All and Schools and Scholarships in the Community. ‘The Cultural City’ comprises Young Creatives; Building Tolerance, Decreasing Tension and Public Events and Shows. ‘The Sustainable City’ includes Estate Management; Sustainable City Thinking and Global Change with Local Consequences. And finally, ‘The Networked City’ looks at ‘Doing it the KC Way’ and the ‘Information City’.

Summary and Recommendations

The report makes two sets of recommendations, taking the form of a series of questions, guiding principles and criteria that need to be addressed for the long-term success of KC. First, in terms of action, attention needs to be given to five areas: the nature of the activity, issues of scale and scope, division of roles and responsibilities, intended and actual impact and KC consequences. Second, attention needs to be given to process issues of clarity and communication, competition and collaboration and commitment and engagement. Realising the potential of KC in an open and imaginative way will require addressing these challenges.

What should now drive the process – including one by the Universities should the Core Cities agenda not realise further funding – are the following actions:

- 1) Develop a shared ethos in partnership with identified stakeholders with a clear set of aims that are internally coherent and externally communicated in a consistent manner.
- 2) Identify who needs to be involved and drive the process at different levels and scales and for what reasons.
- 3) Establish programmes of work that will produce benefit to different stakeholders and communities and at different timescales.
- 4) Clarify what difficulties will be faced in the process of design and implementation and how they will be overcome.
- 5) Understand and communicate when and how it will be known that KC is having a positive impact.
- 6) Build an effective and sustainable infrastructure that can support and enable development over time and coordinate effectively between different projects and programmes of work.

These actions have been formulated to take the process forward as whole in order to derive maximum benefit for all concerned - this is in line with discussions raised at the focus group at SURF where we were asked to both 'resolve' according to our original brief, but also 'raise' some key issues for the future.

What is needed is a greater attention to process. Good process will lead to good products. For that reason a greater understanding of differences and similarities around an inclusive and transparent process is required to take KC forward. Whilst the potential is evident, honest and open appraisals of the current situation based upon good evidence and an understanding of different interests are needed at all levels. If accompanied by effective communications and coordination, this will place KC in a unique position. Overall, it will create a national and international profile as a model of excellence through co-operation and bring greater prosperity and quality of life to the area.

1. Introduction

1.1 The Brief

The CONTACT Partnership is the representative organisation of the four Greater Manchester Universities. In 2002 CONTACT was given the initial responsibility for delivering an Academic Action Plan for the Knowledge Capital (KC) project. SURF was then contracted by the CONTACT Partnership in 2003 to assist in this process. The CONTACT Partnership agreed that this work will be conducted over a four month period and draw upon SURF's expertise in urban development, regional science policy and the role of universities in the knowledge society.

The agreement between the CONTACT Partnership and SURF was to provide clarification and produce a purposeful working document that clearly outlined choices and concrete proposals for action in the short, medium and longer term. A meeting between SURF and the CONTACT Board in December 2002 highlighted that the focus of the work should be in establishing through interviews what might be desirable, distinctive and doable in terms of the Universities' contribution to KC, bridging the gap between aspirations, potential and reality. The overall aim of SURF's work was therefore to produce a report that contributes to the role that the four Greater Manchester Universities will have in providing a distinct and valuable contribution to the development of KC.

Since the work was commissioned, a number of changes have taken place in the modes of coordination and direction of KC. The most significant of these was the convening of a 'drafting group' to produce a prospectus to deliver to the Deputy PM at the Core Cities conference in June 2003. SURF produced an interim report to feed into that process in addition to what was agreed in the original brief. Our work has since continued and in this final report, we provide a document that can take the Universities forward within KC and form the basis for clarity, discussion and decisions.

1.2 The Research

The final report builds upon research activities undertaken by SURF in the last four months. At its heart is an analysis of interviews undertaken with senior managers and academics within the four Greater Manchester Universities and beyond. 40 interviews were conducted in total, spread evenly across institutions and lasting between 1 and 1.5 hours. Each interview was transcribed, generating 450 pages of transcript, for the purposes of gaining a greater understanding of the differences and similarities between viewpoints, approaches and aspirations. In line with good practice guidance on ethical considerations in conducting socio-economic research, interviewees were guaranteed anonymity and confidentiality: for this reason, quotes are not attributed within the report, although are widely used. The interview process was supplemented by secondary literature analysis and the use of comparator examples to illustrate the KC concept.

In addition, our intention was to hold focus groups with academics to widen the scope of the research and begin the process of engagement with KC. However, despite the

efforts of the CONTACT Partnership and SURF, it was not possible to enrol enough academics at the same time for the purposes of the focus group. This cannot be attributed to a lack of enthusiasm – we found great evidence to the contrary in interviews – but to wider problems of coordinating academic diaries across institutions and time constraints. This alone is telling in terms of the potential success of KC and the myriad pressures on academics and managers alike and we shall return to these issues later. Instead, SURF held a focus group with the CONTACT Partnership in April 2003 to discuss key findings as they were emerging from the research and feedback from the interim report.

1.3 Structure of Final Report

The final report has six sections, this Introduction being first. Section 2 examines the socio-economic context of the knowledge economy and the changing roles of universities therein. It explores frameworks for action at the European, national and regional levels and a number of comparator examples of knowledge-based city-regional development. Section 3 provides a coherent narrative from the semi-structured interviews and forms the bulk of this report. It moves from considering aspirations and potentials, to individual institutional strengths, to exploring meaningful processes and actions. Section 4 moves on to consider potential programmes of work and specific projects discussed in interviews and during the focus groups. It identifies guiding principles and sets of issues that need to be discussed in taking KC forward. Section 5 provides a summary and recommendations for future processes to make the potential contribution of the Universities to KC a reality. Section 6 sets out selected sources drawn upon in this research.

2. Responding to the Global Knowledge Economy

The aim of this section is to provide the context for 'Manchester – Knowledge Capital' through exploring key socio-economic shifts and frameworks for action at the European, national and regional levels which potentially constrain or enable the KC initiative. This is followed by a consideration of international and national exemplars for KC, as raised in interviews.

2.1 The Development of the Knowledge Economy

The shift to a knowledge-based economy is seen by many as equal in importance to the industrial revolution of the 19th century. For many, 'knowledge capitalism' represents a major transformation in the contours of the contemporary economic, social and institutional world (Burton Jones, 1999. Jessop, 2000). Processes of globalisation, the proliferation of high-tech industries, the expansion of the scientific base, movement from manufacturing to a service-based economy, new information technologies and accelerated technological change are just some of the factors which have combined to produce a new post-industrial economy (Neef, 1998).

The starting point for debates on the knowledge economy is the recognition that knowledge is an increasingly important source of competitive advantage. Putting it simply, the 'new' economy is based on creating, doing things to or with knowledge, finding '*...new ways of producing, using and combining diverse knowledges; the same ingredients ...rearranged in new and better recipes.*' (Bryson et al, 2000: 1). Rather than founding competitive success on traditional sectors such as manufacturing or agriculture, developed countries are increasingly looking to enhance productivity and growth through exploiting knowledge, skills, innovation and creativity. This is also referred to as building a 'high value added' economy, characterised by high wages, high employment and high skills. Indeed, the importance of knowledge as a factor in wealth creation and productivity is often seen to characterise an economic shift from 'action-centred' to 'intellectual' skills, from 'brawn' to 'brains', or from tangible to intangible created assets (Bryson et al, 2000).

Knowledge has always played an important role in human activities and various ancient societies can be described as 'knowledge societies' (Stehr, 1994). However, as de Weert (1999: 52) argues, '*...the quantity of knowledge, the speed and acceleration of knowledge production and the complexity and permeation of knowledge into all spheres of life mark the current economic 'phase' more than in any preceding era*'. If this is the case, the development of the knowledge economy requires a re-evaluation, reconfiguration and reconstitution of ideas, actions and protagonists as a prerequisite for competitive success.

2.2 Changing Notions of Scale

The development of the knowledge economy has both global and local dimensions. On the one hand, much has been written about the 'death of distance' or the 'end of geography'. The last fifty years have seen an increasing trend towards the globalisation and internationalisation of markets, economies, societies and environments which, along with technology-driven innovations, break down the boundaries of time and space. National and sub-national markets in people, goods

and services have been increasingly open to competition from overseas, not only in traditional areas such as agriculture or manufacturing, but more recently in core areas of the knowledge economy, such as education, health and new technologies.

On the other hand, far from signalling the end of face-to-face and ‘human’ interactions, globalisation has been accompanied by an increasing emphasis on regions, localities and cities as engines for economic growth. Knowledge-based wealth creation, it is argued, is founded on building economies of scale, clusters and critical mass of complementary expertise within a particular location such that knowledge spillovers can lead to innovation, wealth creation and productivity. Most often cited in this respect is the work of the ‘godfather’ of clusters, Michael Porter, whose 1990 thesis on the *Competitive Advantage of Nations* stresses that firms draw on location-specific factors for competitive success and on resources inherent within local environments (Porter, 1990). This has been followed by a number of studies which have focused upon ‘learning by doing’, innovation systems, university-industry linkages and learning regions and cities.

More recently, polarised territorial distinctions between the global and the local have been rejected. Instead urban and regional scholars are taking more interdisciplinary approaches to understanding the relationship between the global and local, seeing this not as a stark dichotomy but as twin processes which imply, and rely on, each other (Storper, 1995. Brenner, 1998). In other words, global success is based on local strengths and vice versa.

2.3 Universities: From Ivory Towers to Knowledge Factories?

Socio-economic shifts have profound consequences for universities. Firstly, the development of the knowledge economy places universities, as major knowledge producers, at the heart of economic development processes: “*as generators of new knowledge, basic and applied, research-oriented universities are to the information economy what coal mines were to the industrial economy*” (Castells and Hall, 1994: 231). The production of knowledge and the application of that knowledge is a function that the university has always been well placed to fulfil, but a premium is now placed on extracting economic and social benefit from university-based knowledge. Second, the knowledge economy implies a shift in the nature of skills necessary for competitive success. Universities not only produce knowledge necessary for economic competitiveness through research, but also disseminate that knowledge to students. Hence the teaching role of universities in producing a skilled and educated workforce is also paramount. Both tasks imply closer relations with subnational agencies and firms.

In addition to bringing the research and teaching functions of the university to prominence, the shift to an increasingly knowledge-based economy has fed the development of the ‘third mission’. It is not enough to simply produce knowledge, but to transfer that knowledge to industry, user and community groups. Hence we see renewed efforts invested in commercialising university research, in creating spin-offs, science parks and in tailoring courses to the needs of industry. Poor contacts between business and higher education limit the ability of business to absorb knowledge and innovate. Similarly, the extent to which research is socially and economically ‘useful’ has been given greater prominence, leading to demands for greater involvement of the

‘end users’ in the research process. This is accompanied by emphasis placed on the civic or moral duties of universities to serve the communities in which they operate. Again, this ‘value production’ role is one that has long been attributed to the university. However, Castells argues that the role of the university in producing and reproducing values is more important now than ever in a multi-ethnic, multi-cultural rapidly changing world, in order to root ethics and morality in the next generation (Castells, 2002).

As knowledge increases in importance as a commodity, the role of universities is diversifying. They are no longer ‘ivory towers’, as they have been simplistically characterised in the past, but ‘knowledge factories’ for the new economy: *“there has been a marked and increasing tendency for government to treat universities, not as the autonomous institutions they constitutionally are, but as a system of tertiary education that will deliver government policies on social inclusion and knowledge transfer: in short to make them instruments of social and economic engineering rather than places of learning and enquiry”* (Gordon Graham, 14th June 2002, THES). The evolving roles of the university offer opportunities for greater engagement, but also raise sets of complex issues for those working in universities in respect of traditional roles and functions. This has consequences for a process such as KC and its aspirations, particularly in terms of engagement of individual academics, a point we shall return to later in this report.

The diverse roles and functions of the university in the knowledge economy are multi-scalar. Research needs to be conducted at an international level in order to meet criteria of world class excellence; it also needs to be embedded in local and regional contexts if the kinds of benefits expected from the knowledge economy are to be realised. International consortia and networks need to be formed and economies of scale built, through ‘super-universities’, as well as collaboration between universities in particular localities. Student markets are now international, with overseas applicants representing attractive sources of much needed finance; but a *‘knowledge economy for the many not the few’*, as Tony Blair is quoted as saying (Knowledge Capital Prospectus) requires increasing applications from local and particularly deprived communities. Similarly, universities may seek closer relationships with large multi-national companies or may prefer to ‘stay closer to home’ working with SMEs or social enterprises on community-related issues: *“Universities need to adapt rapidly to the top-down influences of globalisation and new technologies, as well as the bottom-up imperatives of serving the local labour market, innovating with local companies, and providing professional development courses that stimulate economic intellectual growth”* (David Blunkett, 15th February 2000, Press Release). For the 21st century university, it is not a simple question of ‘either/or’ but of selecting the appropriate combination of actions at a number of different scales.

2.4 Frameworks for Action

The socio-economic shifts and implications for universities outlined above are reflected in changing policy contexts. The knowledge economy is widely accepted as the ‘next big thing’, but getting beyond the rhetoric and translating new socio-economic theories into socio-economic realities poses a number of significant challenges. These are beginning to be tackled through policies at international,

national and sub-national levels. These policies create the framework conditions which will ultimately serve to constrain or enable the realisation of KC.

2.4.1 Towards a Europe of Knowledge?

Innovation, research, education and training form a fundamental pillar in the European Union's efforts to build a 'Europe of Knowledge', set out as a key goal at the Lisbon European Council meeting in March 2000. Two initiatives are crucial to the achievement of this goal. Firstly, the European Research Area (ERA) initiative seeks to lay the foundation for a common science policy across the EU (European Commission, 2000). The ERA aims to coordinate national research policies to combat fragmentation and duplication and has considerable financial implications: to increase EU total expenditure on research to 3% of GDP by 2010 to compete with the United States and Japan. One element of this currently being discussed is the potential establishment of a European Research Council to provide formal co-ordination mechanisms for member states' policies on research. Second, the Bologna Declaration of June 1999 commits 29 European countries to create a European Higher Education Area by 2010. The UK is a signatory to this declaration which aims to reform structures of higher education in a convergent way, focusing on comparable degree structures, system cycles, credit systems, student mobility, quality assurance and other European dimensions of higher education. The Declaration notes that the European Higher Education Area is vital to ensure that higher education and research systems continuously adapt to changing needs, demands and advances in scientific knowledge (Bologna Declaration, 1999).

Both initiatives imply increased European reach into formerly national policy areas and seek to place universities at the heart of the knowledge society. A recent European Commission Communication has sought to outline further the key role of universities in the Europe of Knowledge, in research and exploitation, education and training and regional and local development (EC, 2003: 2). In relation to the latter, the importance of the regional dimension to the ERA has been explicitly recognised: "*The European Research Area concept implies that efforts should be deployed effectively at different administrative and organisational layers: at European, national, regional or even local level. In this way, measures would not only be mutually consistent but better adapted to the potential of the regions themselves.*" The Communication states that the role of each of the actors needs to be re-examined, public and private, to establish synergies and take advantage of complementarities among European, national and regional instruments to achieve a 'reinforced partnership' (EC, 2001: 9).

This last quote neatly demonstrates the multi-level pressures upon universities to act, co-operate and compete at international and local levels, forming multi-national research networks and centres of excellence, and at the same time working in greater proximity with local and regional actors.

2.4.2 The National Picture: Building the Knowledge-Driven Economy

A number of UK policy frameworks set the context for KC. Firstly, national policy aimed at building a knowledge-based economy, outlined in the DTI's White Paper (1998) *Our Competitive Future*, states that success depends on the way in which UK business and government exploit the assets of knowledge, skills and creativity. This is

accompanied by increased focus on the relationship between science and wealth creation through innovation, seen as one of five main productivity drivers. Within this, there is a focus on universities as generators of new knowledge and sources of innovation, reflected in the cross-departmental Science Strategy (2002), *Investing in Innovation*, and in initiatives such as the recently strengthened Higher Education Innovation Fund, worth £90m a year in 2005-06 (DfES, 2003), to represent a permanent third stream of funding, alongside funding for research and teaching. This builds on previous policy initiatives, such as the Higher Education Regional Development fund (HERD), the Higher Education Reach Out Business and the Community Fund (HEROBC) and Science Enterprise Challenge.

Second, as noted above, universities are also seen as generators of a skilled workforce and as a means for social inclusion and equality. Thus we see the Government's widening participation target to have 50% of 18-30 year olds in higher education by 2010 and sub-regional HEFCE targets aiming at 790 new students by 2006 in Greater Manchester. The White Paper on Enterprise, Innovation and Skills (2001) explicitly aims at building strong regions and communities through establishing university innovation centres and technology institutes in the regions to boost R&D and a £75m regional incubator fund to promote regional clusters (DTI and DfEE, 2001).

In addition to these two elements, the recent White Paper (2003) *The Future of Higher Education* makes it clear that the UK's record of scientific excellence must not be compromised in research and in teaching. Thus we see the creation of 6* departments to which an increasing proportion of monies from the Research Assessment Exercise will be channelled leading to greater research concentration and selectivity.

UK policy for universities is multi-faceted, emanating from a number of sources and covering a wide range of issues. Yet universities are not expected to fulfil all roles at all times. Instead universities are encouraged to recognise their strengths and work in collaboration with other institutions to collectively meet the socio-economic demands placed upon them (DfES, 2003). Choosing the right strength or specialism is particularly important given the increasing relationship between specialism excellence (research, teaching, 'third mission') and funding. We shall return to the UK HE context in the final section of this report.

2.4.3 Regional and Local Capacities in the UK: Excellence with Relevance

It is not just at the European level that new policies affecting universities are being developed. Regions and localities are also focusing greater attention on the issue of how the science base can be better harnessed for economic and social gain. Emerging 'regional science policies' have come about not only as a response to the developing knowledge economy and innovation agenda, but as a result of and response to Government policies in a number of areas. Firstly, regional capacities have been enhanced through the establishment of the Regional Development Agencies (RDAs) in 1999 with the aim of providing co-ordinated regional economic development and regeneration, reducing economic imbalances which exist within and between regions and enabling the English regions to improve their competitiveness. Regional governance will be strengthened in one form or another as the policies from *Your Region, Your Choice* (DTLR, 2002), the Government's White Paper for greater devolution in the English regions, are implemented. Second, Government spending on

science is not distributed evenly across regions as a result of trends towards growing selectivity in research funding. As a result, regions are seeking their own ways of enhancing the science base and supporting local universities to increase their chances of competing with the so-called 'Golden Triangle' constituted by Oxford, Cambridge and London.

In the North West, this policy context is reflected in several recent developments. The North West Universities Association (NWUA) was formed in 1999 and works increasingly closely with the North West Development Agency (NWDA) and other regional partners. In 2001, the North West established England's first science council bringing together representatives from industry, regional agencies and the universities to lobby on behalf of the region and advise and launch the Regional Science Strategy (NWDA, 2002a). This was subsequently published in 2002 and sets forward cluster-based actions in five priority areas (biotechnology, environmental technologies, chemicals, aerospace and nuclear energy) to link universities better with industry and regional partners. The model is one of 'excellence with relevance'. The Science Strategy aims at having a world class university in science and technology, thus offering support for 'Project Unity', the merger between Manchester Victoria and UMIST. Those involved in that process refer to the need to enhance the North West's 'big science' potential and to create an extended 'Golden Diamond' of research excellence (Oxford, Cambridge, London and Manchester). The North West Science Strategy also refers to supporting excellence and scientific potential wherever it may be found in the region.

When the first North West Regional Strategy was launched in 1999, little mention was made of the knowledge economy or of the importance of universities as key assets in the regional economy (NWDA, 1999). However, the recent Regional Strategy Consultation Review document rectifies this deficit with a section dedicated to developing the region's knowledge base and the role of higher education, university-industry links and research institutions in the knowledge economy (NWDA, 2002b).

Over the last five years we can also see the emergence of a new, almost virtual, architecture of city-regional governance, hitherto masked by a focus on regions and local authorities. Examples can be seen in Greater Cambridge, Newcastle-Gateshead, Greater Nottingham and in Greater Manchester. Many RDAs are devolving the implementation of aspects of regional strategies to sub-regional bodies, recognising that some issues are better tackled at a lower spatial scale. At the same time, local authorities are collaborating with neighbours and partners to "upscale" their cities and tackle joint issues through a cross-boundary approach. The movement also now includes health authorities, universities, LEAs, skills agencies, charities and the police who are active in their own city-regional partnerships. In a number of cases the private sector are giving the lead to city-regional thinking particularly in the arena of economic and planning policy (SURF, 2003). In the Greater Manchester context, we see the development of the Greater Manchester sub-regional strategy, led by AGMA, due to be launched on June 20th 2003. An essential element of this strategy focuses on enhancing the sub-regional core and building on the university assets concentrated therein (AGMA, 2002: 16).

Collaboration within the Manchester sub-regional core has a long history. The City Pride initiative (1994) brought together the local authorities of Manchester, Salford, Trafford and Tameside (more recently Stockport) to tackle a number of economic development issues, leading to cross-authority bodies such as MIDAS and Manchester Enterprises. Similarly, the four Universities within the sub-regional core have a history of collaborative working through the CONTACT partnership group. Nevertheless, until recently, the four Greater Manchester Universities have not been at the centre of economic development processes. In the knowledge economy, this can no longer be the case.

It could be argued that it is only at the local level that the knowledge economy can really be built, through tackling the challenges of multi-scale activity and diverse and expanding roles for higher education institutions (HEIs) on a collective and joint basis, in association with local actors. Although developing policy frameworks at the European, national and regional levels emphasise the need for change in light of socio-economic challenges, they offer little guidance on concrete actions or processes for knowledge-based city-regional development. At the local level, there is the potential to build economies of scale and scope and the kinds of reinforced partnerships that policy frameworks advocate. Here a more encompassing approach to the role of universities in the knowledge economy needs to be taken, focusing on the social sciences, arts and humanities, community development, regeneration and local need in addition to 'big science'. At the same time, the particular ways in which universities feed into local development processes are defined by context-specific factors and must be distinctive, for instance, through according closely with Community Strategies, Local Strategic Partnerships, Housing Market Renewal Programmes and Area-Based Regeneration Initiatives.

The preceding three sub-sections have highlighted the excellence policy context and socio-economic conditions for KC. For the Greater Manchester Universities, KC represents a much needed and valuable opportunity to position themselves at the heart of the city-region's response to the global knowledge economy and engage with multi-level agendas. It reflects a growing concern in cities and sub-regions across the globe to better harness the strengths of their university assets as a basis for economic and competitive success.

2.5 Addressing the Challenges: What are the Comparators?

An understanding of the comparative attempts of cities and city-regions to address the challenge of the knowledge economy is fundamental to the success of KC. It builds a sense of aspiration, distinctiveness and competitive advantage, in addition to the potential for learning from alternative approaches. In interviews a number of exemplars were cited both nationally and internationally and can be seen as indicative of the potential of the KC idea. Here we provide some background and context to some of these exemplars from SURF's work in this area, secondary literatures and online sources. This is necessarily limited, given the particular brief to which we are working, but is suggestive that further comparative research into the critical success factors in knowledge-based city-regional development is needed.

2.5.1 Boston and the New England ‘Knowledge Corridor’

In their book on *The Boston Renaissance*, Bluestone and Stevenson describe the Boston region as being transformed from a *mill-based to a mind-based economy* (Bluestone and Stevenson, 2000: 12-13). They speak of a metamorphosis from a situation of manufacturing decline in the 1970s to a paragon of the high-tech and service industries in the 1990s. Boston is seen to have a high wage and low unemployment metropolitan economy, rewarding the highly educated as well as unskilled workers who find employment in the city’s growing health and education industries. Other measures of success that have been cited include the percentage of adults with college degrees (31%), per capita proprietor’s income (12% above national average) and family incomes rising faster than in almost any other metropolitan area in the nation (Drennan, 2002). So popular has the area become that the region now has a buoyant housing market and faces severe housing shortages, to the extent that many newcomers and longer term residents can no longer afford to pay rent or buy a house (Bluestone et al, 2001) – a problem shared in many regenerated areas in the UK, including Hulme (SURF, 2002a). Success brings its own challenges.

The roots of Boston’s success are many-fold. On the one hand, Boston’s success is driven by software, telecommunications, medical technology, and financial services in areas complementary to Silicon Valley rather than in direct competition. On the other hand, Boston has found a niche in exploiting the strengths of its universities: “*Boston is specialised in finance and other producer services, and [...] almost specialised in higher education and health services, as is New York*” (Drennan, 2002: 6). MIT, Harvard and other universities have developed technology expertise in specific areas: Boston University in photonics, for instance. The first national review of the economic impact of a research university conducted by MIT and the Bank of Boston found that MIT graduates and faculty had founded 4,000 companies, employing 1.1 million people and generating \$232 billion in worldwide sales (Business Week, 1995).

Boston’s success forms one part of the ‘knowledge economy’ activities of the New England area. Plans are also underway to create the ‘New England Knowledge Corridor’ in the Hartford-Springfield Interstate region between Boston and New York, so-called given the concentration of 27 colleges and universities, whose combined total enrollment exceeds 125,000 students. A university-based team, including the University of Connecticut and the University of Massachusetts, jointly carried out a study for a four-county region to understand regional growth trends. This resulted in the production of a report entitled “Knowledge Corridor: The Making of an Interstate Region” presented to the Hartford-Springfield Economic Steering Committee. This would seem to be a marketing and branding exercise, building on higher education, infrastructural and transport strengths and competitive costs of living and designed in part to compete with the hubs of Boston and New York and in part to capitalise upon their proximity.

Both initiatives are reflected in the 2002 Citistates Reconnaissance report submitted to the New England Council, *Plan for a Strategic New England?* The document also refers to the New England Council’s “Creative Economy” initiative, which highlights the major economic potential of the region’s fine arts, graphic design, theatre, advertising, fashion and web creation capacity. The Citistates report considers the issue of whether a New England approach to the knowledge economy is of more

value than six individual city-state policies. Questions include the importance of the Boston area to New England's future – as a hub of technology and innovation, entrepreneurial networks, and home of world-class universities; the need for a unifying theme to bring together the six city-states; the extent to which there is a shared New England future and ways in which core regional-wide assets might be identified and harnessed. These are all issues that any potential Knowledge Capital Strategy Group would also need to consider in relation to the sub-regional core and wider North West.

Dubbed a Silicon Valley 'wannabe', Boston and New England are trying to find a niche and compete on the basis of their distinctiveness. Competition is clearly still evident between universities in the area, yet consideration is being given to the potential need to 'scale up' city-regional thinking to meet the challenges of the knowledge economy.

Many other international exemplars relevant to KC can be found. For instance, Kista Science City, Sweden, is seen as one of the most important ICT-clusters in Europe. The area has good transport links and is close to Stockholm City. Like the Hartford-Springfield 'Knowledge Corridor', this is a cross-municipality initiative where business, academia and communities have agreed on a joint vision for the future. This involves working together to encourage business growth and higher education, and also to improve housing and infrastructures (<http://www.kistasciencepark.org/>). In France, the Sophia Antipolis Science Park brings together companies, universities, national research centres, students and other concerns and is managed by the relatively new Sophia Antipolis Urban Authority, established in 2002 and consisting of 14 communes. The success of the Science Park is not only seen as economic, but also social, cultural and environmental because of its concern for urban development and the wider society. It came about as a result of concerted action at the national and local level and has taken 30 years to reach where it is today: *"In just 30 years of hope, human and financial investment have transformed a mad dream, thought up in the scrubland, into the construction of a technological and human community that plays a role in the world economy"* (www.sophia-antipolis.net). In the 18 months to July 2001, 3,000 jobs were created and 30 new companies set up.

2.5.2 The 'Golden Triangle' and the 'Oxford to Cambridge Arc'

A number of interviewees referred to developments in the South East of England and London as exemplary of the ambitions of KC and representative of types of activities that could be undertaken. At the heart of these ambitions lies the desire to better compete with Cambridge and Oxford and emulate their success. These institutions enjoy a reputation as world class universities not only in terms of internationally excellent pure scholarship, but in terms of entrepreneurship, links with industry and applied research. For instance, Cambridge has a cluster of 1,200 technology companies and is becoming a major high-tech centre with positive effects reported on job creation and regional unemployment rates. The city is also capable of attracting major private sector sponsorship for research: for instance, Microsoft announced in June 1995 its intention to invest \$80 million for a Cambridge research laboratory. Such developments have led to Cambridge being dubbed 'Silicon Fen' by some, whilst others prefer to minimise the extent to which Cambridge is seen as an imitator of Silicon Valley (Business Week, 1995). Oxford and London are also seen as key

centres of innovation and higher education expertise. Indeed, in Ken Livingstone's Manifesto for London, he explicitly refers to the aim of making London the UK's 'Knowledge Capital' based on the concentration of HEIs in the city (<http://www.livingstoneforlondon.org.uk/lonagenda/newmanifesto/knowledge.htm>). The London Innovation website is seen as an important first step (www.london-innovation.org.uk).

Over the last few years a concerted initiative has been launched to systematically and coherently exploit the assets of the Universities of Cambridge and Oxford and to link them better with other regional universities and partners. The 'Oxford to Cambridge Arc' (O2C) initiative, which also seems to be referred to as the 'Knowledge Corridor', was launched in February 2003 at Cranfield University. It has three aims: to create the largest and most successful knowledge-based economy in Europe and to become the world leader; to be a 'jewel in the crown' of the UK, the European Centre of Excellence for knowledge-based businesses and a magnet for inward investment and to build the most open and interactive knowledge-based community in Europe based on innovation and entrepreneurship: *'The Arc represents an opportunity to create a world-class area. It offers a unique combination of top universities, leading edge research institutes, a capacity to absorb growth, a plethora of high value added technology-based firms and an emerging complement of specialist business service providers...As the significance of knowledge based economies grows, maximising the potential of the Arc will increase in importance'* (SEEDA, quoted in O2C Arc, 2003).

The Arc is a cross-regional initiative with three main areas of activity: networking and brokering, project initiation and management and promotion of the Arc Concept to attract inward investment. The prospectus outlines how the characteristics of public face, personality, self image, values, user image and relationship have been defined by the Steering Group to create Arc brand identity and Arc distinctiveness (O2C Arc, 2003). Interestingly, the Steering Group seems to include Cranfield University, at the centre of the Arc, but not Oxford or Cambridge directly, except where they may be represented on other sub-regional partnership bodies.¹

Other UK cities and towns are seeking to brand themselves on the basis of their knowledge, science base and skills. For instance, Science City York was launched in 1998 as a partnership between the City of York and University of York. It focuses on three science clusters which are seen to closely underpin Yorkshire Forward's regional priority clusters: Bioscience York, E-Science York and Heritage and Arts Technology York. Key achievements to date are said to include the creation of 1600 jobs, assisting 26 technology transfer projects, attracting 27 inward investors and leading to 25 start-ups and spin-offs (<http://www.sciencecityyork.org.uk/>). Dundee City Council is involved in The Global Digital City Network (GDCN), an international organisation between 'knowledge based' industrial cities. It is designed to encourage the sharing and exchange of information and technologies in the

¹ The Steering Group consists of Bedfordshire and Luton Economic Development Partnership; Buckinghamshire Economic Development Partnership; BT; Cranfield University; East of England Development Agency; East Midlands Development Agency; Government Office for the South East; Greater Cambridge Partnership; Milton Keynes Economic Partnership; Northamptonshire Sub-regional Strategic Partnership; Oxford Innovation; Oxfordshire Economic Partnership; South East England Development Agency.

multimedia (and other knowledge based) sectors to promote the competitiveness of its member cities (<http://www.gdcn2k.net/>). Liverpool, along with Sheffield, Norwich, Darlington, Edinburgh, Stockton, Hull, Derby, Greenwich and Southampton, has declared itself a Learning City. Learning Towns and Cities have two purposes: to support widening participation in lifelong learning and to use learning to promote social and economic regeneration.

2.5.3 Knowledge Capitals, Corridors and Science Cities

Given the socio-economic conditions outlined in the first part of this section, it is unsurprising that a number of initiatives are being formulated internationally and within the UK which seek to make universities key assets in economic development and competitiveness strategies.

Efforts to compare approaches and measure their success are also evident. Thus one study sought to rank different regions in the knowledge economy on the basis of 17 economic benchmarks (Star Tribune, 2002). These included education of the workforce, business investment in research, employment levels in managerial and high-tech jobs and public education spending. But although linked by a common theme - whether this is the knowledge corridor, capital, science city or idea city (Florida, 2002) - there are variations in emphasis, from high tech and big science to learning, the creative industries or regeneration and so the indicators by which different initiatives judge their success should consequently differ.

What is key in the examples we have briefly considered is the emphasis on distinctiveness, finding a niche and being clear about aims and objectives. It is this clarity that will determine which initiatives fail and which are more likely to be successful.

We return to these issues in the interview report which follows, the purpose of which is to move from thinking about context to concept, so that specific contributions and the content of KC can then be considered in the final sections of the report.

3. Understanding KC: From Aspiration to Potential

The purpose of this section is to summarise understandings of Knowledge Capital through an analysis of the interviews undertaken with a variety of stakeholders. This section is divided into three parts. First, we consider how KC is seen in terms of its aspirations and potentials. Then, we look at a number of issues raised by interviewees in terms of how aspiration might become reality. Second, we match these aspirations against the distinctive strengths that interviewees held of each of their institutions and possibilities for collaboration. Finally, we examine the ways in which the concept could be filled with meaningful processes and actions to enable engagement in a section entitled, 'Thinking Allowed'.

The overall aim of the interviews was to gain an understanding of what is distinctive about KC and the feasibility of its aspirations and expectations, within and between the institutions. Four main questions led the research: what do stakeholders perceive KC to mean? What do they see as KC aspiring to be? How might KC add value to their current work and importantly, are its aspirations realistic in terms of where respondents are positioned and the type of work they undertake? These questions were designed to match actual to potential developments in terms of how KC maps, might re-configure or act as a catalyst for sets of activities. This provides a focus in the next section of the report for examining the possibilities and potentials for highlighting, adding value, or re-configuring and transforming the Universities' activities for the city-region and beyond.

3.1 Thinking Concepts: What is KC?

Within the interviews themselves there is a widespread use of the term 'Knowledge Capital'. At first glance this would suggest that it is meaningful to the respondents. Two points, however, are worth bearing in mind. First, understandings of KC remain aspirational at a variety of levels across the Universities. To that extent, KC does not fully resonate with existing practices. Second, the clarity and coherence of aspirations and vision differs between positions and also between similar positions within different institutions. There are those with a stake in the idea itself, but who are nevertheless not able to articulate a coherent sense of what it is and what it seeks to achieve. As a result, KC may mean everything and nothing, depending on relative positions within institutions and familiarity with the concept. Despite a common underlying enthusiasm and excitement about the potential of the concept, engagement for the purposes of development is therefore variable.

Relatively speaking, the most well developed attempts at clarification of the meaning of KC are provided, not surprisingly, by those who are championing and driving the process for the Universities. Overall, these are a small number of individuals in senior management positions. Here we see an explicit identification of a role: that is, creating the conditions that will enable its development. The role of senior managers is to create not only a vision, but also an infrastructure that will function without too much top-down planning to provide support and incentives.

In terms of collaborations between institutions:

'...the place of the four Universities in Manchester and the contribution they make is very considerable, and probably could be very much more considerable than it is now if we think through both between ourselves, between the Universities, but also in a much wider constituency, how those interactions can work, and how they could be mutually beneficial.'

A clear aim of KC is that the Universities can act in collaboration with each other and with other agencies for the benefit of the city-region. This was both implicit and explicit in many of the interviews. In particular, one senior manager spoke of a great strength of the city of Manchester being a *'mutual trust between the key players'*. Another characterised KC as:

'trying to establish Manchester by creating a cluster of knowledge based activity in Manchester ... the idea is to try and raise the profile and significance of the city, the conurbation, in terms of being a centre of excellence in the knowledge economy which bridges from education to business to the public sector...a knowledge rich network, if you like, of different knowledge producers and consumers'.

At the same time there was still a lot of work to be done in terms of determining the similarities and differences between the Universities for collective benefit:

'we've been trying very hard over the past 3 or 4 years to actually say that the Universities can collaborate, and that their collaboration is more, is as important as their competition. I mean, clearly competition is also important, and you are absolutely right that in terms of differentiating on different niche markets, we've not gone far enough down that road.'

Whilst the actual operation of KC was not felt to be within the remit of their role, it remained evident to senior managers that: *'the signals were enough that it [Knowledge Capital] was a good thing'*. This 'mutuality' was seen as an important context and starting point to developing KC, which is unique to Manchester and did not exist two decades ago. There now exists an excellent context of university-local government cooperation due to a common understanding:

'because I've always been very interested in politics and local politics and so on, I can talk to them in a particular language...I can bring a university perspective, but I'm also learning so much about how a major quango operates and you've just got to understand how the other player works, otherwise you don't get anywhere'.

This is matched with the view of one senior manager in Manchester City Council who said that KC provided a context in which:

'we construct the new HEI sector in such a way that it interfaces very effectively and coherently with a significantly wider world [than has been historically the case]'.

From the interviews it has been suggested that KC could involve broad-brush ideas of knowledge transfer, technology transfer, widening participation, encouraging outreach and facilitating creativity and innovation with new partners. In this sense KC is a wide-reaching, yet often vague, attempt to re-brand and exploit existing activities and also address the potential for new and collaborative ventures within and between the Universities, other agencies, businesses and communities at a variety of spatial scales:

'there've always been in Manchester creative people...I think back to probably earlier revolutions, where Manchester had this capability...they are friendly people, they are inviting, they are engaging and want to innovate and be creative, so it's this combination of having this huge amount of knowledge and knowing...[people] who want to be here doing things, and they actually want to do things together, in terms of the actual project...I think probably the strongest thing of it at the moment is the way that the two cities and AGMA are all of one that this is a good concept, that are prepared, and openly, to talk to 4 universities, who have different, but I think complementary, capabilities and views.'

The potential of productive development was beyond doubt. The physical concentration of universities within such a small area provided an advantage that was cultural and financial:

'What we have is what Leeds or Birmingham don't have or Sheffield don't have...an absolute mass of concentration...immediately adjacent to the civic core, financial profession services, the cultural core and right next to it there are areas of opportunity and my understanding is that no where else in the UK do you get that mix. And that's tangible. You've got potential physical linking with business courses. So that is part of the town, part of the city, part of the city centre...You can do all sorts of things...there's all sorts of potential.'

KC also provides a context in which the relations between HEI's and local public, voluntary and private practices can flourish in the furtherance of a mutual understanding concerning reciprocal needs:

'I think the real gain is in terms of the synergy you get...what you get is enormous added value from recognising that there's tremendous synergy between them...in essence exchanging concepts and ideas as theory and practice and then getting the spin-offs from them...if you've got a situation where a higher education institution is engaged with its city and its region and it's dependent on that city and region anyway to do its own business, you've got this circle of policy informing theory informing practice informing policy...you get this continuous cycle of engagement.'

The above characterisations, taken from senior managers across the Universities, are not necessarily representative of senior management teams more generally. Whilst supportive of KC, when it came to the actual implementation of the concept there was uncertainty concerning how it might unfold:

'I suspect there are a lot of people like me who would not be able to write down in three sentences what we mean by knowledge capital and therefore what it is that we're going to do.'

As became apparent in the interviews, this forms part of a wider issue about a lack of understanding about what KC might mean in practice. Indeed, many of those interviewed used the interview as a process for seeking clarification about what KC means and is trying to achieve. Deans, Associate Deans, Pro Vice-chancellors and Heads of Department, whilst aware of the concept and broadly supportive, had little sense of what KC might be or mean. Comments such as *'I've not thought about these questions so you're getting my off the cuff response'* can be seen as typical responses to being asked what KC means. As a result there were many referrals to broad notions of the knowledge economy, to technopoles and other cities and HEI links:

'the answer to the first question I guess is in the nature of the economy, and the way the economy develops and the fact that we are increasingly into knowledge and into expertise and into skills, and that's the future of economic development in this country and throughout the world...I think that traditionally London has been the capital of all that and dominates the UK as a centre of finance, centre of government, and has some very important universities.'

Many of these interviewees whilst unpacking, or alternatively trying hard to populate, the notion of KC also sought clarification as to its geographical focus. Some took it to concentrate on the North West of England, others Greater Manchester, some Manchester, but all with a degree of uncertainty. The idea of 'capital' itself was also a source of ambiguity with ideas of human capital and innovation mixing with those of cultural and physical capital.

Importantly what we see here are differences in aspiration and interpretation according to the remit of the individual interviewed. Thus, one interviewee with responsibility for a university's relationship with business did not think spatial issues or matters of clarification were of core concern:

'I don't think you need to spend hours worrying about what it is. I just think you need to start to take the steps. Cause it's fine for me if everyone has a slightly different notion about what it actually means.'

Those further up the hierarchy tended to be supportive of the idea in terms of its potential, whilst those with a concern for implementation and its implications for practice tended to be more uncertain.

When mixed with a wider uncertainty about the need to be continually changing and addressing new initiatives, the potential of KC was seen both positively and negatively. The more optimistic view was that the concept offered the potential for positioning the city of Manchester in a more central way in the knowledge economy. Others took the view that this was one project among many and that:

'I might get a call next week from somebody else wanting to interview me about another [initiative]'.

This belief came from an experience of so many 'next big thing' initiatives that produced more work without tangible benefit. It also came from the institutional incentives that were available for engagement at different levels. As one interviewee put it in relation to practices surrounding international research excellence (of which they were a part), KC should be about:

'achieving some sort of culture shift within the institution...the notion that you can only be taken seriously if you go to conferences in North America or Munich or whatever and that anything where you dirty your hands on things local, I mean, by definition is seen as trivial...the international and the local can readily co-exist together...[the University needs] levers to pull locally and to ensure that this might happen and all of the incentives and reward structures still tend to reinforce the argument.'

Incentivisation and reward within the different institutions and how they relate to practice is clearly a major issue and one that has not been adequately considered in relation to the potential of KC.

What can be achieved in the development of KC is linked to what it means to people within their everyday practices. Numerous senior academics close to the development of the KC concept suggested that the development to-date remains one of establishing a vision. The process has been a top-down one with little filtering through institutions.

Two issues, in particular, then become of importance for senior management. First, to develop the conditions that facilitate activities and second, for those activities to feed into KC in order that it moves from concept to action. What is required for this process is a set of practices that would populate the concept. At present KC is a vortex of anticipations and possibilities with no content. Without content it cannot add value, act as an attractor or possess transformative potential.

It is important to work at understanding via good communication. Indeed, a wider discussion among different stakeholders concerning the potential of KC is a precondition of its potential success and concerns enrolling a broader constituency into its development. In speaking about the potential to develop research in their own area (physical sciences), this person moved on to note how little so many know about what actually goes on within universities:

'I think also there could be better connections with the local business community and the Universities...there is very poor appreciation amongst local industry as to what the Universities do.'

Uncertainty about the concept of KC is played out in terms of what many academics and other interviewees suggested could be realistically aspired to and achieved. The inclusion of the 'ideopolis' was seen by several as unhelpful and only added to ambiguity. A broad consensus was apparent, at all levels, about the need to move from rhetoric to something more tangible. Those both sceptical and supportive suggested that a small number of projects and initiatives needed to be set-up and 'delivered upon' within a relatively short period of time (e.g. two to three years) to demonstrate its potential through practice. Without this in place the concept will have little resonance with academics if there are not tangible outcomes, despite its long-term nature:

'My biggest fear for the Knowledge Capital is it will be fluff, hot air...Because this isn't 5-minute thinking...This is a mission of 15 or 16 years.'

As one person put it, it cannot just be about:

'...museums and office blocks and such like in the centre, but actually focus on regeneration through knowledge applied to entrepreneurial activities...that seems to me to be an excellent extension and the next stage after we've physically transformed the city into something worth living in ...then we've got to jump start some entrepreneurial activity or it will be another Sheffield Centre for Popular Culture!'

With success in mind, what were the current strengths and contributions of the Universities and the potential developments identified by the respondents? This question forms the basis of the next section.

3.2 Distinctive Strengths and Collaborative Potentials

The types of current activities noted as relevant to KC within the Universities were considerable. Yet a great deal of what goes on within them is not simply about external communications, but promoting better internal understandings for the purposes of developing inter-disciplinary potential to work on common issues of regional concern. Without foci of this sort there was a clear danger that KC would become a “*cul-de-sac of committee meetings and targets*”.

The importance of relating aspirations to the actual conditions in which academics find themselves working is central to the effectiveness of KC itself:

‘I get the impression there’s a lot goes on, but the academic staff won’t have a clue that it’s happening and I think one of our problems is actually almost an internal thing...the staff don’t know what the university does for the city or the community very much...there’s not much publicity for it really...I think that’s a reflection of life in higher education, you’ve got to run bloody fast to stand still and if you want to be a 5 star operation you have to be highly focused and do what you are good at...there’s not much time left over.’

In terms of addressing this issue we can discern, from the interviews themselves as well as evidence in relation to profiles and practices around teaching, research and enterprise activities, specific areas of strength within each of the Universities. Caution, however, should be exercised in assuming that any audit could take place of existing practices that are of relevance to KC. As one senior manager put it, it would be ‘impossible’ for him to undertake such a process in his own institution, let alone four.

From the interviews it is possible to detect the potential for clarity if issues of intra and inter-communication, coordination and cooperation are translated from the level of rhetorical assurance into the realities of day-to-day practice. With this in mind, the ways in which people perceive their own institutions and their differences and similarities in relation to the other universities is a key starting point.

3.2.1 Representation, Attraction and Mediation @ UMIST/Victoria

Interviewees associated with UMIST/Victoria tended to see the development of KC as one of ‘added value’. In other words, it was concerned with re-packaging and exploiting existing opportunities for institutional benefit and that of the city as a whole, in terms of the location of the university and its relations with key stakeholders. This concerned the development of relations of mutuality with the city council and other organisations in providing a context and environment for attracting staff, finance, investment and facilities to Manchester. It would also provide further evidence of an ‘innovative milieu’ through the development of incubation facilities (for the exploitation of knowledge), infrastructure (physical and human) and other visible signs of activity: for example, cultural in relation to art galleries, theatres and museums. To this extent the development of KC is part of the overall strategy of the ‘Project Unity’ merger in seeking to counterbalance the ‘Golden Triangle’ of Oxford,

Cambridge and London and become a 'Harvard of the North' and part of an extended 'Golden Diamond'.

Such international aspirations should be seen against a change in recent years in which both institutions have moved a long way from being seen as 'in' but not 'of' the region. It was emphasised that the shift towards an internationally focused and renowned institution was not incompatible with a local and engaged focus as it was an contributor to the 'well-being' of an area. As one person put it, to attract 'knowledge workers' was to address an historical issue:

'the thing that Manchester as a city lacks, as all old industrial cities lack, are the middle class managerial, professional, technical, scientific populations whose exodus in the late '70's and early '80's left them where they are today and I think that Manchester has always retained some of that and also shown a reasonable capacity to regain it... it must mean that this is a viable project in a way it couldn't be in any other northern city.'

This needs to be understood against the emphasis of how KC would function as an 'attractor' for world-class knowledge workers. In this way it becomes 'additive' via a re-branding of existing activities and an 'attractor' for investment through reputation. It provides an opportunity for 'retention' in order to enhance the prosperity of the region:

'if you have people that are coming from thousands and thousands of miles away, I think reputation is quite important. If you are in Singapore and you want to come to the UK to set up a company or to invest, reputation is important, because if there's only London around that's where you'd be attracted...if you've been a graduate of UMIST or the University of Manchester you'd know more about that part of the world and it might be an attraction to you, you think well it's not just London actually there's also Manchester.'

The emerging view of KC among Victoria/UMIST interviewees was as a process to add-value and to function as an attractor. It was regarded as a means to enable further funding for current activities and adding value via spinout activities, but also as a vehicle to attract expertise and become more enterprising. These aspirations were seen as tied into benefits that the new university would bring to the city-region itself. Thus an improvement in the 'cultural infrastructure' in Manchester links issues of attraction to those of retention:

'we're looking to have world class graduates in Manchester...You need world class students with world class potential coming in at the start of the process ...And that comes back to customer care and quality of the courses and our ratings...then the physical becomes so important...in terms of graduate retention that is going to be dependent upon the health of the region's economy on the one hand and the number of firms locked into a career infrastructure. So you develop and so on...I think we've got great potential to do more.'

The merger represents challenges and choices and the content and outcome of those will influence the role of the new institution in KC. Where will resources be devoted in terms of current activities?

There are also differences in the overall cultures of the two institutions which are of clear importance when it comes to the type of innovative activity that is associated with KC. UMIST was seen, by virtue of its history and forms of academic-related

contractual agreements, to be more innovative. Issues of ‘cultural awareness’ and creating ‘climates of opinion’ were apparent in interviews with senior managers. How UMIST ‘works’ in this respect should not be lost in the merger when it comes to KC developments:

‘the way that it works, as you know, is that UMIST Ventures have to be sufficiently good to attract the staff in order to get knowledge exploitation, now they also say to us that it was set up by business people and as far as any notion of knowledge capital is concerned, at least in relation to knowledge transfer being pushed in the White Paper in certain ways, then UMIST is already there and it makes sense...we just have to take what we do and just enhance it, but within the context of how you actually get staff to engage with this, what kind of processes, what kind of means and mechanisms are possible?’

The development of Victoria as a world-class research university was illustrated by developments in bio-medical research (a £40 million complex for bio-medical research relates to what was described as a ‘bio-medical corridor’ in Oxford Road) and growing relationships between medical facilities, the NHS, pharmaceutical companies and spin-out enterprises. Victoria’s focus was in positioning itself as an international first-class science-based research university able to attract the brightest students, leading edge academics and develop the facilities that match these aspirations to particular developments:

‘that’s quite important to our concept of how we build research in this university and the new university and link new hospitals, new research facilities and exploitation in the incubator we have. There is a big new 40 million pound complex going up for bio-medical research, which is next door to our chemistry facilities, which is next door to our computer science and materials, so we have this link there that we actually do see as building a particular future.’

The international dimension of activities in some Departments is tempered by the associations that exist between academics within Greater Manchester and the North West region: for example, bio-medical science and collaborative links with Liverpool. In addition, the level of activity may not directly relate to the locality, but that is not to suggest it does not have local implications. For instance, in terms of the opportunities presented by the merger for new centres of research excellence, this person spoke about a centre for climate change:

‘the atmospheric physicists know all about modelling of the climate and atmosphere etc, making connections with the earth sciences, setting up a more environmentally orientated physics and earth sciences school...the merger is an opportunity to reconfigure into these new knowledge lumps...so in that sense there’s tremendous opportunity for rearranging some of the intellectual furniture, and I would have thought that presents opportunities for new research directions focused on spin off and entrepreneurial activities.’

Allowing such possibilities to flourish over time, as opposed to imposing a vision upon sets of practices, is precisely how some of the most advantageous developments may take place. In addition, whilst there are international aspirations, there are also different levels of engagement within Victoria and UMIST. Planning and Landscape and Architecture, for example, have worked on KC design projects and possess a long tradition of working with local communities in terms of outreach, widening participation and issues associated with multiculturalism.

3.2.2 Transformation, Recognition and Enhancement @ MMU

For MMU, KC is regarded as a development that capitalised on its strengths as a university that was engaged with business, the professions and the community. KC, therefore, tended not to be seen as a repackaging of existing processes, but as a means of continually cultivating relationships between the University, city and region. As one senior manager put it:

'We educate the professionals – the teachers, lawyers, IT specialists, social workers, community and youth workers, scientists, technologists, healthcare professionals, managers and so on. We make a huge contribution to the cultural industries, and again that helps to shape the cultural identity of the city. Many of those graduates stay in the city and maintain their link with the Faculty of Art and Design, again enhancing the impact.'

KC is regarded as a catalyst for the development of new initiatives and partnerships that match the development of particular university strengths. Specific programmes are underway with the city and other stakeholders in relation to the following: Urban Education, Transport and the Environment; Regeneration; Fashion, Textiles and Clothing Technology; and Sport and Physical Activity, building on the impact of the Commonwealth Games.

MMU has positioned itself favourably in terms of a whole range of cultural activities which often involves not only a re-badging of existing work, but also a transformation of relationships between the University and a variety of outside agencies, in opening their doors and also 'reaching out'. In the words of one of its senior managers: "We touch the city in some way. We mark the city in some way".

The continual development of research excellence (one five star and seven four star returns in the latest RAE) is seen to combine with close links with professional bodies and business. New projects ranged from building a culture of enterprise and entrepreneurship in NW schools, via improving well being through sport and physical activity and addressing environmental impact constraints on the expansion of Manchester Airport, to working with textile, design and retail companies on new textiles, fashion and clothing technology that improved the competitive position of this business sector and generated links with tourism.

Thinking about this emphasis in terms of seeking to welcome people into universities who wouldn't otherwise enter those institutions, this person noted in respect to the Manchester Fashion Network that there was an opportunity to enhance recognition through KC:

'I know within Manchester there's a huge resource that doesn't operate as well as it should because it's not promoted in a way it should be promoted. People don't know it's here. They may know about fragments but they don't know about the richness of the resource. And I think that it's happening here more because, you know, of the sort of push for re-examination and development...Let's use what we've got, let's make everything better, that in turn will bring money into the city and by doing that it will also create employment and that it will attract people, I think, to the area to the region and I think it will give us an identity and a character that is contemporary, that's new.'

Such an emphasis upon the creative industries was given not only as a result of seeking a form of distinction from Victoria and UMIST, but building upon existing capacity to transform and add value in interactions between communities and the HEI's. The result within and around KC is the value-added of 'creativity':

'That then becomes the kind of the vortex of creativity that feeds the creative industries, if you then link that with creative industry development and cultural developments and the improvement of the galleries and the museums, the vibrancy of the displays, the attractiveness of other exhibitions and put it onto tourist trails and stimulate the creative industries, that's the reach out, that's the knowledge assets bit... but the museums also have resources because we use the museums, so do we work together to strengthen that museum which is both a resource for HE and it's a resource for the region, because it's on a tourist trail, so that's the kind of inter-change that we are looking for, so you might have clubs, you might have networks.'

The identity and character of MMU related to its modes of working, as much as its specific areas of activity. In terms of widening participation, during this interview the conversation turned to the appropriateness of traditional learning methods in order to widen participation:

'if there's a 50% participation, a lot of higher education was set up to deal with people who learn and think in certain ways, who like to develop their intellect by reading...I am a person who learns through doing and being involved and there are lots of people who learn that way, who are bright, who have a good intellect, captains of industry or the public sector...able competent people, very good brains, very good intellects, but they develop it in another way, and if you've got 50% participation you are going to have a wider range of learning styles.'

MMU attracts a higher proportion of students from the North West than does UMIST or Victoria. Here, however, clarity as to the intended outcomes of KC remains of core importance. It is not that one is 'better' than another, simply that they are complementary. For KC to work for the city-region one would expect an increase in the rate of participation in higher education among that population and MMU is clearly committed to such a possibility. For KC to work as part of a dynamic national and international environment, you would expect people to be attracted to it as a place to study and then forge a career.

Overall, KC was viewed as an important means of providing co-ordination and coherence to a wide variety of activities that saw MMU seeking to reach out to people who wouldn't normally engage with higher education. Equally, the matching of research expertise to professional bodies and commercial activities is linked to views on city-regional benefits. These aspirations are shared with Salford.

3.2.3 Enhancement, Engagement and Enterprise @ Salford

For one senior Salford manager the development of KC is seen as an important part of the development of the University as a whole and its profile as an ‘enterprising university’:

‘we will strengthen an acceptance that Salford occupies a distinctive niche and has a key role to play. We need to get more external agencies - politically and economically - to see the University of Salford as an institution that plays a vital role in the future of this city-region.’

In the case of another senior manager at Salford, once KC moves beyond vague broad-brush visions, it should be viewed in a more transformative guise as an ‘infrastructure of possibilities’. Here academics and the institutions could form relationships of knowledge creation, production and sharing for multiple beneficiaries. KC was an aspiration to create a structure within which people can move and be creative. There was also the sense generally that KC related to aspirations in terms of the mixed aims at Salford of teaching, research and enterprise:

‘...[we have] a mix of strengths across all of the areas ... and so we are not going to say that we are non-research, we are not going to say that we are non-teaching, we are not going to say that we are non-enterprise, we want to say we are a bit of all of those and excellent at them all’.

The flow of knowledge and the movement of people within a defined area was key to this notion:

‘This collaboration with business and the community at Salford University depends upon using the latest ICT firstly to reach to every corner of University in the belief that all staff have something real to offer the outside world. In return the KC will enable academics gain rich problems worthy of higher study and thus develop new skills, facilities, technologies and learning support for our real world partners’.

Salford was seen to have notable pockets of research excellence: for example, in Information Systems, the Built Environment, European Studies and Urban Regeneration, Media, Art and Design, Public Health, as well training in relation to Professions Allied to Medicine. Its reputation in these areas was seen in terms of its distinctive strengths in addressing business, industrial and commercial interests in, for example, the design and deployment of ‘enabling technologies’ through working in partnership.

The idea of ‘sophisticated knowledge sharing’, as one respondent put it, was intended to capture the notion of working in partnership with others to meet their needs and this, in turn, informed the idea of ‘academic enterprise’. This is linked to the potential that others saw in KC:

‘We work with a whole range of large companies, we have a number of regional funded projects with SME’s based around this principle, we obviously have then research projects where we have partners...we tend to talk more about wisdom rather than knowledge, because knowledge we see as broadly applying something you already know, in conditions that you already understand, whereas wisdom is the application of something you know to

a set of conditions which is quite different...if you were looking at something like, you know, a knowledge capital, or a knowledge society, that's exactly the kind of thing that one would be looking for.'

During one interview the discussion centred upon the 'information city'. Moving from aspiration to practice, this person did not wish to speak of 'technological fixes', but instead understanding what people want should be the first priority:

'So if you are going into your local library to access knowledge capital what you want is search engines and metadata to take you directly there and then that begs the question, from a community point if you call it that, what type of data do you anticipate and what type of innovation do you anticipate a member of the public to want?'

Salford came across in the interviews as a university with a focus on innovative engagement with business, industry and commerce, for instance through Academic Enterprise or CAMPUS: *'we brand ourselves as being vocational and being real-world and being very linked to industries'*. In terms of its teaching, we found that Advisory Boards had been constructed to advise on curriculum content and development. In Media, Art and Design, for example:

'we are advised by industry as to whether they are appropriate or where there are any gaps. For instance, we have an MA in script writing, we have an MA in Documentary ...and they are also taught by people who are leading practitioners in the field. So that Advisory Board also includes a specialist in computer and video games, because we have entered into that market.'

This interview continued with a focus on Salford's creative and cultural offer through participation in the Chapel Street Regeneration project, International Media Centre, development of the Adelphi Media Quarter and 'Creative Capital', described as a *'baby KC'*:

'I think it's unique in that the training, the vocational aspect and linking it outwards to what are cultural, social and economic needs is quite strong. And I think that the way in which our particular schools, art and design, and catering, link in in that way, gives it a different flavour.'

An emphasis was also placed on widening access and participation via a number of initiatives, with the aim of raising young people's aspirations. Mentoring was, for example, one programme of work mentioned, whilst the relationship between skills and student demand was seen to be accommodated within Salford:

'we are now much more closely focussed in this University on the two ends, what the student demand is and what the employment outlets are and that is the skills end of it. I think the student demand end is going to come around and understand much better what the skills ends are. But we have to be conscious of both ends of the spectrum...I don't think there is tension between what universities would like to offer and what they need to offer.'

Overall, therefore, KC was seen as enhancing existing agendas in teaching, enterprise and research, all of which were driven by the idea of being an 'engaged' university working in partnership with a variety of stakeholders:

'Salford needs to be the sort of university that is significant in the knowledge economy...regarded as being highly innovative...regarded as making a very important contribution to higher education and to the regeneration of the area.'

3.2.4 Collaborations

The above characterisations should be seen as the basis for furthering collaborations to meet the aspirations of KC. These are currently taking place between the Universities in a number of ways at different levels: for example, via the CONTACT Partnership, Strategic Alliance and Japan Centre (providing advice for Japanese businesses wanting to set-up in the North West). In terms of library and information services there have been longstanding links between the Universities: for instance, in terms of shared access to library resources through CALIM. The Universities also work together through the Manchester Science Enterprise Challenge; Salford, MMU, Liverpool John Moores, Central Lancashire and Bolton work on a Masters of Enterprise and Salford, MMU and Manchester have a distance learning Masters in Sociology. More informally, there are multilateral and bilateral links between Schools and Departments in, for example, architecture, art and design, sociology, health, technology and urban governance.

Collaborations make sense to add value to KC and place the Greater Manchester Universities in a unique position among British HEIs. Importantly, matching potential developments to actual provision is key. Without this there will be unrealistic expectations and rhetoric will not mix into practice. For this to take place there needs to be a well understood and communicated sense of what KC is trying to achieve. Thus far, this thorny but necessary issue has not been confronted.

What is needed is an understanding of the differences, as well as similarities, that each institution brings to KC and how they contribute to the overall picture. Numerous interviewees saw the enormous potential in increasing collaborative activities in teaching and research. With issues of common problem-solving in mind, there was also a commitment to the need not only for inter-institutional, but also more inter-disciplinary work. At this point several people spoke of 'virtual' groupings and information technology acting in an enabling way that not only brought people together, but developed a shared knowledge base and profile for the city-region around its HEIs.

The Universities frequently work with local government and economic agencies in order to be an attractor. For example, the NWDA is working with Victoria in helping to fund a new national centre for bio-informatics in Manchester. This focus on developing external collaborations in terms of science can also be seen at the level of links between universities and local schools. The Biological Science Review allows Victoria (predominantly Biology) academics to further a public awareness of their work, but also to invite students to come and look at the laboratories amongst other activities.

With a different focus UMIST Management School has collaborated with Manchester Central Health Care Trust in setting up two Teaching Company Schemes. At a national level UMIST has a partnership with the NHS to deliver a Masters programme and undertakes enterprise training with its graduates. Further NHS initiatives exist

across the other institutions and how these relate to each other and how this adds to an overall profile of KC and the differences and similarities between the HEIs needs more consideration.

With reference to cultural and creative activities, MMU works with a number of partners in terms of textiles and fashions: for example, the Manchester art galleries and the North West Textile Network. Putting these together with activities in Manchester, UMIST and Salford's Art, Design and Media, Music and Performance Schools can add to the cultural attraction of Greater Manchester and improve links with the creative industries. The institutions can further 'open their doors' and strengthen their profiles through one-off exhibitions and housing public collections of art within premises owned by the educational institutions. They may use creative writing skills to widen access to literature as well as work on festivals and events in collaboration with the Northern College of Music and local theatres, production and media companies.

In terms of environmental concern, MMU has a partnership with Manchester Airport for a research centre in aviation, transport and environmental issues. The atmospheric research conducted at UMIST and Victoria can align with climate work undertaken at Salford in order that environmental issues are seen as part of a healthy environment for all.

The above are a series of developments, via programmes of activity or sponsorship of initiatives. Clearly, KC can add significantly to these through careful marketing and the formulation of an ethos that attracts companies and students to the city-region.

Further potential for Universities' contribution may be through the provision of infrastructures of information and expertise. For example, Salford's Innovation Park has aspirations to offer a conjunction of local schools, colleges and small businesses the space and infrastructure for the flow and transfer of knowledge and support services. Here attention needs to be turned to the proportion of activity undertaken with SMEs and large corporations in relation to the aspirations of KC. There have been many instances of university-SMEs engagement, but it was made clear that there is much room for improvement. The Universities could match expertise to clusters of activity by mapping current work in this area and determining the needs of the business community in more detail than has so far been available.

In addition, there are many instances of collaboration through one-off problem solving with local business, whilst collaboration in terms of social issues may be seen in a number of initiatives which, for example, attempt to widen participation in higher education through creating links with FE colleges, schools and Bolton Institute. The potential of KC for acting as a means of widening participation may be in the development of widening access through the cultivation of distance learning courses and novel ways of learning. Access and accessibility remain, of course, core issues.

Considering the overall profile of the Universities, with medicine and bio-medical sciences concentrated in Victoria and Professions Allied to Medicine in Salford and MMU, there is enormous potential for greater collaboration. Victoria has a focus on research around medicine, dentistry and pharmacy, whilst Salford has strengths in applied social health care, as does MMU but with a slightly different emphasis. This

may allow for potential collaboration with other areas of activity: for example, exercise, sports science, public health and environmental quality.

The role of the Universities in relation to science and medicine may also link to agendas in public health, whilst Manchester's Café Scientifique initiative could be expanded to encompass a long-term programme of work that not only promotes public understanding of science, but also seeks to enhance the number of those leaving school who might wish to enter a career in science.

There is also the number of information system specialists in the city-region. With such a concentration of internationally renowned knowledge workers, how is this translating into Manchester being the 'connected city'? For one person this would take place via information booths in the streets, or by using what are assumed to be outdated computers, but perfectly adequate, to take such technology into homes that could not otherwise afford it.

Many of these examples highlight what is the enormous potential of KC. The activities either work to highlight existing provision or to transform or reconfigure it for the general benefits of the locality. At present these issues are not sufficiently understood and until there is a better basis of understanding, such potential will remain untapped.

3.3 Thinking Allowed: Challenges and Choices

Complementarity, on the basis of an understanding of distinctiveness, was seen as crucial to the development of KC by all those interviewed. This is not to suggest that there is not competition between the Universities as they seek to differentiate their niche markets and convey a particular identity to an outside audience. That means recognising the distinctive strengths of each institution. As noted by one person, the new merged university should not pretend it does some things as well as Salford or MMU and vice versa.

That will take a different *modus operandi*, but would cut out unnecessary competition and clarify for external audiences the place, purpose and roles of the respective institutions. Another person even suggested that the only common area of competition in which all were involved was nursing. Whatever the accuracy of such observations, they are the beginnings of a process that is only in its infancy, but one that needs to be embarked upon for the benefit of all.

Where it is apparent that existing activities inform KC, then the realisation of KC requires a widespread awareness of these activities and their potentials. At present, communications within and between institutions below senior management levels are poor. This requires building awareness at a number of spatial levels. In terms of doing this within a relatively quick time frame this will require internally, a document circulated to all HEI staff and externally, visible symbols in terms of a joint marketing strategy. Ultimately, however, marketing has to live up to reality in order to be sustainable.

For a number of those interviewed the issue of realising the potential of KC rested on a movement from aspirations to tangible outcomes. From a variety of different

positions within institutions, a commonality of viewpoints emerged that a small number of visible, highly focused programmes of work needed to be undertaken with clear objectives whose outcomes were evident within a relatively short time frame (two to three years).

In other words KC has to be more meaningful than visions and aspirations. It needs to move beyond spontaneous, intermittent activity to something more than that, underpinned by a mechanism that concentrates on or develops particular areas of strength. This, according to many interviewees, requires a coming together of the leaders of various organisations. It needs VCs, City Council leaders, Development Agencies, representatives of corporations and SME's, the Chamber of Commerce and so on, to provide a framework which offers alignment of the existing and potential activities of strength under a common vision. Practically, it needs to enthuse those it seeks to engage through practical and relevant activities.

In order to achieve the above, there will need to be a better understanding of how institutions work and what pressures they find themselves under. There is little understanding of the world of the university outside its narrow confines, whilst how the City Councils work and what pressures they face is not thought through. Generating such understanding is a challenge and a necessity for effective working relationships. In the absence of that projects are bound to be selected whose actual contribution to an overall profile, as well as benefit to different populations, remains unquestioned.

For this KC needs champions. Many interviewees offered examples of high profile champions, such as Sir Alex Ferguson. However, others suggested someone with a drive for seeing the development of KC over a long period of time. A number of people offered the example of Sir Bob Scott and his vision of the Olympic Games coming to Manchester with the eventual staging of the Commonwealth Games. Champions are needed to generate enthusiasm and motivation for KC.

Different champions may be needed at different stages of the unfolding development of KC. However, top-down initiatives can only offer a framework. The key to the success of KC is in capturing the interest of people within the Universities and the wider public and thus bringing lasting engagement around a set of common issues.

Numerous barriers were perceived by interviewees as potential obstacles to the realisation of KC. These included, for example, variability of understanding of what KC might be and how it could be achieved or a lack of alignment of diverse interests. Related to this was the difficulty of selling the idea to academics who are busy people often faced with initiative-overload.

One knowledge management expert suggested that given that there are limited flows of knowledge within universities generally ('how often are people unknowingly doing similar work in the same institution?'), the challenge is to facilitate knowledge transfer and production between and within the Universities at different levels and also with other agencies and individuals. This presented a huge challenge.

A key concern given attempts to populate the concept of KC was that initiatives be made relevant to those whom they were intended to benefit and thus get such people

to engage with KC. The issue still remains, in the words of one respondent, that: *“businesses don’t know how to access us”*.

The questions then become what opportunities KC provides for whom? Opportunities at Victoria may be different from those at MMU and Salford. Similarly, opportunities for senior managers may be different from those charged with pursuing outreach agendas or with engaging with a particular academic discipline. Science research agendas and more community-oriented work aimed at reducing social inequality are different. Under the recent Higher Education White Paper (2003), one will get more funding if a centre of research excellence, whilst the latter will not receive anything like such benefits. Overall, there needs to be an awareness of what is realistic and for that purpose better communications aimed at understanding broad sets of aims are required.

How those issues connect, or not, with the broader agenda within the city-region of linking the knowledge economy to urban renaissance requires careful consideration in terms of the marketing of KC and what might realistically be expected from the process and for whom.

Take the example of Victoria/UMIST and their wish to position themselves as attractors. This will take place in relation to what is a highly competitive field. Around 60 per cent of bio-medical research in the UK goes on in London and approximately 45 per cent of R&D goes to the South-East. In such circumstances, the North West is a net exporter of science and engineering graduates. Whilst this is a reason to seek to address matters of retention and distribution, it is important not to overplay what might be realistically achieved.

There is also an issue around collaboration through the spin-out of activities and the protection of intellectual property. At present the reward and incentive structures within universities are played out in different departments in different ways. Not only are such matters differentially distributed among academic staff, the potential for their engagement depends upon their position within the institution. Without a sensitivity to these differing contexts, what seems like evident potential can so easily become unreasonable expectation. This also raises issues about the future and nature of the university as a site of knowledge production. As one person noted, there are tensions between the commercialisation of knowledge and the role of academics in terms of being seen as ‘impartial’.

Across the board universities have not engaged very well with SMEs. Much can be done to improve this situation, but no simplistic notions of supply and demand work. It may well be the case that SME’s do not know what they want, but instead this emerges from a dialogue set up through the establishment of matching clusters to expertise. This will take time and KC needs to be a long-term project if it is to work.

In terms of further engagement and making the Universities’ meaningful to citizens, a large number of deprived wards surround Manchester. As one person put it: *“we have a huge mountain to climb in terms of raising the aspirations of local people...young people”*. Spatially speaking, this also relates to a tension between what is seen as the ‘urban core’. KC might be very successful, for example, in attracting a larger pool of knowledge workers. Some of these may stay in the ‘centre’, but there are no schools

and so where will they go if they have, or want children? In this sense, how will this community benefit those who already exist in areas such as East Manchester, Hulme and Moss Side? How are these latter groups to benefit from KC in an age when 'trickle down' theory has been discredited?

There are also many buildings, notably those in the original 'Knowledge Corridor' idea, that are single use. A core success factor will not only be the presence of a cultural 'buzz', but also in the transformation and physical manifestation of KC along Oxford Road/Chapel Street. In the words of one person, it is as if "*they had turned their backs on the city*". If KC is to work and flourish, imagination has to blend with changes in practice and the attraction of significant amounts of funding. Will the City Councils work together and with the Universities to create this larger vision, or will it break down into particular interests according to more narrow agendas?

The scope of many understandings of KC means that an enormous amount of work across a wide range of constituencies is needed. The challenge is to get buy-in from these constituencies, this being especially difficult from the commercial and industrial sector. A key challenge is making a move from rhetoric to something real and also in publicising work between the Universities and the city-region that is already undertaken. There is little publicity in this area and consequently both the general public and also staff of the Universities have little sense of what the Universities do for the city and vice versa.

Furthermore, a challenge is for a focus to remain on the creation of the conditions and structures for the achievement of KC: "*of course you need structures and of course you need representational mechanisms and so on but if you're not careful you can create something that becomes an end in itself rather than a means to an end*". Critical success factors may be many but widespread buy-in and engagement with KC is required from all the Universities at different levels and within various sections of the community.

These are difficult challenges. However, the answer does not lie in ignoring them, or in the setting of unrealistic targets. KC is an unfolding and long-term process. In many cases interviewees spoke of 15 years and over. The highlighting of potential opportunities and some short-term (2 years) outcomes of benefit to different groups is the way of engaging people. Some of its effects will be intangible in the sense of having what people called a 'buzz' or a 'vibe'. As one person remarked, they will know when KC has been achieved because the city-region and the Universities working together will receive national recognition as a model of partnership which has worked to improve overall prosperity and quality of life.

The next section of this report considers how that vision might be achieved, through moving from contributions to content and action.

4. From Concept to Contributions to Content

With success in mind, what is now needed is to fill the concept ‘gap’ with content in order that there can be a meaningful process with actions and benefits that can be shared, widely understood and effective and driven by a clear set of questions and infrastructural support mechanisms. Different agendas should not cut across the collective effort that is required. Quite simply, in the absence of understanding where people are positioned in institutions and what values inform their activities, then potential is undermined and targets step in to replace purpose and effort becomes ineffective.

A wide ranging set of activities have been referred to throughout the interviews as potentially constituting, or being constituted by, KC. In this section we seek to add form and shape to those potential contributions, to recommend a set of guiding principles and considerations in taking KC forward and to highlight what the content of KC might be in terms of programmes of work and specific projects that could emerge. These must be seen as indicative, given the wealth of knowledge and expertise within the HEIs and the city-region more widely that needs to be tapped. Using this method, it is more likely that added value will come from KC by virtue of due sensitivity to the relationship between what exists and the potential that may be realised as a result.

4.1 Thinking Contributions

First, let us take the benefits of university activity in terms of their contribution to regional development. They are:

- 1) The *enhancement* of regional framework conditions via contributions to quality of life and the identification of areas in which improvement could be made.
- 2) *Contributing* to human capital development through education and training;
- 3) *Supporting* and *attracting* new firms via the provision of expertise and support in the development of new products;
- 4) *Facilitating* cooperation between firms and institutions by acting as centres of knowledge sharing and application;
- 5) *Ensuring* that benefits are shared within different populations within a region and maximising their health and welfare;
- 6) *Adding* to cultural development as a result of activities that enrich an area, build its confidence and enrich quality of life and
- 7) *Promoting* sustainability by focusing upon long-terms agenda in respect to environmental and social issues even if these appear to be in conflict the business agendas

(Adapted from ‘Evaluating the Regional Contribution of an HEI’, HEFCE, 2002).

The above map onto the issues identified in the interviews in terms of how each institution approaches KC. Once again, they are: representation, attraction, mediation, transformation, recognition, enhancement, engagement and enterprise. There are clearly overlapping themes here. To enhance, contribute, support, promote and add

are features of our results and the above interpretations of HEFCE frameworks for assessing HEI contributions to regional needs.

If we simplify these functions, they can be viewed in the following terms:

- *KC as representative.* It acts as a focus through which current work is channelled, magnified and given an interpretation according to the relationship between actual and potential activities and the distinctiveness it wishes to convey.
- *KC as additive.* It acts as an identifier of spin-out opportunities that are not normally part of everyday practices in HEIs. In this way it adds value to what is currently practised and does not seek to change well-established areas of activity.
- *KC as transformative.* It acts as a catalyst identifying current activities and re-configuring and adding to those for the benefit of the city-region and beyond.

It is a recommendation of this report that the HEI's adopt and develop these criteria in order to provide the clarity, sense of purpose, respective contributions and measures of success that are needed to adequately develop KC.

From these criteria, it is then necessary to move onto particular sets of practices and how these can be taken forward under the KC banner. In particular, six cross-cutting themes have emerged that form a useful means of categorising subsequent activities as the basis of work programmes.

4.1.1 Science

The first theme is 'Science'. This groups together specific areas of scientific activity, such as the physical and life sciences and refers more generally to the Universities' research functions and the need to create centres of excellence building on distinctive strengths. So this theme may include considerable activity in the 'bio-medical corridor'; the development of collaborations between Universities and the NHS and private companies; and the development of 'pockets' of research in all four institutions and research networks. The rationale for this theme in terms of contribution to KC lies in the attractor function of research excellence, in the ability to obtain public and private funds, and in building international and national reputation to enable the city-region to compete. The Research Assessment Exercise is the dominant mode of assessing research excellence. For KC, a key issue relates to how research excellence can form the basis of economic success and social development.

Think! medicine and professions allied to medicine; bio-medical research; science parks; the urban environment; incubators; technoparks; digital world; technology; public understanding of science (politics and ethics); visualisation and food technology; NHS and university collaborations in partnership with companies; pockets of research excellence and specialism.

4.1.2 Economy

Second, comes 'Economy' referring to a whole range of activities including the commercialisation of research (the utilisation of incubators to support spin-out companies); linking the Universities to business (business support services, spinning-out of innovative ventures, encouragement of entrepreneurship, matching capacity to cluster developments); outreach through widening participation to the Universities with a key role for networks of local FE colleges; linkages between the Universities and local and regional government; involvement of Universities in economic development and regeneration programmes. The rationale for this theme in terms of contribution to KC lies in the direct and indirect economic impacts of HEIs on local and regional economies.

Think! support to business via centres of excellence; matching networks of academics to clusters of activity at different levels; innovation; cultural and creative industries; manufacturing and services (finance, legal); the knowledge and technology sectors; business and regeneration; fashion and textiles; entrepreneurship; local and regional government; the development of supportive information infrastructures; the voluntary sector and social entrepreneurs.

4.1.3 Social

'Social' refers to a whole range of quality of life indicators and links new and existing projects in terms of widening participation, equality of opportunity, social justice, crime, public health, social exclusion, sport and so on. Quality of life and social inclusion are key to the success of a vibrant city-region. Different populations have different needs and the success of KC can be judged, at one level, upon its ability to improve the quality of life for populations in general. This theme links closely with 'economy', particularly in terms of regeneration. Greater Manchester is a region that has changed considerably and remains the object of regeneration. There is an opportunity for educational providers to contribute to communities coming together and supporting each other, with different resources and in different ways. A great potential exists to configure existing expertise to benefit the city-region. Partnerships can be signed to support regeneration, understand and respond to the different needs of populations in a more systematic way; celebrate and understand different histories; inform the present and future of regional affairs and work in inter-disciplinary collaborations to support regeneration programmes and activities.

Think! quality of life indicators; crime; public health; sport; housing; history; environmental quality; community cohesion; widening participation; equality of opportunity; information infrastructures; centres linking policy, theory and practice, diversity in ethnic, sexual, class and racial differences; literature (poetry, novels, biography); history; regional affairs; government; regeneration; reach-out and volunteering.

4.1.4 Cultural and Creative

This refers to both cultural and creative activities within the Universities and beyond. Such activities encompass a whole range of initiatives around fashion and textiles; 'opening up' of art galleries; the development of sports institutes; the provision of art

for public spaces and thus physical regeneration; the utilisation of music venues; and the arranging of public lectures. Universities have the potential to ‘create the buzz’ that so many interviewees referred to through the direct provision of cultural amenities and the creation of talented ‘creatives’ who continue to work in Greater Manchester’s burgeoning music, arts, performance and design sectors. More can be done to improve the spread of current provision for different populations, to provide those amenities and services that currently do not exist and to act as a magnet for those the city-region wishes to attract and retain. Universities can contribute to broad-based cultural development within the city, not only in terms of entertainment, arts and leisure but also with respect to the cities’ diverse ethnic communities and their integration into the KC project.

***Think!** public understanding of science; dissemination and understanding of knowledge in general; reading groups; public lectures; art galleries; fashion, textiles, art and design matched to social, business and tourist activities; regeneration; information infrastructures; sport; museums; leisure and physical attractiveness of environment (aesthetic); diverse musical genres; music theatres and concert halls; ethnic and multi-cultural festivals; support and tolerance for different cultures.*

4.1.5 Sustainability

‘Sustainability’ includes a range of projects and initiatives which link to the aspiration for a good working environment and a long term approach to KC. There is a physical and environmental aspect to this, as the traditional use of the term ‘sustainability’ would imply. This relates to the use of buildings, climate research, parks and recreational spaces and the regeneration of the physical environment. At the same time, as holders and generators of expertise HEIs represent valuable resources to aid understanding and work in partnership to change practices for sustainable futures. In this respect, ‘sustainability’ refers to the need to consider the long-term future implications of choices made now and the legacy of KC for generations to come.

***Think!** transport, re-cycling; atmospheric and climate change research; energy conservation; building use; parks and recreational spaces; clean environments, information infrastructures; regeneration and aesthetic ‘feel’ of an area with a distinctive identity; long term thinking; foresight; triple indicators of sustainability (environmental, social and economic).*

4.1.6 Image

Finally comes ‘Image’. This refers to the ways in which the Universities and academics, managers and other employees go about emphasising and publicising their work and relationships with others. As with all these categories, image overlaps and informs all the others. It is clearly part of the cultural distinctiveness that the city-region wishes to portray for itself, as well as an attractor for the tourist industry. Messages must be consistent if the overall profile of KC is to be maintained. Here concerns with the type of environment, location, cultural attractiveness and vibrancy are central. Image should not depart from reality too much if disappointment is to be avoided. At the same time, image is aspirational and for those institutions that share a vision and a joint determination to deliver, it is more likely to become reality. HEI’s and others can work together to produce a consistent and positive image that lives up

to the reality of practices. Deciding upon this distinction and communicating that in a consistent and positive manner is core to KC.

***Think!** joint working under a collective understanding that produces a consistent and positive image of KC; liveable and global cities; thriving and creative cultures with diversity; Universities as positive advocates of the city-region.*

The above themes are inevitably general. In the next sub-section we consider how more defined programmes of work could be developed building upon these to demonstrate how KC can operate in relation to existing and potential developments. It should be recognised that thematic divisions between areas of activity are no more than a useful means of representation: in practice, all areas of KC activity should contribute to the overall concept and ideally have some connection with each other and various stakeholders.

4.2 Thinking Content

To move from broad themes to particular programmes of work requires clarity regarding a number of key considerations:

- *Nature:* What is the nature of the activity proposed? How does it build upon existing initiatives and projects? How does it add value to the overall concept of KC? How does it fit within a portfolio of KC activity?
- *Scale:* What is the appropriate scale for action (international, national, regional, local)? How can global knowledge (for instance on climate change), generated within contexts of international standards of excellence, be translated into local and regional contexts when and where applicable? How can the international standing of studies involving local populations or groups (for instance on regeneration, SMEs) be enhanced?
- *Participation:* Who should be involved in the process? What are the differences and similarities between institutional contributions? How can synergies be enhanced and overlaps minimised? What is an appropriate division of labour and how is the activity managed?
- *Benefit:* Whom are the activities intended to benefit? How can benefit be maximised for local communities and businesses as well as those involved?
- *Consequence:* How does KC operate as a result of this activity? To what extent does the activity shape and reconstitute KC and its ways of working? How does the activity in itself foster greater collaboration and interaction?

Understanding these differences, to what extent activities are additive, representational or transformative, is the key to success. What is needed is a sensitivity in relation to how and why benefits will vary and what are the direct and indirect benefits in relation to the different aims of KC. What follows is an attempt to outline a number of **illustrative** demonstrator programmes of work, with specific projects, that take the above considerations into account.

4.2.1 Science in the City

A distinctive element of the Universities' contribution to KC lies in their considerable research expertise. KC has the potential to represent a serious attempt not only to

influence national funding allocations for science through encouraging excellence, but also to encourage potential research developments that may be more finely attuned to city-regional needs. At the same time, there are a number of potential activities around the better exploitation of science for economic gain. KC needs to be based on the best science and to also encourage potential. That will require action at a number of different scales from international to local. Inter-disciplinarity, where appropriate, is one outcome that can deliver benefit at all these levels of activity.

Research groups in all institutions can be involved in different initiatives, given the high levels of complementarity rather than competition found to exist between centres and disciplinary expertise. Management of smaller collaborative projects would therefore need to be flexible, with a focus on facilitating the growth of productive relationships that can then be built from the bottom-up. The question of 'who benefits' needs attention in so far as research is conducted by individual or groups of researchers pursuing diverse research agendas.

Efforts must therefore be invested in not only the production and dissemination of knowledge, but also its application to city-regional issues. KC is about branding the city-region as a City of Science for 'academic acceleration' and 'genius generation' and influencing national and other funding sources in, for example, recognising regional and sub-regional needs.

Activities within a programme of work can be divided into two areas: relating to research excellence and spin-out and relating to the public understanding of science:

The Bio-City: The conurbation has a number of specific strengths in the biotechnology sectors. Sustained efforts could be undertaken to ensure that a lead can be established and maintained in relation to these strengths, feeding into regional strategies and with the support of the private sector. Spin out companies currently within the bio-medical research building can be expanded.

Knowledge Capital Science Parks: There are a number of science parks, incubator units and innovation zones across the Manchester and Salford areas. Joint marketing and promotion activities to industry and sharing of best practice could enable better synergies between scientific and technological developments to be built and the identification of spin out and spin in opportunities. Manchester and Salford Innovation and Science Parks can work with local populations and business to provide training in particular areas of activity in the spirit of 'knowledge sharing'.

City-regional Science: Academics and other KC partners could come together to discuss potential research opportunities attuned to city-regional needs, through city-regional think tanks or yearly research conferences. Again, these can be sponsored and should aim at different sets of audiences, as well as bringing those together who would not otherwise meet, discuss and exchange ideas and practices. Existing centres of excellence in regeneration and urban studies - with complementary expertise - can be found at all four institutions.

Networks of Excellence: Interviewees identified a number of further areas where collaboration between existing centres of excellence in different institutions could be better capitalised upon to improve the overall research performance of the

conurbation. For instance, in exercise and sports science, public health and environmental quality.

Science for All: A ‘flight from science’ can be seen over the past years, with recruitment into pure science subjects low. Major scientific facilities within the sub-region – and region – including within Universities, Jodrell Bank and Daresbury Lab – could be opened regularly to school children to encourage uptake of scientific subjects. Regular visits to school and FE’s can be programmed and public events scheduled throughout the year in collaboration with the Museum of Science and Industry and URBIS, for example, as well as through sponsorship by corporations.

Public Understanding: Existing initiatives such as the Biological Science Review (Victoria) or the WISE programme (UMIST) need to be built on to improve the dissemination of knowledge to local and regional communities. Groups of academics, in conjunction where applicable with the private, public and voluntary sectors, could be invited to stage a process of public understanding and involvement through exhibitions, lectures, discussion groups, web sites, school visits etc. around a number of themes relevant to KC. In addition, initiatives such as Café Scientifique which seeks to enhance the public understanding of science and meets in ‘Kro’ on Oxford Road, can be more broadly adopted.

4.2.2 The Entrepreneurial City

Entrepreneurial activity has many elements. In research, it means seeking new partners within industry or solving local business and community problems; it means spinning out new companies or patenting ideas on the basis of existing research. In teaching, it may mean teaching entrepreneurial courses, or developing courses which meet the needs of industry, with placements inherent therein. It is also about Universities themselves being entrepreneurial and seeking linkages with other partners and developing common projects. In terms of scale, The ‘Entrepreneurial City’ has most impact at the local level. However, a key measure of success will be the extent to which small businesses, including social enterprises, grow and develop, while remaining within the region and adding to its prosperity right across all social groups. KC should therefore be about fostering creativity and encouraging academics to think about opportunities over and beyond the conclusion of the research. It should also be about taking existing links between clusters of activity and matching those to academic expertise.

There is activity of this type in all four institutions. It covers science, cultural industries, social sciences and the humanities. Examples of good practice cited during interviews include sustained initiatives such as the Japan Centre (all four Universities), UMIST Ventures (UMIST), Community Finance Solutions and Salford Money Line (Salford) and individual entrepreneurial activities: for instance, one interviewee told us how the Shere Khan Restaurant (a Manchester-based chain) had been assisted by a Food Science Department to develop a range of products to get their curry sauces onto the shelves of the supermarkets.

Building on examples of success, specific areas of future activity might include:

Access to Knowledge: A number of areas of activity were suggested for improving technology and knowledge transfer and access to knowledge. Research activity can combine with initiatives that contract with regional, national and international companies for the purpose of technology transfer and should act to provide a more collective understanding of the role of HEIs in knowledge development. Networks of existing and potential businesses can be more systematically matched to networks of university expertise to support existing, as well as potential businesses. Exchanges between organisations and academia should be enabled, not just for students, but also staff to enable knowledge transfer and sharing of practice. A one-stop shop could be established for external agencies to see what expertise exists and build upon existing links, which then taps into considerable reservoirs of tacit knowledge.

Who Wants to be an Entrepreneur? Entrepreneurship courses should be more focused between the HEIs and developed in liaison with the private, public and voluntary sectors to provide for a systematic and novel programme of work. These ventures should act collectively to attract funds for the city-region and should focus not only on business but also on social entrepreneurship. One suggestion was to take the existing Masters in Enterprise and pool resources in order that the Greater Manchester HEI's are seen as pioneers of such developments thereby attracting businesses and adding to the idea of KC in action. At the same time, KC should seek to further develop community enterprise schemes with the private and voluntary sectors rewarding innovative practices that improve quality of life for local communities.

Support for SMEs: A joint statement could be issued to develop and fund a strategy to support and encourage those wishing to remain and set up SME's within Greater Manchester. Strategic and operation support, including assistance with information infrastructures, should also be offered by staff over a specific time period and supported through various funding sources: for example, private finance, NWDA, HEFCE reach-out and EU.

Getting the Incentives Right: Many interviewees questioned whether existing reward structures and funding mechanisms provide adequate incentives for encouraging entrepreneurial activity and the development of the 'third mission'. A cross-institutional extension of the lessons from UMIST Ventures and innovation initiatives in Victoria, MMU and Academic Enterprise at Salford is needed in order that there is a match between expertise and need and an incentive structure for academics and external agencies.

4.2.3 The Learning City

Whilst within the region Greater Manchester tends to act as attractor for graduate retention, KC can be a vehicle to improve upon this, as well as upon the lower than average number of young people participating in higher education. KC can lead to new forms of provision with HEIs as well as enhance existing provision. It can act as both an attractor for staff and students to Greater Manchester and as a means of retaining those staff as well as students moving into work.

In terms of the learning city there are again, a number of scales. One aim is to attract students nationally and internationally and to improve the image of the city-region. At the same time, the widening participation agenda is partly embedded in the locality

and must attract talented local students to take up FE and HE provision. International excellence in management can exist alongside regional delivery mechanisms that support and develop the city-region in terms of widening participation. There is also the issue of retention within the region. To this extent KC is about learning, creating opportunities and empowerment.

Again, there are a number of existing examples of good practice. These include the Partnerships for Progression programme involving all institutions, relations between UMIST and an online MA in Sociology developed cross-institutionally to maximise the spread and impact of higher education. However, despite the success of what already exists, more can be done through a partnership between institutions to develop and support teaching, research and enterprise in order to develop the skilled, educated and entrepreneurial city for general benefit:

Attracting New Students: HEFCE targets state a further 790 new students by 2006 in Greater Manchester. As is clear from the White Paper (2003), there is need to expand skills and education provision. These should be developed in more systematic partnership with FE providers and Schools to work together to provide courses from NVQs, Foundation Degrees, Degrees, Graduate Studies through to Doctoral Programmes which, where applicable, are developed with external organisations. Through better links with the FE sector and supporting the expansion of foundation degrees, the issue of higher education take-up rates can begin to be addressed.

E-Learning: A well developed informational infrastructure should be accessible and cover the areas of interest and activity that characterise KC. An online prospectus which covers all areas of educational need would enable those wishing to study in Greater Manchester to quickly see the range of courses available. KC should see the further development of online learning degrees and tools with the aim of increasing access to education.

Education for All: There is also a need for continuing professional education that could be provided by a range of educational providers, including Universities. An 'Education for All' initiative would explore the needs of particular groups of professionals – for instance, in regeneration – and seek to build coalitions of educators to meet this need. KC would also see the development of the Professional Development Programme for teachers in order to further the reputation of Manchester as a leading provider of education training.

Schools and Scholarships in the Community: Enterprise ideas need to be taken out into schools on a more cross-institutional and systematic basis thus not only meeting outreach agendas, but also breaking down barriers, enhancing understanding and seeking to address the low percentage of school leavers in the city-region going on to higher education. Scholarship schemes could be part of this development. Indeed, there would seem to be a high degree of support in favour of a scholarship scheme for young talented students from the city-region's schools to attend one the universities.

4.2.4 The Cultural City

'The Cultural City' is used as a broad concept bringing together all forms of music, sport, leisure, ethnicity, sexuality, class, art, design, media – the list goes on. We use

the term here to refer to a commitment to increase the attractiveness and buzz of the city and to develop and enhance its cultural and creative potential. Here again we see the role of KC as an attractor in building on Manchester's post-Commonwealth Games success as a highly visible and desirable location. Scale is as applicable here as with the other programmes of activity: the need to project the city-region's image internationally and attract tourists must be married with a commitment to the preservation and enhancement of the region's diverse communities. KC here has the potential to be transformative, in terms of minimising tensions in the existing socio-political climate and acting as a vehicle for social inclusion and participation. KC is about the cultural richness and wealth of the city-region, sharing knowledge and reducing ignorance. It is also about encouraging particular sectors that are distinctive to the Manchester economy.

Good examples of existing ways in which the Universities add to the 'cultural' weight of their cities are diverse, including plans for the Adelphi Media Quarter (Salford), the North West Textile Network, through to the Vice-Chancellor's Annual Cricket Match between MMU and the Communities of Hulme and Moss Side. Again, there is potential for further developments:

Young Creatives: A 'young creatives' scheme focusing on encouraging school children to engage with the arts, media and music sectors through workshops run by students and staff, and upon the development of 'creative entrepreneurs' through foundation and degree level courses who are given space, time and support to develop and break into the cultural and creative industries sector.

Building Tolerance, Decreasing Tension: A series of high profile panel debates, run through the Universities but involving community members, business leaders and public officials to discuss issues of social difference organised and broadcast on local radio channels, to encourage debate and tolerance.

Public Events and Shows: Use of existing buildings and networks within Universities and in partnership with museums, galleries and theatres and open them to public events concerned with art, fashion, culture, music, literature, performance etc. This could be manifest in the Chapel Street to Oxford Road 'corridor' idea with public displays.

4.2.5 The Sustainable City

Sustainability has many elements. On the one hand, it is about environmental and physical sustainability. On the other hand, it is about ensuring that the decisions made within the context of KC do not have negative future repercussions and that long-term thinking has considered reflectively the way the city-region might develop. This activity exists at local, city-regional and regional levels, but must also draw on international and national trends and forecasts and examples of activity elsewhere. KC must be a physical attractor but it also should represent a sustained, long term approach to thinking systematically about the future of the city-region. Such an agenda, it should be noted, may be in conflict with more short-term goals. However, this activity should be protected in order that it can be carried out. At the same time, environmental considerations are supported in the Universities via private sector involvement.

Current examples in this area that could be branded as KC include the sponsorship of a Chair in Sustainable Aviation by Manchester Airport at MMU; the sponsorship of a Chair in Sustainable Urban and Regional Development at Salford; research into how CFC's can be removed from fridges, leading to the employment of some 60 plus people in Ashton Under Lyne and a considerable investment in machinery; proposals between Salford and Manchester for an Urban and Regional Foresight Laboratory. Two key areas to be built upon include:

Estate Management: The Universities are major landowners within the city and should consider how and with what effects they impact upon their physical environments. KC needs to have physical signs – a corridor from Oxford Road to Chapel Street. Too many buildings have 'turned their back' on the city on Oxford Road. They should move from single use, to more imaginative use and being open to different population for different reasons, where possible.

Sustainable City-thinking: There is a wealth of expertise within the Universities that can contribute to how the city-region thinks about its future in the context of the KC. This includes, for instance, knowledge on foresight and strategic futures, on systems modelling and information networks, on transport, political decision-making processes and partnerships. This goes to the heart of what KC should be about and can only be achieved with due consideration, reflection and time. A sustainable city-thinking process should be a key activity in the KC.

Global Change with Local Consequences: A great deal of research has been conducted in the four Universities on global climate change. Yet this is not always seen to have local application. Take, for example, the idea that the UMIST and Manchester merger might create considerable added value to an existing centre of climate change research (the Tyndall Centre) by bringing together researchers from a range of disciplines in the two institutions. As this was put during the interviews, this activity would not be of direct relevance to the region. However, the result of such activities may be of relevance, even if those activities were not directly informed by KC. Therefore, in this instance, it would act as a translator of global knowledge, generated within contexts of international standards of excellence, into local and regional contexts when and where applicable.

4.2.6 The Networked City

The 'Networked City' constitutes a programme of activity in its own right looking at how partners interact and how issues of knowledge access, referred to earlier, can be tackled. But it also builds an understanding of how KC might work in practice: how might KC operate differently in the future, how could technologies enable the realisation of KC, how can knowledge be shared and working practices be improved through better physical, social and e-networking? Key to the success of KC is greater understanding of current and potential activities between HEIs and other partners, the sharing of knowledge and better integration of existing activities.

Again, 'multi-scalar intervention' must be the watchword for all the aims of KC to be realised. Manchester – Knowledge Capital needs to be networked internationally – with other knowledge-based world cities – in order to achieve key objectives and put

the city-region on the map. At the same time, 'the Networked City' must be inclusive to local people and local populations. Current initiatives at this level include Salford University's Educational Micro-networking for Small to Medium sized Enterprises and the developing Higher Education Knowledge Exchange. Two key areas of activity arise:

Doing it the KC Way: This is concerned with establishing new ways of KC working and developing 'sophisticated knowledge sharing'. There are three levels of activity. Firstly, Universities need to improve their own methods of intra-institutional collaboration and networking. As we have already noted, knowing what goes on in one institution is difficult enough, let alone four. Second, networks and clusters of excellence in teaching and research need to be developed across the four Universities and with other HE and FE partners where academics can be identified and matched according to expertise. This would build upon the strengths of individual universities, encourage collaborative ventures and potentially reduce duplication of effort. Much of this networking already takes place, but is neither visible nor accessible to the outside world. Third, in time, such networking needs to include all KC partners as new forms of KC working and thinking develop. It should be aimed at different populations ranging from business groups who are attracted to particular initiatives, to local young people who are seeking a different form of engaging with the HE and FE sector. New KC ways of working are widely felt to be necessary given the size and complexity of all the organisations involved. Whether these are based on formal face-to-face meetings or new forms of technology is a matter for discussion.

Information City: More generally, in the four Universities there is an extraordinary concentration of international excellence in information systems, as well as those working regionally and sub-regionally to support this development. There is tremendous potential for information systems to work in dedicated ways to coordinate and inform particular programmes of work, as well as stand as symbols of the success of KC in action. Health information systems developed in collaboration with the hospitals and GPs, local area statistics in general and gateways for obtaining particular forms of information are all part of such an initiative, as are proposals such as 'Intel-City' (Framework 6) being developed and co-ordinated from Salford. One person even suggested 'information booths' on Oxford Road down to Chapel Street. Issues of access and accessibility are key with, for example, old computing stock which is still perfectly usable being made available to particular outlets. A second suggestion focussed upon the development of a city-wide information system. Among other things this would enable the day-to-day management of the number of buses on the streets of the city to be better matched to demands so that people are not routinely in queues, or driving around the city trying to find a car park. The key is to find appropriate ways in which information systems can perform an enabling role within KC.

What emerges from the interviews is a vast range of potential. Here we have sought to provide some clarity and coherence through considering the potential of KC as representative, additive and transformative. We have highlighted a range of guiding principles and questions that emerged from the interviews. Finally, we have built on these guiding principles to put forward a number of suggestions for KC activity. How these can be progressed further will next be discussed in the context of our summary and recommendations.

5. Summary and Recommendations

At the launch of HEFCE's draft strategic plan (2003-08), Sir Howard Newby was quoted as saying that individual universities:

'must build upon their own chosen areas of strength, and work in collaboration with other providers, so that the sector as a whole continues to deliver all that is required of it in the increasingly competitive global marketplace'.

This central message is reinforced in the White Paper on Higher Education (DfES, 2003), which has clear implications for the development of higher education in general and its differential impact upon universities. More recently, the Secretary of State for Education has made it clear that state funding for a 'medieval' style community of scholars is not likely to be sustained. Whilst there has been a great deal of discussion concerning his precise meaning – including an early interpretation taking this to mean studies of medieval history – the demand for 'relevance' in scholarly pursuits is readily apparent. This has always been with universities and changes in form from time to time. However, it is one that universities with concerns for their identity and sustainability should take seriously.

The implications for the emerging HE landscape are two-fold: first, a greater emphasis on distinct and specialised institutional roles and diversification within the HE sector and second, the need for greater inter-institutional collaborative working between universities and other sectors. 'Manchester - Knowledge Capital' provides an excellent context for the Greater Manchester Universities to demonstrate these two strands working in practice, marrying argument with evidence that university activity supports regional and sub-regional development.

Frameworks for action at European, national and regional levels all support the need for initiatives such as KC. The potential of the idea is enormous: to place the Universities at the heart of the city-region's response to the global knowledge economy and engage with multi-level agendas; to unite the HEI's around common programmes of work for the benefit of the city-region as a whole, bringing together research, teaching, widening participation and outreach agendas and to build upon the city-region's critical mass of knowledge and expertise and form new working relationships under the KC banner.

Of those cities within the Core Cities group, Manchester possesses the greatest potential, because of the partnerships that exists, to become identified as *the* Knowledge Capital outside of London. Not only is there considerable expertise within the Universities, but the estimated combined expenditure by staff, students and HEI institutions in Greater Manchester is, approximately, £916m. In addition there is a well-developed sense of commitment among Vice-Chancellors in terms of corporate social responsibility and a willingness to support KC initiatives which add value to current activities and provide evident opportunities for regional and city-region development. As a result, the Universities are well placed to develop a symbiotic relationship with local and regional partners. Regional and local politicians can effectively be enrolled to support joint alliances due to the levels of expertise and benefits that will accrue to development initiatives. In addition, in a climate in which

universities find themselves under increasing pressure via changes in national policies, such alliances provide for a stronger basis from which to defend current activities and importantly to improve upon current resources.

As outlined in our Introduction to this piece of work, the last four months have seen remarkable speed and acceleration of efforts towards the realisation of KC. Draft action plans have been formulated and a prospectus has been submitted. Given such rapid movement and shifting goals and expectations, our recommendations take the form of guiding principles and questions that we feel should be addressed in deciding what actions are appropriate for KC and how it can be taken forward. We therefore see two sets of recommendations as critical in achieving this goal: relating to ‘what to do’ (action) and to ‘how to do it’ (process).

First, both existing KC documentation and the interviews reveal the common desire to establish a balance between the short and the long term, reflecting a need for the ‘quick hits’ that raise the profile of KC to the more sustained approaches and programmes capable of ‘delivering more than hot air’ and producing meaningful outcomes. Our analysis also revealed that the aspirations for KC range across disciplines, subject areas, sectors and communities. This raises issues of breadth versus depth that need to be tackled through discussions of prioritisation between a range of stakeholders. Attention needs to be given to:

- **The Nature of the Activity: KC may be representative, additive and transformative.** It is a recommendation of this report that the HEI’s adopt and develop these criteria in order to provide the clarity, sense of purpose, respective contributions and measures of success that are needed to adequately develop KC. Key questions should be: what is the nature of the activity proposed? How does it build upon existing initiatives and projects? How does it add value to the overall concept of KC? How does it fit within a portfolio of KC activity?
- **Issues of Scale and Scope: KC has international, national, regional and local aims, objectives and dimensions.** Consideration needs to be given to the appropriateness of activities and how each relates to the scale and type of networks that currently exist and have potential to be developed. KC has to be international, but it will also need to be sub-regional and regional to be of benefit, to attract particular types of funding and to mobilise the type of political support it and the Universities require. Key questions include: what is the appropriate scale for action (international, national, regional, local)? How can global knowledge be translated into local and regional contexts when and where applicable? How can the international standing of studies involving local populations or groups be enhanced?
- **Division of Roles and Responsibilities: KC is wide ranging and ambitious, not everyone can be involved in all initiatives.** Key questions include: who should be involved in the process? What are the differences and similarities between institutional contributions? How can synergies be enhanced and overlaps minimised? What is an appropriate division of labour and how are particular activities managed?

- **Intended and Actual Impact: KC needs to benefit not only those directly involved, but have positive repercussions for the wider city-region, regional and national communities.** Key questions include: whom are the activities intended to benefit? How can benefit be maximised for local communities and businesses as well as those involved? How can this benefit be spun out to regional, national and European levels? How can such benefit be measured?
- **KC Consequences: KC activities are constituted by the aims and objectives of KC, but must also shape and reconstitute those aims in a virtuous cycle of re-evaluation.** Key questions include: how does KC operate as a result of this activity? To what extent does the activity shape and reconstitute KC and its ways of working? How does the activity in itself foster greater collaboration and interaction? What are the long term implications of the activity for the Universities, the city-region and beyond?

Section 4 of this report set out six illustrative programmes of work that begin to address these issues and build a KC portfolio.

Second, it would seem thus far that action has preceded process. Such is the speed at which progress is sought, that little attention seems to have been given to a number of underlying issues, raised widely in interviews, that need to be clarified and addressed as a sound basis for moving forward. If they are not, the potential will remain unrealised. Many of these concerns are shared at senior management levels. Again, these recommendations take the form of issues to be addressed:

- **Clarity and Communication:** widespread openness and enthusiasm is clouded by a lack of clarity on the aims and objectives of KC. Internal mechanisms for communication within and between institutions need to be improved as a basis for success. As a starting point, clear and concise marketing materials on KC need to be disseminated widely throughout institutions. More fundamentally, thought needs to be given to processes of communication internally and cross-institutionally, particularly given the difficulties in auditing provision. It is always changing and therefore fluid. A first step towards this is to produce 'glossy' versions of this report for both internal and external consumption.
- **Competition and Collaboration:** working against the possibility of KC success are cross-cutting agendas and the pursuance of particular institutional interests to the detriment of both collective and individual benefits. A number of participants certainly identified the issue of self-interest as having the potential to undermine collaborations. At the same time, how particular sources of funding are obtained and deployed needs careful consideration in understanding the differences between and within HEI's and playing to their respective strengths.
- **Commitment and Engagement:** the issue of commitment and engagement was raised on numerous occasions. How can individual academics, with pressures on their time and commitments, participate effectively in KC? How can they be enrolled and engaged in the process? One issue concerns the internal organisation of HEIs. Universities have to think carefully about their internal structures and systems of rewards and incentives if they are to maximise the

opportunities presented to them. Universities are flexible, but they can also exhibit a 'silo' mentality with people being locked into Departments creating only limited possibilities for engagement with those in other disciplines. The world is not neatly divided up into the boundaries that this creates and so problem-solving is limited without effective interdisciplinary collaborations. A second issue relates to the incentives and rewards for boosting the attractiveness of outreach and 'third mission' activities, an issue that is belatedly receiving increased attention at national level.

Realising the potential of KC in an open and imaginative way will require addressing these challenges. What should now drive the process – including one between the Universities alone should the Core Cities agenda not realise further funding – are the following actions:

- 1) Develop a shared ethos in partnership with identified stakeholders with a clear set of aims that are internally coherent and externally communicated in a consistent manner.
- 2) Identify who needs to be involved and drive the process at different levels and scales and for what reasons.
- 3) Establish programmes of work that will produce benefit to different stakeholders and communities and at different timescales.
- 4) Clarify the difficulties that will be faced in the process of design and implementation and how they will be overcome.
- 5) Understand and communicate when and how it will be known that KC is having a positive impact.
- 6) Build an effective and sustainable infrastructure that can support and enable development over time and coordinate effectively between different projects and programmes of work.

These actions have been formulated to take the process forward as whole in order to derive maximum benefit for all concerned - this is in line with discussions where SURF were asked to both 'resolve' according to the original brief, but also 'raise' some key issues for the future.

What is now needed is a greater attention to process. Good process will lead to good products. For that reason a greater understanding of differences and similarities around an inclusive and transparent process is required to take KC forward. Whilst the potential is evident, honest and open appraisals of the current situation based upon good evidence and an understanding of different interests are needed at all levels. If accompanied by effective communications and coordination, this will place KC in a unique position. Overall, it will create a national and international profile as a model of excellence through co-operation and bring greater prosperity and quality of life to the area.

6. Selected Sources

4Sight (2002). *Rocks to Rubble: Building a Sustainable Region*. Manchester: National Centre for Business and Sustainability.

AGMA (2002). *Draft Greater Manchester Strategy*. Wigan: Association of Greater Manchester Authorities.

Bluestone B. and Stevenson M. (2000). *The Boston Renaissance: Race, Space, and Economic Change in an American Metropolis*. Russell Sage Foundation.

Bluestone B., Euchner C. and Weismann G. (2001). *A New Paradigm for Housing in Greater Boston*. Available at <http://www.curp.neu.edu/pdfs/finalhousing.pdf>

Bologna Declaration can be found at
<http://www.europa.eu.int/comm/education/socrates/erasmus/bologna.pdf>

Brenner N. (1998). Global cities, global states: global city formation and state territorial restructuring in contemporary Europe. *Review of International Political Economy*, 5:1, 1-37.

Bryson J., Daniels P., Henry N. and Pollard J. (eds) (2000). *Knowledge, Space, Economy*. London: Routledge.

Burton-Jones A. (1999). *Knowledge Capitalism. Business, Work and Learning in the New Economy*. Oxford: Oxford University Press.

Castells M. (2002). *The Rise of the Networked University*. Presentation at Centre for Higher Education Policy Studies seminar, Barcelona, July 2002.

Castells M. and Hall P. (1994). *Technopoles of the World*. London: Routledge.

CONTACT Partnership (2002). *Measuring the Economic Impact of Higher Education in the North West Region*. Prepared by Brian Robson, Iain Deas and David Whyte. CONTACT: Manchester.

De Weert, E. (1999). Contours of the emergent knowledge society: theoretical debate and implications for higher education research. *Higher education*, 38, 49-69.

DfES (2003). *The Future of Higher Education*. London: HMSO.

Drennan M. (2002). *The Information Economy and American Cities*. Baltimore and London: John Hopkins University Press.

DTI (1998). *Our Competitive Future: Building the Knowledge-Based Economy*. London: HMSO.

DTI and DfEE (2001). *Opportunity for all in a world of change*. London: HMSO.

DTI, HM Treasury and DfES (2002). *Investing in Innovation. A Strategy for Science, Engineering and Technology*. London: HMSO.

DTLR (2002). *Your Region, Your Choice: Revitalising the English Regions*. London: HMSO.

Environment Agency (2002). *The Urban Environment in England and Wales: A Detailed Assessment*. London: Environment Agency.

European Commission (2000). *Communication from the Commission: Towards a European Research Area*. COM (2000) 6. Luxembourg: Commission of the European Communities.

European Commission (2001). *Communication from the Commission: The Regional Dimension of the European Research Area*. COM (2001) 549 final. Luxembourg: Commission of the European Communities.

European Commission (2003). *Communication from the Commission on The Role of the Universities in the Europe of Knowledge*. COM (2003) 58 final. Luxembourg: Commission of the European Communities.

Florida R. (2002). *The Rise of The Creative Class And How It's Transforming Work, Life, Community And Everyday Life*. New York: Perseus Book Group.

HEFCE (2002). *Evaluating the Regional Contribution of an HEI*. April 02/23. Bristol: Higher Education Funding Council for England.

HEFCE (2002) *Evaluating the Regional Contribution of an HEI: A Benchmarking Approach*. London: Higher Education Funding Council for England.

HEFCE (2003). *Draft Strategic Plan 2003-08*. Available at http://www.hefce.ac.uk/pubs/hefce/2003/03_12.asp

Jessop B. (2000). The state and the contradictions of the knowledge-driven economy, in Bryson J., Daniels P., Henry N. and Pollard J. (eds) *Knowledge, Space, Economy*. London: Routledge.

National Committee of Inquiry into Higher Education (1997). *Higher Education in the Learning Society*. Available at <http://www.ncl.ac.uk/ncihe/index.htm>

Neef D. (ed.) (1998). *The Knowledge Economy*. Boston: Butterworth-Heinemann.

NWDA (1999). *England's North West Regional Strategy*. Warrington: North West Development Agency.

NWDA (2002a). *Science Strategy Englandsnorthwest*. Warrington: North West Development Agency.

NWDA (2002b). *Regional Economic Strategy Review Consultation Document*. Warrington: North West Development Agency.

NWUA (2001). *The Regional Mission: The Regional Contribution of Higher Education*. London: Universities UK/HEFCE. Warrington: North West Universities Association.

NWUA (2002). *Developing and Using the HE Research Base in the North West to Enhance the Global Competitiveness of Business and Industry in the Region*. Warrington: North West Universities Association.

NWUA (2002). *The Contribution of Higher Education to the North West Economy. Background paper for the Regional Strategy Review Consultation*. Warrington: North West Universities Association.

O2C Arc (2003). *The Spirit of Innovation*. Produced by the O2C Arc Steering Group. Available at <http://www.oxford2cambridge.net>.

Office of the Deputy Prime Minister (2002). *The Learning Curve: Developing Skills and Knowledge for Neighbourhood Renewal*. London: HMSO.

Porter M. (1990). *The Competitive Advantage of Nations*. New York: Free Press.

Stehr N. (1994). *Knowledge Societies*. London Sage.

Storper, M. (1995). The resurgence of regional economies, ten years later: the region as a nexus of untraded interdependencies. *European Urban and Regional Studies*, 2(2), 191-221.

SURF (2001). *Liverpool-Manchester Vision Study*. Report to the NWDA, European Commission, Manchester and Liverpool City Councils.

SURF (2002). *Universities in a Time of Change*. Report to the Rethinking the University Steering Group, University of Salford.

SURF (2002a). *Hulme – Ten Years on From City Challenge*. Report to Manchester City Council.

SURF (2003). *Evaluating Urban Futures: Enhancing Quality and Improving Effectiveness*. Report to the ODPM New Horizons Programme.

Work Foundation (2002). *Manchester: Ideopolis? Developing a Knowledge Capital*. Prepared by Andy Westwood and Max Nathan. London: The Work Foundation.