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Incontro con Nigel Thrift

*“Come reinventare le politiche urbane.
Dal territorio alle funzioni”*

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Thank you for inviting me to speak to you today. I do so with considerable diffidence, I have to say, and for three reasons. First, I am deeply aware of how forward-looking Milan already is as a city. I am not sure that there is much that I can tell you that you don't know already. Second, I am also aware of how forward-looking Italian urbanism is. I think, for example, of all the experiments which have attempted to shift the time structures of Italian cities, experiments which have shown the way to the rest of the world. Third, I have not done vast amounts of work on cities since the publication of the book in 1992. I have kept a watching brief on the urban scene but no more. That said, I have been involved in all manner of practical urban regeneration projects in the UK.

So what is it I can say? I want to talk in three parts. To begin with, I will briefly summarize the argument of Cities written with Ash Amin. Then I will go on to talk about the new vocabularies that are changing how we think about cities. Going on again, and concentrating on the role of universities, I will talk about certain aspects of urban policy relating to Universities and how they might be implemented, drawing on experience of implementing such policies in the UK. Finally, I will turn to the question of politics. By prefacing just a few of the arguments in the follow-up to Cities, which is on politics.

Cities

Cities was an attempt by Ash Amin and myself to do something which has now become familiar: to write about cities in a world in which flow has become the norm. Its arguments were simple enough. I'll point to just three. First, that the urban condition is now the human condition. In 1950, one-third of the world's population lived in cities, but by 2050, the figure is expected to rise to two-thirds, or 6 billion people. By 2015 each of the world's ten largest cities will house between 20 and 30 million people. Arguably, even those people who are not included in these figures now owe most of their existence to the demands that cities place on the world economy. There can be no doubt that the last 100 years have witnessed a major shift in the world's spatial organization.

Second, that along with that shift in spatial organization has come another. Movement and flow have become paramount. There are no entities that are not connected with one another, often in chains which stretch all around the world. It is no accident that logistics – the science of movement- has become pivotal to modern life: on its suppositions a new reality has been built. Since Cities was produced, the trend has only accelerated, driven by China and India's rise in the world economy, allied to that of oil-producing countries, which has produced more circulation than ever before, by the increasing sophistication of mapping to the point where it can be argued that we now live in a continuous map, as represented by the ubiquity of satellite navigation, resources like Google Earth, and mobile phones. Finally, there is the way in which these developments are producing permanent shifts in social behaviour, from social networking through new forms of public intimacy through to the new forms of reflexivity that become possible once certain kinds of geodemographic information about people become public goods (e.g. mobile advertising). Since Cities was produced these behaviours have started to stabilize, producing a means by which people can regularly communicate much richer information over long distances to networks which are themselves more spread out than before.

Third, that we needed to think of new ways of thinking about cities when they are best thought of as a means of carpeting the world with new kinds of mobile environment. We did not want to go too far with constructing this vocabulary, given the plight of the poor and dispossessed inhabitants of many cities, especially in developing countries. But neither did we think it was possible to simply stay where we were. We needed to think about new global subjects produced by transnational solidarities and networks and the politics that followed from them (Bayart, 2007).

New Vocabularies

What we also wanted to point to is that we needed to formulate a vocabulary of flow because otherwise someone else would. Indeed, that has already happened to a large degree. Overlaid on the world now are a series of discursive frames which have movement at their root. I will point to just three of these which have become much stronger since Cities was published. One of these root rhetorics is talent, a 2000s variant/mutation of the 1990s mantra of creativity. Commentators argue that here is a war for talent in which the role of cities is vital. Most companies are poor at talent management and need to embrace a talent mindset. They need to develop 'winning employee value propositions'. They need to affirm each employee but to invest differentially in them. They need proper talent review processes which will spot and develop talent. They need to hunt for talent all the time. More talent is becoming available as more and more human resource is put into cultivation – but there will never, ever be enough.

All this on the back of a definition of talent which is general, to put it but mildly: ‘the sum of a person’s abilities – his or her intrinsic gifts, skills, knowledge, experience, intelligence, judgement, attitude, character, and drive. It also includes her ability to learn and grow’ (Michaels, Handfield-Jones and Axelrod, 2001, pxii). That is the rhetoric then, one which grew steadily through the 1990s and is now pervasive (Figure 1). But when we get closer to the quality called talent, what do we find? One might see the rise of an interest in ‘obsessively identifying and multiplying talent’ (Accenture, 2007) as reflecting the nexus of a set of four different but related tendencies (Wooldridge, 2006).

The first and most important of these tendencies is in what counts as labour. Of course what counts as labour has constantly shifted through history (e.g. Robertson, 2006). But the redescription of labour that is now going on still counts as significant. At the most transparent level, what is at issue is what skills are required in modern capitalism under the conditions of what is generally conceived of as a knowledge revolution in which the provisioning of firms with knowledge is thought of as a, and possibly the, crucial competitive determinant. In particular, this provisioning is thought to require bringing into the knowledge base of capitalism not only boosted cognitive abilities but all manner of tacit skills and competences, largely intuitive skills of the kind necessary to conduct complex interactions in the more extensive and flexible work environments that characterize many modern jobs (which, at least in part, have become so in order to capture and capitalise on talent), the kinds of skills that are thought to underpin the rise in intangible assets as a proportion of the value of the market capitalisation of corporations. In other words, the goal is to make the most of people, as many management primers put it.

Of course, the goal of tapping into the full range of talents of the workforce can be found throughout the history of capitalism (Thrift, 2005). But it has become much more pronounced since the 1990s.

So what differentiates ‘talent’ from these earlier attempts to make the most of the labour force? One reason is a long-term fall in interaction costs¹, driven by developments like the growth of information technology, which has greatly increased the value of intangible assets (talent, knowledge, reputation, relationships) relative to tangible assets like labour and capital. Another reason is the growth of jobs which demand self-directed thought. During the twentieth century, the costs of co-ordinating their work across large companies was so large that mind power was trapped in small pockets of people scattered through each company. This no longer has to be the case. A further reason is the current general emphasis on creativity and innovation. The re-invention of invention as innovation that has taken place over the last two decades or so has resulted from the increased pressure bearing down on many companies to improve their rate of inventiveness. This pressure demands, or so it is thought, more attention to nurturing disruptive agents who are able to make breakthroughs. A final reason, one which I will devote considerable attention to, is that business has increased the range of what it regards as thought, taking in all manner of aspects of thinking which had previously been seen as somewhat tangential.

The most straightforward attempt to broaden the spectrum of thought can be dated from the discovery of the importance of tacit skills. Although Polanyi’s original work was carried out in the 1950s, it was not until the 1990s that these skills were generally acknowledged by

¹ Interaction costs can be defined as ‘the costs of parties with dependent economic interests working together within the same economic entity (that is the costs of organizing people working together within a firm)’ (Bryan and Joyce, 2007, p49).

business. Tacit skills underline the importance of what might be called semiconscious human assets that draw on the pre-personal register of sociality and require forms of intelligence that articulate human registers like feeling. Thus, McKinsey has divided American jobs into three categories: 'transformational' (extracting raw materials or converting them into finished goods), 'transactional' (interactions that can easily be scripted or automated) and 'tacit' (complex interactions requiring a high level of judgement). The company argues that over the past six years the number of American jobs that emphasize 'tacit interactions' has grown two and a half times as fast as the number of transactional jobs and three times as fast as employment in general. These jobs now make up some 40% of the American labour market and account for 70% of the jobs created since 1998 (Wooldridge, 2006, p 4).

But making visible and codifying tacit skills, yet alone deploying them in any systematic fashion, is difficult, not least because they arise not only from formal learning but also from the wellsprings of experience.

However, husbanding tacit skills has not proved to be the end of the matter. At about the same time, and partly related to the issue of the tacit nature of experience, the importance of what might be termed affective labour became apparent as a key moment in building competitive edge. I do not mean by this the increased attendance to emotional attunement which has now become commonplace in testing and training programmes in nearly every corporation, although this emphasis no doubt prepared the ground. Rather, I am pointing to what might be called the 'vitality' of workers, their passion for the job and their ability to order their passions in order to do the job well, and most especially the innovative energy that can be unlocked within and between them: potential is redefined as emergent potentia and it is this potentia which is being bought and sold under the name of 'talent' (Clough, Goldberg, Schiff, Weeks and Willse, 2007). Mobilising the passions has proved to be a considerable challenge, however. In particular, reproducibility has proved elusive: 'unlike processes, which can, with some effort be copied by competitors, passion is very difficult to duplicate' (Ready and Conger, 2007, p75). However, through a combination of theory and experiment, this quality has now become both more visible and more able to be managed.

Finally, cognition itself has come under further scrutiny, as a result of these redefinitions of labour. Innovative thinking began to be understood as relying on the ability to manipulate communities of practice which themselves can display the characteristic of talent. Body-as-organism, bounded and complete, is replaced by body as what Marx called 'social individual'. In other words, cognitive knowledge can be codified in new ways which, to an extent, rely on intangibles like networks of relationships which were previously thought to be epiphenomenal.

But the issue of talented labour does not end there. What is crucial to understand is that talent, howsoever manifested, has to be identified and husbanded by installing a functional kernel of processes which can produce 'the right people'. Thus, a whole series of actors have taken hold of the issue of 'talent' and attempted to systematise it, most notably the burgeoning human resources industry and management consultants of various kinds. In the process, the whys and wherefore of talent have widened: talent becomes equated with seeking out and nurturing 'pivotal people', it becomes a moment in the reorganization of the firm (so that, for example, the latent mind power that already exists in a workforce can be revealed and mobilized (Bryan and Joyce, 2007)), and it becomes a moment in strategic investment in 'talent pivot points' (Boudreau and Ramstad, 2007). The result has been that 'talent' has become a vast technological infrastructure: batteries of audits and tests, the evolution of

‘experts’ and expertise, a development which is producing a new layer of consultants and managers specialised who specialize in ‘talent management’, and the evolution of ‘talent marketplaces’ in which talented workers can be exchanged. But the issue of talent does not end with its identification and systematization, for the process of identifying talent is about producing people who will ‘produce disproportionate value from the resources their organizations make available to them’ (Goffee and Jones, 2006, p72). In other words, they will valorize their talent by becoming more creative. In turn, that requires the parallel production of situations in which this creativity can not only flourish but be boosted. That requires three things. First, it requires talent management strategies which will identify the talented and keep them happy, since their value means that they can easily steal away to other positions, if they are so minded (Goffee and Jones, 2006). Second, as I have exemplified in some detail elsewhere, it requires, designing spaces which will produce the kind of intensity which will allow creativity to expand, whether that be at the scale of a room or a regional cluster. Third, it means adopting a flat model of organization which can allow the rapid construction and prototyping of ideas. There is a whole vocabulary of management that attests to this new set of facts – project working, collaborative innovation networks, and so on – all attesting to the need to produce high value cultures in which flows of talent can be visualised, controlled, and boosted. Indeed, so much has been written on these kinds of arrangement that I do not mean to go into them in any depth. Rather, at least for now, I want to register the presence of these efforts, for they also signify the functioning of the extended enterprise.

A second rhetoric is based around education, especially education which can unlock talent. It is no accident that so many governments have become interested in gifted and talented education which explicitly sifts children for talent. But the main impact of this rhetoric has probably been on universities, a 2000 variant/mutation of the knowledge economy based on creating ideas and growth by scattering higher education institutions in every town and city of consequence, producing not only student quarters but a fillip to creativity. I never thought I’d hear a government minister say that whereas in the nineteenth century the railway was the motor of the economy, in the twentieth century it was the motorway, but now it is the university which holds the key to economic prosperity. But that has happened as Universities have increasingly come to be seen as economic drivers. Around the world, governments are seeing Universities as the answer to many of their woes – as centres of industrial clusters, as means of generating new ideas which can then be subject to knowledge transfer into industry, as moments in the extension of soft power (US conference), even as means of fighting terrorism by inculcating liberal values, and so on. (Not surprisingly, I am worried about this!). The rise of ‘state’.

The third rhetoric is urban and follows on from the previous two: cities are understood as incarnations and accumulations of talent and creativity, knowledge, and generally as islands of ideas which draw talented people to them like honeypots. To attract these people means building a honeypot infrastructure that it is supposed will keep these people happy: art galleries, cafes, 24 hour activity, retail./shopping, universities, and so on. (At least, Milan is a genuine centre of fashion and design. It does not have to deal in the computer games cluster syndrome). Thus, cities activate new hyper-mobile communities of practice and the global subjects that are produced by them.

The problem, of course, is that these are rhetorics, commonplaces which are performative in character. They are there to do work, and most particularly to keep the bank balances of consultants, developers, architects, retailers, and nicely topped up. I see nothing wrong in turning a profit, by the way. But we must remember that these rhetorics, like all rhetorics, are

determinedly partial in nature and often quite faddish in their constitution, occasioned by the onset of a particular historical moment in which ‘innovation’ and ‘invention’ are understood as prime movers because of the concerted interventions of what I have called the cultural circuit of capital since the 1990s - the plethora of institutions that advise industry (and increasingly government) where to go and what to do next: and, in particular, management consultants, business media and, not least, business schools (so Universities are hardly blameless!) – who have constructed a sense of threat (which not un-coincidentally the cultural circuit had a series of salves and nostrums for).

But because these rhetorics are partial and faddish does not mean they cannot have grip. They are constitutive. They inhabit the pages of so many city plans nowadays like witches’ familiars, ghosts that do all the work in pulling the whole thing together. I cannot tell you how many city plans actually say these kinds of things, usually in parallel with appeals to democracy and social inclusion, and with a commitment to consultation as living proof of their sincerity. Indeed, it often seems very difficult to think outside these propositions. But think outside we must, and for two reasons. First, it stands to reason that if every city adopts the same policies, give or take one or two, no city can gain a serious competitive advantage. Second, it will become a pretty boring old world!

And it hardly needs saying that these dreams come at a cost. A good example is provided by the regeneration of East London around the Olympics. There, massive property development is taking place which will produce a new area of the city out of what was a dilapidated and run-down set of estates and warehouses. But it will be done at the cost of many inhabitants who will just disappear, often we know not where. It is an almost colonial enterprise. And these engagements are being repeated in many parts of the world in different forms, with more or less ease according to the governmental system: think only of Chinese cities.

And So To Policy

But if these are rhetorics, what sense can be made out of them? Take the last of my three rhetorics as an example. Practically every British city now has or is planning a cultural quarter and is looking to produce a creative industry cluster or two. But in only a few cases can they succeed. And often they are fooling themselves about what they are like. A recent report on Manchester, which likes to think of itself as the headquarters of northern cool, explicitly aided by government policy such as relocating a large part of the BBC there, finds that the real engine of growth in the city over the last few years has been high tech firms spun off from the often low tech firms that had characterised the city’s previous history.

All this said, there are things we know about city success from the careful work of academics like Glaeser. First, that an ability to produce new ideas is important and in turn that that ability produces greater returns to new ideas, not least because successful cities use new technology better because of these new ideas and are more likely to be connected because they are trip-generating. Second, that a high level of self-employment and numbers of small firms are correlated with urban success. In both cases high numbers of input suppliers and an educated workforce are important determinants. Third, that a healthy democracy is important in lowering barriers to entry in the ideas sector of cities. In turn, these three findings explain a large element of urban productivity difference, though not all, not least because of mobility between cities. But that’s probably about it. Equally, there is no reason to believe that there is a one size fits all policy for attaining urban success, as measured by productivity. For example, we know from the work of Aghion and others that investing in higher education

produces economic growth in cities. But we also know that that success can be produced in quite different ways. One is typified by the US – heavy private sector involvement, endowments, etcetera – the other by Sweden where public investment is key.

Other apparent certainties need to be tempered. Let me return to just one policy which has really come into being only since the late 1990s on the back of the rhetoric of innovation: Universities are now expected to be nodes of regional prosperity, drivers of regional clusters. But we need to be careful. After all, what do we know about innovation, regions, clusters and Universities, rather than what is told us by simplistic writers like Richard Florida? I think the literature tells us four things. First, that we don't know much at all. What works and what doesn't varies enormously. There is no 'one size fits all' prescription. Universities may be vital elements in some regional clusters but we must take care: it is important to remember that clusters are a vital part of a multimillion pound consultancy business, and their effects are therefore likely to be exaggerated. Equally, it is important to remember that large organizations can be just as effective as apparently more entrepreneurial small firms. Indeed, most of the evidence suggests that in the US at least it is small spin offs from large firms that make the running. Second, that successful innovation seems to rely on being able to build 'buzz', that is networks of peers which are able to formulate and transmit ideas rapidly which equally cement and extend the network. In certain senses, the network is itself a thinking creature. But no one is at all sure about how to generate buzz, and don't you believe it if they tell you they do. Third, that successful innovation requires what Saxenian calls 'brain circulation' arising out of tapping into the networks that make up the international technical community. People get ideas by moving around and the fall in transportation and communications costs means that they are able to locate in many more places than previously, including what were formerly regarded as peripheral areas. Thus there is a geography of ideality which Universities trade on and in. Fourth, that the real game for regions is therefore to make them more 'sticky', more able to act as landing strips for internationally mobile graduates whose lives are a constant churn which allows them to live in many places. Universities might be able to do more there by self-consciously acting as regional portals but it is early days yet, to put it but mildly, in formulating what will be the key policies that will allow this role to be expanded (eg all overseas PhDs given automatic rights of residence).

So where do we go next in a world of flows? That is what I want to consider in the rest of this talk by drawing on my experience of doing policy in the West Midlands region of the UK, and especially in the cities of Birmingham and Coventry, the second and ninth largest cities of England respectively. There, the idea has been to concentrate a sustained investment on the role of Universities so as to produce a lead in science and technology for these cities, a project called 'Science City'. I have already uttered all kinds of warnings about the rhetoric surrounding the economic powers of Universities, so what does this experience show us can realistically be achieved?

Science City brings together a coalition of the region's businesses with its higher education and public sectors, to enable these two cities to really stand out against their competitors in cities in the UK and around the world. Why? Because we now realise that fundamental research is at the core of nearly every successful city in the world. As the Secretary of State for Innovation, Universities and Skills argued two weeks ago, 'the cornerstone of [national and regional] success is the quality of fundamental research'. Successful regions must have a continuing stock of fundamental research or they are nothing, nothing, nothing. And that fundamental research feeds into everything the region is and, more to the point, can become.

Thus, it is clearly extremely important to promote and direct innovations which are based on the latest scientific bloodlines. But it is also crucial to be clear that science and technology in the 21st century is a global phenomenon. Global in operation and global in the challenges it faces: the huge problems that beset the world today – for example, energy, health, security, climate change and the environment.

But such a global focus points to something else too: heightened global competition. Remember that our competitors within the field of science and technology are not actually other regions in the UK but regions in Asia, the Middle East, and, most particularly, North America which are investing in science and technology on an amazing scale.

Take Asia for example. China is developing a multi-billion dollar investment in Research and Development. China's R&D intensity, that is R&D expenditure as a proportion of GDP, has grown rapidly, doubling to 1.4% of GDP between 1996 and 2005. And this growth is set to continue. Chinese officials have announced that R&D spending by all sources, industry included, will rise from 236 billion yuan (\$30 billion) in 2005 to 900 billion yuan (\$113 billion) in 2020. China has recognised that 'new scientific knowledge and inventions need to be industrialized and transformed', and the country aims to develop a cohesive science community churning out innovations to rival the West. Japan, though now behind China, has dramatically increased government funding for science and technology research in order to reach a level comparable to that in Western countries.

Or take countries in the Middle East, which are also developing initiatives aimed at elevating their economic performance and international presence through attracting R&D investment. This region is endowing Universities at some rate. Take Saudi Arabia: the Government has endowed King Abdullah University of Science and Technology to the tune of \$10 billion. And the Government of Abu Dhabi has given a grant of \$35 million to establish MASDAR Institute of Science and Technology to spearhead a multi-million dollar economic programme.

But, all this said, the United States (US) is still the world's undisputed leader in science and technology and our number one competitor – and collaborator. US industry funds roughly two-thirds, and the federal government, one-third, of a multi billion dollar annual R&D enterprise. Investment in scientific research, from government, corporations and foundations, currently stands at 2.6% of total GDP. The US has approximately 1.3 million researchers, compared with just 180, 450 in the UK. And there is more to come. The US is so worried that it will lose its international pre-eminence in research – a recent government report was called 'Rising Above the Gathering Storm' - that it contained a proposal to double the National Science Foundation's budget from \$5.58 billion to \$11.6 billion by 2016, and to double the combined budgets of the National Science Foundation, the Department of Energy's Office of Science, and the Department of Commerce's National Institute of Standards and Technology to \$50 billion in all.

In contrast, even after considerable investment in science by the government to the tune of 5.8% per annum in real terms since 2004, the UK's R&D intensity currently stands at a really rather pathetic 1.9% of GDP and, not surprisingly, the government has confirmed a national target of 2.5% by 2014, which, I might add, is still behind the ambitious EU-wide target of 3%. So, there is one more global challenge for the UK, funding the level of investment to meet the global scientific challenges upon which economic success and, it is not too dramatic to say, the future of the planet depends.

And in the US and Europe, this challenge is increasingly being thrown down at the feet of Universities. Why? For two reasons. First, in the face of the rigours of shareholder value, business is withdrawing from fundamental research. Bell Labs was the iconic example. A corporate laboratory that spawned Nobel prizewinners was gradually run down and is now a shadow of its former self. Similar things have happened in British industry: for many companies fundamental research is just too long term and unfocussed. Second, because government is doing the same thing for a different reason: large government laboratories disconnected from University campuses are becoming increasingly thin on the ground. The result is that Universities are increasingly becoming the jewels in the fundamental research crown. How, then, can Universities work in partnership with business and others, to rise to these global scientific challenges and bring home the intellectual bacon, so to speak? British Universities already punch way, way above their weight. Research publications in the UK make up nearly 9% of total research outputs in the world, and our share of world journal article publications is second only to the US. We made 9.5% of all PhD awards worldwide. Our share of world citations for research is about 12%, and our share of the world's most highly cited papers is 13.3% – again second only to the US, and well ahead of most other competitors.

Now they need to do even better: quite literally, the future of the nation depends on them but in a time when competition from other Universities around the world has never been stronger. How are Birmingham and Warwick going to compete with Universities such as the University of California San Diego, Duke, Johns Hopkins and the University of British Columbia? I don't know but I do know they must if the region is ever to achieve its full potential. So let me talk to the role of Universities.

The Role of Universities

Obviously in the time available, I cannot fix on every aspect of the economic role of Universities in cities and I do not intend to. Instead, I want to pull out from the pack just three lines of potential and to suggest what they could mean in policy terms for the region, namely innovation ecosystems, investing in intelligent retention and building up the talent base, and finding unique scientific specialisms.

My personal view is straightforward: research in Universities is, and should be, largely different in nature from that pursued elsewhere – in corporate organisations, for example. University science should work at the limits of predictability, making radical discoveries so as to change the way we think – genuine invention. This is how University science will make a real impact on the world and its problems. And that requires long-term endeavour and structured risk-taking. The University research enterprise works through vast and complicated networks that stretch across the globe – so that scientists often find themselves talking to colleagues in other countries more than in their own University.

The networks that make up the international scientific community are vital to innovation – they enable what has been called 'brain circulation' which is now seen as key to the success of clusters (ref Saxenian). They promote the 'buzz' that comes from the rapid exchange of ideas and the corresponding search after new questions that this generates.

Science City is a way to tackle research projects on a scale and at a level hitherto not possible. This, in turn, gives us new ways of bidding into these worldwide networks – possibilities that

we didn't have before. In other words, our hand will be strengthened in this global science community.

On a recent trip to the US with the Secretary of State for Innovation, Universities and Skills I was involved in meetings with prominent business people in a number of economic clusters. They all told us that they firmly believed that Universities main role should be as the centres of fundamental research – this was the unique role of Universities and where business felt Universities could be most useful. In the US businesses have clustered near to the best Universities - Harvard, Massachusetts Institute of Technology and Boston University in Boston, Duke and the University of North Carolina in the North Carolina Research Triangle, UC San Diego in San Diego, for example - so as to be close to the groundbreaking ideas which come out of these institutions.

Universities as Poles of Innovation

But there is a problem in the UK. In a recent survey just 2% of businesses in the UK said that they see Universities as a useful source of information about innovation. So, in partnership with businesses and public sector organisations, the challenge for Universities is clear: not so much to establish themselves as poles of innovation – they are already that – as to increase the amount of excellent work they are doing which will form the innovations of the future and to work out new ways of making sure that the work they do reaches the attention of business when appropriate.

One way to bring Universities and business closer together successfully is to set up explicitly translational operations, such as the Science Cities Birmingham-Warwick initiative. The first major Science City project is a ground-breaking collaboration between Birmingham and Warwick focussing on hydrogen energy, reducing radically carbon and greenhouse gas emissions. The hope is that this exciting project will position the West Midlands as a leading research centre in hydrogen energy. This project has already seen the successful deployment of over £6 million in capital equipment at the two Universities; has led to the award of over £3.5 million in portfolio projects across the two institutions; and has started to attract new businesses to the region. We will also be working together on broader energy research, on Advanced Materials and on Translational Medicine - a relatively new branch of medicine, rapidly growing in importance, that seeks to more directly connect basic research to patient care.

Technology demonstrators, such as those being developed through Science City, can also provide a useful opportunity for Universities to rise to this challenge. They allow Universities to demonstrate opportunities for businesses to benefit from new technology and to help drive the long term route to market. Technology demonstrators can help show that the region is at the forefront of technology application and is addressing some of the major issues which affect the prosperity and quality of life of the world's citizens (and indeed the residents of our own region).

Innovation Ecosystem

But we need more, far more. For, in order to be competitive in this increasingly dynamic and competitive global market what a successful region needs is, surely, an ecology of innovation - an Innovation Ecosystem like those found in the US that produces an environment particularly favourable to innovation and growth. We need a system which brings together a

wide and diverse range of partners - from the full range of Universities in the region to public sector bodies, from big business and industry to SMEs. Each has their place in producing a system that is outward-looking and dynamic and therefore ready to exploit the opportunities of globalisation and the international relationships of those partners within the system.

Science City can help to set up such a system by helping to produce a dynamic model for knowledge transfer and its practical application that leaves behind traditional ideas of University-to-University collaboration and substitutes the concept of many organisations working together to create knowledge-driven scientific and technological clusters.

Such ecosystems can foster the extension of traditional disciplines into new, interdisciplinary subjects, promoting the flow of information among people, enterprises and academic institutions that is crucial for innovative processes to flourish. They allow institutions to specialise at what they are good at, instead of simply continuing to do the same kind of work that everyone else is doing. And they provide powerful models for capacity-building, bringing huge competitive advantage to the region.

But there is a huge health warning: really successful ecosystems take time to mature, up to 40 years in the case of the most successful systems in the US, so we need to be in this for the long haul. And in order to be truly successful over the long haul we also, like the US, need to develop specialist agencies for our region, agencies which are totally dedicated to enabling technology transfer in a particular area. Each of these agencies needs to be properly funded to make this happen effectively – in my opinion, to the tune of £50-60 million a year for 35-40 years. That is, if we are really going to be serious about this endeavour. Agencies like the Biotechnology Center in North Carolina have transformed their regions ability to produce jobs and GVA but at a cost.

People

At its core, an innovation ecosystem should focus on attracting highly talented people because the most successful regions are those that attract the best people and innovation is dependent on highly talented people who are passionate about what they do.

In particular, there is a need to focus on our graduates. And, I don't think this is simply a matter of graduate retention: it's a fact that the best and most dynamic graduates will often tend to leave the region where they've been trained and we can't really stop them. Indeed I'm not sure we should try: if they can't be successful in the world at large what use will they be to us here? The average successful graduate will move about a lot in the early years of their careers and they will not easily be tied down. But we can bring them back – and bring them back at a stage in their careers where they have acquired extra skills and experience and built up professional networks that can greatly benefit our region, creating new jobs and helping to address our skills deficit.

The most successful regions in the world are those where people have come back after acquiring significant experience elsewhere in their chosen careers. Major world regions – Taiwan, India, China – all have schemes for attracting back the brightest and best of their Non-Resident Citizens. Perhaps this is something we should consider introducing in the West Midlands? What we need is a Non-Resident Midlander programme which will bring our best and brightest back after they have forged successful careers. In this way, we can convert brain drain into net gain. Just as one example, we should take more action to persuade our best

scientists (many of whom are working in North American Universities) to come home and settle in the UK. Scientific genius inspires the young: it rubs off and raises the aspirations of dozens or even hundreds of other researchers. Many of the eminent researchers that return to the region will, as evidence shows, have built lifelong links with the great research Universities of the US and elsewhere.

Talent Search

But the issue of talent goes much farther than this: it needs to be engrained in the region's culture. So Birmingham and Coventry have started to celebrate and nurture young talent at home, particularly the scientific talent within schools. Currently, this is only done fitfully. Countries like Singapore have realised that talent is the most powerful commodity in today's knowledge economy. And government, research bodies, Universities and businesses in Singapore are coming together to 'talent scout' the best students through high profile science and research competitions. More particularly, they make a big fuss about academic prowess. Those who have done well in these competitions feature in newspapers in an attempt to make it clear that nerdiness is good. I think that this region needs to do more of this as part of a concerted campaign to get science over to young people. Revealingly, in the US development agencies like the Biotechnology Center I mentioned before see science outreach (including teacher training) as a key part of their mission.

A unique specialism for the region

And, finally, in thinking about paving the way for the next generation of scientific discovery perhaps we should ask ourselves whether in Birmingham Science City we need to find a domain of science that is 'new' – i.e. that no other region is doing but that will be important in the future.

Obviously, we need to be working on the areas so far chosen but, of course, many others are doing so, too. If we want to acquire a competitive advantage, we should also look to the future and try to find at least one emerging specialism that is unique to the region. What that could be I leave to my more scientific colleagues to determine. All I would say is - let's be ambitious; let's not rule out anything that seems on the face of it too far-fetched to be true. Perhaps the best way around this is to establish a competition within the region for the next big innovation.

The Question of Politics

I have mentioned how rhetorics are partial and usually leave many citizens out of the loop. That is why politics is so important: as one of the earliest applications of rhetoric, it is skilled at producing counter-narratives which give others voice. Finally, then, let me turn to the question of urban politics. Recently, there has been a frenzy of research on this issue, much of which has concerned the exact nature of political agency when it is increasingly mediated by urban institutions. Classically, urban political agency has been thought of in three different ways. One has been to imagine the city as a place with powers arising from its particular nature. The second has been to make claims for the city as a community, and the third has been to argue that in some way cities bestow citizenship. All of these responses are problematic in some way. No one can deny the specificity of place, but increasingly, places overlap with so many other places that it makes it very difficult to say that they are truly concentrated in one location. The second response is even more difficult in light of the

extraordinary diversity of impulse and orientation in any given city. And the final response confuses a political category with a place.

Instead of jettisoning these classical interpretations, however, they should be redefined since they continue to have grip in today's world of flows. Indeed, many contemporary global political issues are linked to these three different formulations of urban political agency. For example, the urban spectacle of anti-war protest cannot be ignored in any consideration of global geopolitics. Moreover, the close juxtaposition of peoples and cultures from around the world in cities has to be placed at the heart of any politics of identity, belonging, and affiliation, while the sheer environmental effects of cities themselves produce both enormous problems and practices that international regulators still sometimes see as beneath them even when they are all around them. Cities matter politically, not merely as sites where the political occurs, but as part of the political itself.

There are three instances of urban political agency. The first begins with the question of place specificity. The sheer physical nature of the city--its bricks and mortar, daily routines, wires and wheels--allow many people to continue to think of the city as a bounded space. But all of these mundane things connect up with other spaces, physical and virtual. None of them are complete unto themselves. Think only of the porosity of the modern house, with its multiple inputs and outputs from all over the world (and indeed beyond if we include satellites). Think of the modern park, with people and plants from around the world. Think of a car drive through the city, which for many people is their key experience of place, involving a constant hum of world noise if the radio is on, but also many sensings of a passing landscape that is never entirely local (the concrete comes from another country, the street lamp comes from another city, the grass seed or turf from a distant countryside). The physicality of the here and now routinely contains the physicality of the there and then.

Any understanding of the politics of place must therefore recognize the dependence on other places for sustenance. What we have around us cannot justify claims of authenticity and difference. For many people, this seems counter to their experience, but any defense of place, and especially of a place called home, has to recognize the distant links and flows that create cities. This includes even the most physical and immobile of things. Take the common planning disputes that cities abound with, such as those centered on the location of a new building or a new swimming pool. To say that the decision must take into consideration all local parties is now pretty much accepted, but this decision is still far from taking stock of the inputs of the so many distant others implicated in the matter of the building or swimming pool: who are the interested parties and how can their interests be represented? Some might see this as heralding a baroque form of politics in which decisions are continually bogged down in the varied claims of a huge polity. But we do not know this until we try, and moreover, it remains clear that we cannot assume that the claims of those proximate to the decision should have the highest priority.

Rethinking what counts as local specificity includes recognizing the silent politics of place. A number of specifically urban political expressions exist: urban public art, for instance, brings issues already in people's consciousnesses to the fore. Our political task is to call forward the way people negotiate the multiplicity of specificity, in an environment full of the various technologies that regulate bodies in a city.

Over the last fifty years, these technologies have proliferated to the point where they now form a backdrop to nearly all urban activities and influence many choices that people make

throughout the day. These are some of the most powerful forms of regulation and control, not least because they are generally below the level of public comment. They include mundane objects such as traffic signaling systems and the software embedded in virtually all forms of urban life, as well as more visible objects such as surveillance systems and government--the whole variety of prevalent ways to keep the population counted, accountable, and alert to itself. How can these forms of governance be brought back into the public realm, where they can be the subject of discussion and dissent and can be molded to new purposes? We must understand the varied technologies of regulation and control together in order to make sense of their combined effects, and in turn think about them more positively--as the basic structures of urban life without which there would be no orientation or circulation and no prospect for remedy.

The issue of city as community remains. For many people and for a very long time, the language of community has been self-evident. Communities function as havens in a heartless world and mediate clashing interests, yet communities are also under threat. Somehow where you find yourself is home and must therefore be automatically privileged. And given that most people now spend most of their time in cities, the link between home and city is increasingly taken for granted. To be fair, no one assumes that the city represents all its communities, but it is often claimed that the politics of the city is the politics of negotiating many communities in close proximity to each other. As such, there is talk about how different ethnic communities should live alongside each other, there is talk of the goods and evils of segregation (from ghettos to gated communities), there is talk about ways in which difference can be bridged, there is talk about building community out of different communities. This debate has given rise to the concept of diversity that now dominates urban political and policy thought, a concept centered on the idea of community.

But urban diversity might be interpreted less as a politics of community than as a politics of connectivity. Many communities have no choice. They are there because there was nowhere else to go or to belong. This kind of forced community is a community by default and though it may have strengths, these are often the strengths of the beleaguered and desperate, longing to break out of community. Second, there seems real reason to question whether most urban dwellers feel that they belong to a community. Many of them have a series of distributed allegiances, which may or may not be local. So, while it is true that many urban residents might band together to fight rezoning or a government project, this may be very far from being an act of community, not least because it often actively involves the exclusion of others.

One might also question why people should have such power over their backyard. A politics of local community too often assumes that propinquity is a value in itself and automatically grants power, at the expense of the stranger and at the expense of local engagement in a wider political arena. The politics of community, moreover, rules out other local political possibilities. What we have in mind is a more agonistic politics that encourages disagreement, attempting at the same time to build consensus on issues of common concern by strengthening people's diverse associations rather than focusing on their locality. In short, a politics of connection is growing as many urban dwellers increasingly do not think of community in terms of defending their turf.

Finally, we must consider the issue of citizenship, first by asking, 'Citizen of what?' In the past citizens were identified with cities, then more recently, with the nation-state. Now, with the advent of permanently urbanized space, we can see that citizenship is becoming identified with increasingly more spatial categories. For example, surveys show that people increasingly

identify with the planetary scale (“citizens of the world”), the local scale, and a whole series of spaces in between. Although this tendency toward multiple spatial identification is stronger among younger people, more and more categories of people also lay claim to an identification with many spaces, such as cosmopolitans, immigrants, professionals, and many other ordinary folk whose lives are increasingly made through their multiple connections with the world. This suggests that people increasingly acknowledge the many spatial affiliations they have always had and are turning these into active political capital. We cannot yet speak of a new commons of citizenship arranged around an agreed set of wants and demands that form in many spaces at once. But, it is the case that the category of citizenship that was formerly locked into very particular spaces is now being chipped away at and parts of it are relocating.

In this condition of citizenship, the urban is pluralized and distributed. First, the urban continues to house millions of dispossessed, dislocated and illegal people, for whom any idea of citizenship is off the radar. These are people without rights to the spaces they occupy. The city, with its myriad of spaces, can thus provide a resource to those stripped of citizenship to survive and sometimes prosper. The existence of a whole series of quasi-citizenships also provides some recourse for those without formal political identity; such people can still take part in many urban political activities and can generally find at least some means of political expression. Put differently, the city for them is the only place of acquiring some political capital.

The urban can also act as a forcing ground for new claims, very often arising from varieties of citizenship juxtaposed. For example, the city locates people with an excess of citizenship, such as the international business elite, close to people with fewer possibilities, such as the low paid workers who do service for the former, and new challenges are created by this juxtaposition (e.g., a new politics of maids and masters increasingly drawn from around the world but with differentiated local capacity to influence, which links to new international political strategies, alliances, and movements, such as organizations campaigning for women’s rights). These urban environments help to reconfigure citizenship, with the urban as one key formative arena that any politics of citizenship at large cannot but take note of. Yet, writing and action on citizenship continues to remain remarkably wedded to the idea of the nation-state as the ultimate arbiter.

Thank You

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