
Cities in Civilization: Culture, Innovation and Urban Order

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Summary

Creative industries are now widely seen as a key economic base for cities, and cities everywhere are competing for the title of European City of Culture. But what do we mean by creativity, and in what ways does it underpin the economic development and prosperity of a city?

This paper starts by taking a broad historic view: ranging over 2,500 years of urban history, it distinguishes three different kinds of creativity that have helped shape three very different kinds of city. The first is artistic creativity, as manifested in such classic cases as ancient Athens, Renaissance Florence, or Paris around 1900. The second is scientific and technological creativity, as demonstrated by cities ranging from Manchester in the Industrial Revolution to Silicon Valley today. The third is urban creativity, as evidenced by the ability of cities to tackle their own pressing problems – as in mid-nineteenth-century London or Los Angeles in the 1920s and 1930s.

The paper then argues that in the twenty-first century the key will be the marriage of art and technology, which will underpin a whole new range of industries based on creativity. This in turn will support cultural consumption and, through it, tourism. But this will also demand continued urban innovation to produce new kinds of urban quality. The quality of urban life, not material resources, will prove to be a critical factor of production for the new economy. And this leads to a discussion of the development strategy for twenty-first-century cities in Ireland.

Introduction

This paper addresses a question that has so worried me that I have spent ten years writing a book to try to find the answer (Hall, 1998): why should great cities suddenly become creative? Why do they have golden ages, *belles époques*? Why was Florence so remarkable a place in the fifteenth century, or London at the end of the sixteenth, or Paris at the end of the nineteenth and the beginning of our century? Why in a different way was Manchester so remarkable at the end of the eighteenth century, or Detroit around 1900, or Silicon Valley today? How exactly do these golden ages come about? Why is it that they generally don't last more than a few decades at a time? Why do so few cities have more than one such golden age? How is it that they fail to recapture the creative spark that once animated them? Perhaps most important, how do some cities occasionally bring off the trick? And, since this is a conference of planners, what forces are going to shape the fates of cities in the coming century – and what, if anything, can we as planners do about them?

The question is important for planners, because practical people, the ones whom John Maynard Keynes believed to be the slaves of some defunct economist, seem to be obsessed by the question of what we now call cultural industries. Nearly seventy years ago, in a marvellous essay, Keynes predicted that eventually the world might reach the position where we no longer need care about the basic economic problem of survival that has plagued the human race since the beginning of time, but are able at last to do only the things we find agreeable and pleasurable. He unforgettably wrote that we would face our 'permanent problem – how to use ... freedom from pressing economic cares, how to occupy the leisure, which science and compound interest have won ... to live wisely and agreeably and well' (Keynes 1972 [1930], 328). In the seventy years since he wrote that, in North America and Europe and other developed economies, we are almost arrived at that condition he described: we can guarantee at least a decent minimum of existence. But even Keynes never foresaw that these agreeable activities would themselves become sources of income and of economic growth, generating new industries of a kind never before known. Rich, affluent, cultivated nations, above all their cities, can sell their beauty, philosophy, their art and their theatre to the rest of the world. During the 1980s and 1990s, cities across Europe – Montpellier, Nîmes, Grenoble, Rennes, Hamburg, Cologne, Birmingham, Barcelona, Bologna and Glasgow – have become more and more preoccupied by the notion that cultural industries (a term that twenty years ago no one would have understood, but that we no longer seem to think anomalous or offensive) may provide the basis for economic regeneration. Culture, it seems, will fill the gap left by all the lost factories and warehouses, and will create a new urban image that would make cities more attractive to mobile capital and mobile professional workers.

But – and this is an important argument in my book – it is not the only kind of creativity. Cities have always been the places where human creativity flourished; from them came not only the world's great art, not only the fundamental advances in human thought, but also the great technological breakthroughs that created new industries and even entire new modes of production. And, ever since cities became large enough and complex enough to present problems of urban management, they also became urban laboratories, places that developed the solutions – technological, organisational, legal, social – to their own problems of growth.

So a fundamental argument is that we can distinguish four main kinds of urban innovation: first, cultural/intellectual; second, technological-productive; third, a relatively new phenomenon in history, the marriage of the cultural and the technological; and fourth and finally, technological-organisational ('urban innovation'). During the twentieth century, the first and second types of innovation have tended to fuse together. During the twenty-first, we can expect that all four kinds of innovation will do so.

The Artistically Creative City

Back to the beginning: six studies make up the first part of the book, dealing with cultural and artistic creativity. They are Athens in the fifth century BC; Renaissance Florence, between 1400 and 1450; Elizabethan London, the time of Shakespeare; Vienna during the nineteenth century, culminating around 1900; Paris between 1870 and 1910; and Berlin in the 1920s.

These cities became culturally creative long before they proved very adept either at

technological advance, or in managing themselves effectively. They enjoyed their golden ages even while the majority of their citizens laboured in abject poverty, and even while most people lived in conditions of abject squalor – at least, by the standards of the twenty-first century. One question is why diverse urban societies should have set themselves this apparently odd order of priority. Another, closely related, question is whether this has anything to do with the kinds of urban societies they were.

There's not much in the conventional academic theory to explain the phenomenon of golden ages – at least, not much I could find. You have to pick it up in odd places. One is France, where a now-obscure professor of art, Hippolyte Taine, developed the idea of a creative milieu. Another is Sweden, where a professor of geography at the University of Lund, Gunnar Törnqvist, developed an identical idea. They help to develop an explanation, which runs like this: These six cities varied enormously in size, but they were generally among the bigger and more important places of their time. More important, every one was in the course of rapid economic and social transformation, a city that in consequence had grown with dizzy speed. Athens was the first example in the world of a great global trading emporium with a complex system of exchange arrangements. The others were all capitalist cities, but interestingly with strong precapitalist features: Florence and London were still essentially guild craft cities, Vienna and Paris likewise had strong atelier traditions; only Berlin was a fully-fledged capitalist manufacturing city. They were all great trading cities; in the cases of Athens, Florence and London, the true global cities of their time. And out of trade came new ways of economic organisation, and out of those came new forms of production. Their geographical position, as ports or as national or regional capitals, helped here; but this was no guarantee, because there were other similarly placed places that achieved far less. In economic terms they were sometimes world leaders (Athens, Florence, London, Berlin), sometimes laggards (Vienna, Paris); there is no clear pattern. All we can say is that they led their respective polities, that these polities were large by the standards of their day, and that made them magnets for the immigration of talent, as well as generators of the wealth that could help employ that talent.

The wealth is important. Athens was not a rich place, but by our standards its citizens had exceedingly modest personal needs, and there was wealth to spare; the other European cities were by far the wealthiest places in their respective domains, and – as seen – that wealth was concentrated in relatively few hands, usually that of the rising bourgeoisie and the more canny of the old aristocracy, who might (though not inevitably) intermarry. So it was true that, as D.H. Lawrence once said, culture was founded on the deep dung of cash. That meant individual patronage, but it also meant community patronage whether at the level of the city or (after the arrival of the nation in early modern times) the nation state. The role of the community was always vital, whether in creating the Florentine Baptistery or the court theatres of London or the Louvre or the Vienna Rathaus or the great Berlin theatres.

These were all high-culture cities, cities in which culture was fostered by a minority and catered for the tastes of that minority. Athens was the last case in history, or perhaps the last before mass television culture, where an actual majority of the population could share the same plays or poems; and even then, of course, the majority was a minority, because it did not include the slaves. But in any subsequent place and time, art had a bourgeois clientele. That had to imply a very unequal distribution of wealth, because that would be needed to

foster individual consumption, and also to generate a surplus necessary for state support. So most creative cities were bourgeois cities – but the reverse is not always true: by no means all, or most, bourgeois cities were creative; it was a necessary but not a sufficient condition.

So the talent may be more important than the wealth. And a notable feature is that recent in-migrants – sometimes from the countryside, but often from far-distant places, provided both the audience and the artists: just consider the Metics of ancient Athens, the artists who came to Florence from the countryside or from further afield, the provincial musicians of Vienna and provincial artists of Paris, the Jews in fin-de-siècle Vienna. The creative cities were nearly all cosmopolitan; they drew talent from the far corners of the empires they controlled, often far-flung. Probably, no city has ever been creative without this kind of continued renewal of the creative bloodstream.

But these talented people needed something to react to. Because these were all cities in economic transition, they were also societies experiencing a transformation in social relationships, in values and in views about the world. Most were in a state of uneasy and unstable tension: between a set of conservative forces and values – aristocratic, hierarchical, religious, conformist – and an opposing set of radical values: bourgeois, open, rational, sceptical. In the book I say that ‘These were societies troubled about themselves, societies that were in the course of losing the old certainties but were deeply concerned about what was happening to them’. We are prone to associate the first set of values with medieval feudalism and the second with modern capitalism, but it’s more complicated: during the nineteenth century the bourgeoisie might become a brake on the development of new artistic forms and new values, as you can see in Paris. It might take a near-revolution and a total breakdown of the established aristocratic-bourgeois coalition, as in Berlin after 1918, to generate the creative spark.

What appears crucial is that this disjuncture is experienced and expressed by a group of creative people who feel themselves in some way outsiders: they both belong and they do not belong, because they are young or because they are provincial or even foreign, or because they do not belong to the established order of power and prestige; quite often most or all of these things. That label applies to the Athenian Metics, to the guild craftsmen of Renaissance Florence, to the young actor-playwrights of Elizabethan London, to the court musicians and later the Jewish intellectuals of Vienna, to the Impressionists and later the Cubists, to the producers and writers who flocked from the provinces into Berlin in the 1920s. Great art is not produced by insiders, even though the artists may be patronised by insiders (as many of these groups were) and may in consequence enjoy a fleetingly close relationship to them. A creative city will therefore be a place where outsiders can enter and feel that state of ambiguity: they must neither be excluded from opportunity, neither must they be so warmly embraced that the creative drive is lost.

They must then communicate their uncertainties, their sense that there is another way of perceiving the reality, to at least part of the class that patronises them. That demands a widespread schism in the mainstream society, wide enough to provide at least a minority of patrons for the new product. Creative cities are almost certainly uncomfortable, unstable cities, cities in some kind of basic collective self-examination, cities in the course of kicking over the traces.

That means that there must be traces to kick over. Conservative, stable societies will not prove creative; but neither will societies in which all order, all points of reference, have disappeared. Creative cities have been those in which an old-established order, a too-long-established order, was being challenged or had just been overthrown; Vienna in 1900, obviously, but likewise the London of 1600, the Paris of 1860 or the Berlin of 1920. There is indeed something subversive about most serious art; it is likely to express the forces of discontent and unrest that challenge the old order of doing things and thinking things, and at the same time to help foster and give voice to those forces. That is self-evidently true of art with an explicit political purpose, such as Berlin theatre of the 1920s; but it can be equally true of art with no such purpose or with a merely incidental political aim, such as most Elizabethan drama, Picasso's Cubist paintings or the work of the Viennese Sezzession.

So: is the milieu purely a reflection of broad socio-economic forces in a particular place at a particular time, or does it spring from cultural traits that develop almost independently of the economic substructure? That I find a very difficult question. You can explain Athens' lead over the other Greek states in terms of Attica's central position and the consequent trading advantages within the eastern Mediterranean; but it seems difficult to express the scale of the difference. Likewise, fifteenth-century Italy had developed as the most advanced part of Europe, and Florence as perhaps the most advanced city in Italy; but again, the Florentine achievement appears quite disproportionate in comparison with cities like Siena or Verona, let alone Bologna or Parma or Ravenna. I could give other examples: it seems that an initial economic advantage is massively transformed into a much larger cultural one. So it is almost as if there is such a socio-economic explanation, but it is hardly enough to bear the weight of explaining why an Athens, a Florence, should have developed so uniquely.

The Technologically-Innovative City

The technologically innovative cities were in every sense different. Again, I looked at six: Manchester and innovation in cotton textiles around 1780, Glasgow and steamships between 1820 and 1880, Berlin and electrical engineering around 1870, Detroit and automobiles around 1900, the San Francisco Bay Area and electronics around 1950, and Tokyo in the same field in the last half-century. They were not generally established cities, twentieth-century Tokyo excepted; they were cities somewhat on the periphery of the established world, neither right at the centre (as the culturally innovative cities were) nor right at their periphery. They were middling cities, plugged into what was happening in the world, but keeping their distance: they were emerging, upstart places, places like Manchester at the end of the eighteenth century, Glasgow in the mid-nineteenth, Berlin at the end of that century and Detroit at the beginning of the next, the San Francisco Bay Area in the mid-twentieth century and Tokyo towards its end.

The Japanese example apart, these case studies seem to show the continuing strength of bottom-up, individualistic innovation. The innovators were outsiders living in outsider cities. Most were middle class; though some of the early ones had little education, most were at least well grounded in basic technical skills. A surprising number were self-taught. All followed careers that taught them what they needed to know, in a related industry or field; they were well grounded, so that their success was no accident. They all relied on strong local networks, supplying specialised skilled labour and services, and creating a climate of innovation among small firms, even individuals, who shared knowledge even

while they competed with each other: as the economist Alfred Marshall memorably said a century ago, the knowledge was in the air. Even when firms grew bigger, networks remained surprisingly important. That is true for instance of the region around Manchester in England in the 1780s and 1790s, or of Detroit between 1900 and 1910, just as much as of Silicon Valley today; in fact the descriptions in the economic histories are astonishingly similar.

More closely analysed, as a number of commentators have recently emphasised, in the late twentieth century there seem to be at least two, perhaps three, models of capitalism, with different attendant models of innovation: the American model of bottom-up innovation in a laissez-faire environment, and the German-Japanese model of state-guided capitalism. The integrated model seems to have faltered in the west, and now massively in Japan too: the verdict is not in, but it seems likely that bottom-up, small-scale, networked innovation will always be necessary for really fundamental economic change, the process of 'creative destruction' that Joseph Schumpeter wrote about half a century ago.

The innovative places could all be called edge cities: more accurately, they were not at the centre but neither were they off the edge of the world altogether. All had some strong previous tradition that proved critical. They were not trammelled by old traditions or ways of doing things. Most had egalitarian social structures: they lacked old wealth and were not class-hiebound; they were open societies in which careers were open to talents. They shared an ethos of self-reliance and self-achievement; they tended to have open educational systems, or at least apprenticeship systems, with a stress on the practical uses of scientific knowledge. They might well have recently acquired wealth, in the hands of adventurous people who will be willing to take another risk. Many of the infant firms in these places seem to have started by catering for a local market whose characteristics they understood. It might be a consumer market, but often it was a market of related producers; in this case, there might be a chain of interactions in which the demand spurred producers to innovative solutions to overcome problems.

Primary innovation does not seem to have been crucial, but rather of decreasing importance: what was important was the downstream innovation, tuned to the market. New entrants like Ford could achieve this; so could established Tokyo corporations. Local demand helped here, but it does not provide a satisfactory total application. One can say that there was something else: continuing ability to innovate, to ally technical knowledge to the changing demands of the marketplace. Geography relates to industrial organisation. Theoretically, as examples like GE and IBM show, the giant bureaucratised corporations can exist on a self-contained basis far distant from the city. Yet Japanese corporations continue to lock into Tokyo and its surrounds, apparently fearing the consequences if they move R&D too far from the city.

The Creative-Innovative City

In the book, I considered a phenomenon I called the marriage of art and technology, which I think exceptionally important to the argument, because it points the way to the twenty-first-century future. It is in fact a twentieth-century story. It happened especially in the United States, and that is not surprising. America was not outstanding in technological invention, but it was unique in its capacity to turn inventions into commercially useful innovations. It very early developed traditions of mass production of standardised

consumer goods for vast mass markets: the American system of manufacturing. It allied to this a populist concept of culture and entertainment, far removed from the European patrician attitude that public corporations should give the masses what was good for them; out of this, for good or ill, came Hollywood and Tin Pan Alley and commercial radio and television. The stories of Hollywood in the 1920s, and of Memphis Tennessee in the 1950s, were both stories of entrepreneurs, flourishing in a uniquely open society, were able to reach new audiences: the immigrant masses of the eastern seaboard cities, the newly emerging black working class of the post-World War II era, alienated teenagers growing up in the new suburban America, all were being ignored by the established commercial interests, all constituted new markets of almost limitless potential. So new entrepreneurs who empathised with their customers – the Jewish immigrants who created the Hollywood studios, the maverick record producers in Memphis – came along. The American media revolution was created by classic Schumpeterian new men, who fitted the classic definition of entrepreneurship given by one such entrepreneur, Henry Kaiser: Find a need and fill it. They discovered huge markets for new products. And in doing so, they effectively invented the products themselves: the movie industry was created by trial and error between *The Great Train Robbery* and *The Birth of a Nation*; modern popular music was invented in a few short years between Elvis Presley and the Rolling Stones. The industry was always market-led, but in turn it led the market. In particular, it identified new mass markets – the turn-of-the-century immigrant communities in the cities, the bored and rebellious teenagers of postwar suburban America – and produced a new product that catered directly for their deepest emotional needs.

Almost certainly, it could not have happened in any other country. But what is puzzling, is why this should happen in two cities so far removed from the cultural mainstream, from the original New York powerhouse of the mass media revolution. Such huge innovative capacity does not come easily. It can happen only in a society in extreme flux, where new socio-economic or ethnic groups are defining themselves and asserting themselves. New York in 1900, America's quintessential immigrant city, was one such, but it lost its touch, and its most successful entrepreneurs removed themselves to the opposite side of the continent. Memphis in 1950, the city where rural migration streams met on the eve of the cotton picking machine and of the civil rights era, was another.

Both the new industries existed in uneasy relationship, half-symbiotic, half-hostile, with the forces that created them. Movies, once past their nickelodeon origins, were expensive, capital-hungry products that needed yet more capital to exhibit them nationwide and worldwide; so the industry was soon in thrall to the bankers. But the individuals who had forged it were archetypal small and opportunistic entrepreneurs, who retained the attitudes of their youth; they rebelled against their bankers. The resulting organisation of the industry, based on constant tension between producers and financiers three thousand miles apart, was in a sense logical; out of it came the legendary hostility between the two urban cultures, New York seeing Los Angeles as superficial and gimmicky, Hollywood viewing Wall Street as stifling and philistine, and the East Coast elite wishing a plague on both houses.

Oddly, Tin Pan Alley was essentially created by the same cultural-ethnic group as Hollywood. It grew up catering for a mass market it understood viscerally, because it was them. But it destroyed itself, because finally it could not come to terms with the generation

gap: it became an industry peopled by old men, catering for a teenage market. And worse even than that, comfortable old men who had forgotten their origins, losing touch with the grassroots of poverty and alienation that had once inspired them. These grassroots were deep in rural America, in the one part that had retained deep folk traditions out of Africa and England and Ireland, ironically because it was too poor to share in the media revolution that New York and Hollywood had sold to the rest of America. New entrepreneurs who knew those grassroots, either because they had grown up with them or because they emotionally responded to them, filled the gap: a classic Schumpeterian situation.

All this suggests that we may be surprised yet again. There may be another untapped market that no one is properly understanding or even knowing. It may be the millions of children playing with their computer games. It may be adults bored with their everyday lives, and seeking solace in fantasy worlds as yet impossible to grasp. Someone will empathise with such a group and produce another industry, the outlines of which are still dim and uncertain. The likelihood is that this will happen in a special kind of city, a city in economic and social flux, a city with large numbers of new and young arrivals, mixing and merging into a new kind of society. It sounds like London or Los Angeles, New York or San Francisco. The places that achieved the revolution the last time round could be the ones that achieve it next time. But not necessarily; there are no absolute rules in this ultimate game; time and chance happen to cities too. This is so important that I promise to come back to it in a minute; but before that, let's consider the fourth kind of innovation.

The City of Urban Innovation

Urban innovation, the fourth kind of major innovation, is subtly different in kind from the three varieties so far considered. It consists in cities attempting, generally through public administration but also through private enterprise, to solve the emerging problems caused by their own growth: water supply and waste disposal, traffic and transport, police and criminal justice, provision for the poor and destitute. None of these problems is unique to large cities. The point is that in such large cities, roughly those with one million and more people, they attain a new dimension of complexity: local wells and cesspits no longer suffice, people have to move over long distances, crime can no longer be handled by informal means, destitution can no longer be managed within the extended family. In every case, cities have to respond through organisational innovation, and often through technological innovation as well. So the places that make urban innovations are usually the biggest and most complex places of their time: cities like ancient Rome, London or Paris in the nineteenth century, or New York in the early twentieth century and Los Angeles at the mid-century, or London again in the 1980s; though we can legitimately include a much smaller city like Stockholm or indeed Helsinki, that made important urban social innovations after World War II.

Such cities make urban innovations because they have to (though not all cities that need to succeed in doing so, as twentieth-century history plainly shows). This means that they have reached a certain threshold of size and complexity. Rome, London, Paris and New York were among the three biggest cities of the world when they first made urban innovations; with the exception of Rome (estimated at 650,000 people in AD 100), London (861,000 in 1801) and Stockholm (889,000 in 1950) all had one million or more people within their city boundaries. However, Los Angeles was the twenty-seventh city in 1925 and Stockholm the eightieth in 1950, so rank or size in itself is no guarantee of innovative power.

What may matter more is the speed of growth. London had doubled in size in the century before 1800, Paris had grown by two and a half times in the century before 1850; New York had doubled in the quarter century before 1900 (albeit with a major boundary change); Los Angeles grew ten times in the first quarter of the twentieth century. Such cities had to cope quite suddenly with a drastic increase in the scale and complexity of urban organisation. They had the capacity to do so, because all were in countries that were highly evolved economically and technically. Further, because they were well networked both nationally and internationally, there were only minor barriers to importing knowledge from other places. Knowledge of urban innovations like water aqueducts, collector sewers, streetcars, subways and motorways all diffused very rapidly, though there were significant differences in the rate of take-up from city to city; European cities, in particular, were relatively slow in absorbing transport improvements like the telephone, the electric streetcar and the urban motorway.

Demographic growth often went hand in hand with economic growth, if only because aggregate growth was almost bound to increase in line with population. That meant buoyant demand for new services and a supply of surplus capital to fund infrastructure, whether out of municipal coffers or out of private pockets. There seems to be a relationship between urban innovation and long waves of economic growth: London was highly innovative at the start of the second Kondratieff long wave (1842–97), New York and Los Angeles at the start of the third (1897–1954), Stockholm at the start of the third (1954–); Paris fits less well, though its major urban investments were all made before the crash of 1873, which ushered in the end of the growth phase of the second Kondratieff. Further, such periods of growth by definition brought the immigration of talented and energetic individuals, some of whom at least were major agents: Edwin Chadwick, architect of so many of the London reforms, was a Mancunian by birth, Harry Chandler in Los Angeles was an easterner, though other key players – Haussmann in Paris, Veiller in New York – were native-born sons of their cities.

There is however a basic distinction: Rome, London and Paris were unambiguously at the centres of their respective worlds, New York was the emerging commercial centre of the most dynamic part of the world of 1900. But Los Angeles in 1925, as already remarked in discussing Hollywood, was by any measure at the edge of the American urban system; and Stockholm was a relatively small city at the periphery of the European system. Los Angeles, a city that combined political conservatism with maverick capitalism and eccentric philosophies, seems to have been a very special case, a frontier city that had thrown off most of the trammels of older cultures; Stockholm may have been an equally special case, a Protestant society in course of secularisation, in which particular ideas of social responsibility developed in response to the depression of the 1930s.

Finally, London represents an equally specific development: its regeneration in the 1980s represented the quintessence of the Thatcherite vision in an urban context, and that vision represented a kind of cultural counter-revolution, a systematic attempt to demolish the established institutions of British life and to replace them by a return to unfettered entrepreneurial capitalism. But equally, the Docklands enterprise represented the idea that property development in itself could equate with substantive economic regeneration, as if the one would axiomatically produce the other: an assumption that many were to question, especially after the great crash at the end of the 1980s. Wrong or right or partially right, this

view is consistent with the Thatcherite notion that Britain as a manufacturing economy was largely finished and that the aim was to rebuild a new service economy on the ruins of the old. And this belief, never as consistently expressed as in Britain, nevertheless formed a belief underlying much radical-right rethinking, worldwide, in the 1980s.

We can conclude that, while earlier urban innovations were directly driven by hard physical problems and had an element of the inevitable, more recently innovation has come from a variety of more specific conditions. Nevertheless it remains a fact that, once made, innovations tend to provide some kind of model to the rest of the world. Stockholm in the 1950s became the model of the socially conscious city, whose urban design solutions were imitated in every city; Los Angeles in the 1960s came to be seen as model of a new kind of urban society, one based on style and mobility and hedonistic conspicuous consumption; London in the 1980s, even while it repelled some observers, became almost a television soap opera parody of itself, the city driven by creation of new forms of wealth and power against a background of a new high-tech urban landscape. All these urban images have powerfully persisted even while the attempts at imitation have often collapsed in failure and recrimination; perhaps urban archetypes do not lend themselves so easily to imitation.

The Next Innovative Wave – and Its Geography

The practical question now has to be: how will creativity manifest itself in the twenty-first-century city? If there is to be yet another Schumpeterian burst of innovation, which may be beginning right now, and giving rise to a new long wave of economic growth based on new industries, what are the key new industries that will provide the basis for it?

There are at least two clear clues. One is the point I started with: the huge expansion of the creative and cultural industries, which are no longer the playthings of a few rich patrons, but have become mass-consumption industries. The future Keynes predicted has arrived in the developed world, and during the next century it will happen in much of the now-developing world. In the UK, Andy Pratt has shown that the cultural industries employ nearly one million people, some 4.5 per cent of the workforce; they are as big as the construction industries, and of course they have grown far faster (Pratt, 1997, 19).

The other clue is the one I emphasised a few minutes ago: that we're now seeing the convergence of artistic and technological creativity, two forms traditionally held to belong to different people and to opposite sides of the brain: the Economist calls such people 'techno-bohos'. We have already seen two outstanding previous examples, both American. It is no accident either that the United States has so far proved equally outstanding in the new multimedia industries that are developing through the marriage of computing and telecommunications. The basic technologies here are the Internet, developed in the 1960s by the American armed forces for military purposes, and the World Wide Web, actually discovered in Europe by an Englishman, Tim Berners-Lee. But again it has been American ingenuity that has developed the many commercial platforms that have exploited the new technologies in the 1990s, such as Netscape and Yahoo!

Now it's important that what matters here is not the basic technology but the uses that are made of it. Of course the steam engine was important, but more important was the network of railways and steamship lines that were built on it, spanning continents and finally the world, in turn producing the first global division of labour. Likewise, the internal

combustion engine was a key invention, but what mattered was the vast apparatus of mass-produced automobility that was erected on top of it and the phenomena that it then generated, ranging from suburbia to fast food. We need to ask: what are the industries, this time round, that will develop on top of the new infrastructure of the net and the web?

We can see some of them: tele-medicine and tele-health care, tele-education and tele-learning, online information services, electronic publishing, financial services, trading and brokering, tele-shopping, entertainment of all kinds (film, video, theatre, music, multimedia pop, animation, virtual reality, games), electronic sports and competitions and virtual reality expressions, security and surveillance, earth resources information, environmental monitoring and control, digital imaging and photography, data mining and processing. Most share a characteristic, identified by Manuel Castells as central: what he calls 'the application of ... knowledge and information to knowledge generation and information processing/communication devices, in a cumulative feedback loop between innovation and the uses of innovation' (Castells, 1996, 32).

Education is perhaps the most obvious of these applications, but the one with the most profound social implications. During the coming decades it will be transformed beyond recognition through the injection of information technology to every stage of teaching and research. As MIT professor William Mitchell puts it: 'If a latter-day Jefferson were to lay out an ideal educational community for the third millennium, she might site it in cyberspace' (Mitchell, 1995, 70). In the UK, Douglas Hague has predicted that first-rate remote lectures will replace second- or third-rate direct ones; multimedia presentations will allow students to pace their own learning. Teachers will thus find themselves performing new roles: as 'guides' or tutors; as 'communicator/interpreters' on TV; as 'scholar/interpreters', turning research into teaching material, and as 'assemblers', packaging this material into products; all working in teams, on the model set in the 1960s by the UK's Open University (Hague, 1994, 12–13). Health care will be similarly transformed, forcing physicians and consultants and nurses to learn new roles.

One group of applications is in no doubt at all: in the media, where the digital – fibre-optic revolution will generate virtually unlimited capacity to send moving images into a computerised box in the home, whether TV or PC: multi-channel digital television almost immediately, interactive broadcasting in the future. We can already see the revolution described by MIT professor Nicholas Negroponte in his book *Being Digital*: 'broadcasting' is being replaced by 'broadcasting', whereby everyone picks what they want from cables full of digital information (Negroponte, 1995, 169). And this is just the start.

Where is all this happening? Significantly, some of the key locations for the new industries are the cities: Los Angeles, San Francisco, New York City, London. That is because the development of new ideas demands serendipity and synergy between minds, and it is easier to find this in great cities. It is also because there is a special relationship between multimedia and other activities that has always been clustered in great cities: the media, including the live performing arts, advertising and public relations, and tourism.

As many civic leaders have found to their cost, cities, at least in the developed world, are no longer locations for mass-production manufacturing: they are places for high-technology R&D and prototype production, for creative and cultural industries of all

kinds, from theatres and museums to publishing and broadcasting, for tourism, for command and control functions in government and transnational corporations, and for specialised finance and business services. And in all these, creativity plays a crucial role: witness the innovations in the financial sector in the 1980s, such as securitisation and corporate bonds, and the role they have played in hugely extending the total volume of business.

One point is certain: reports of the death of the city have been much exaggerated. We sometimes hear the argument that cities have no future at all. Some experts have predicted the 'Death of Distance': a world in which the traditional distance-deterrence effects, embodied in every locational model, diminish to zero and the entire world becomes a frictionless plain on which everyone will be free to locate in the place that best suits their personal preferences and whims, intercommunicating freely and at uniform cost with every other person in the world (Cairncross, 1995, 39; 1997). But, though telecommunications costs have fallen spectacularly and the Internet is almost frictionless, it is surely significant that the leading cyber-gurus have finally rejected this hypothesis.

The evidence shows that although telecommunications substitute for personal movement, they can complement and stimulate it. It was immediately after the invention of the telephone, in 1876, that we saw concentrations of high-rise business offices in the centres of New York City and Chicago; and evidence from France suggests that over a period of more than a century, roughly since the spread of the electric telegraph and the invention of the telephone, personal business traffic has grown at almost exactly the same pace as telecommunications traffic. Consider the growth of personal business traffic by air and rail, and the development of the conference/convention industry: they strongly suggest that the more telecommunication we have, the more it will be followed by face-to-face meetings. The fundamental reason is that the advanced business services – financial and business services, command and control functions, creative and cultural services, and tourism – which are the real drivers of the new knowledge economy, depend vitally on information exchange, often with a very high degree of immediacy. The investment analyst trading shares, or the lawyer offering advice, or the board of a major corporation in a meeting, or the television producer at work on a show, or the tour guide taking a group sightseeing, specialised information is being processed and transmitted by highly qualified people in real time. Further, much of this activity involves face-to-face exchange of information, either as a central feature or as an essential ancillary (as when the stock analyst has lunch and picks up important market information). Further, these activities are highly synergistic: hotels and conference centres and exhibition centres are simultaneously business services and part of tourism; museums and galleries are creative/cultural but also parts of tourism; advertising is both creative and a business service; and so on. For this reason, not only does each of the sectors have strong agglomerative trends set by the need to process and exchange information, but there are also strong agglomerative forces as between the four main service sectors.

So communications – a major international airport hub, a key interchange on the fast-spreading high-speed rail systems of Japan and Europe, top-quality telecommunications – are a must. But there is another key requirement: quality of urban life. Just as cities had to guarantee pure water and sewerage systems a century ago, they now compete to make themselves attractive to visit and to live and work in. Urban innovation matters as much as

it did when city engineers were struggling with problems of pure water and sewage disposal. In this scheme, there are no fixed rules: cities can lever themselves up or fall down. In particular, by the right kinds of policies they can achieve several objectives simultaneously: they can clear the ruins of the lost industrial economy, provide new flagship buildings to act as symbols of an urban renaissance, and create a high-quality urban ambience for visitors and residents. Barcelona, Bilbao and Glasgow in Europe, San Diego and Seattle and Toronto in North America, are classic illustrations.

Of course, urban quality does not guarantee creative genius. Nobel Prizes can and do come out of slum laboratories, and great undiscovered artists will always languish in garrets. But increasingly, universities build laboratories to retain and attract international star scientists, while the garrets of the starving artists soon become immensely fashionable and expensive. Creativity is no longer an incidental miracle that happens occasionally in exceptionally favoured cities; in a globalised economy where no place can rest on its laurels for long, it is now a central part of the business of being a successful city. And this is a principle that no city can safely ignore.

Conclusion: Implications for Irish cities

Two things appear relevant. First, creativity can be active or passive. This paper has stressed active creativity, the sort that actually produces something of real value to the world. But most of the time, in most cities, we are actually talking about the second: presenting other peoples' creativity. That tends to be an emphasis in the European City of Culture programme, and I would argue that it should be avoided. Actually, as Glasgow showed in 1990, cities need both: they need to present the quality of your galleries and museums and concert halls, but also need to show that they come out of a long active tradition that is still alive. Second, especially on a small island like this one, you can do far more in collaboration than in isolation. One of the happiest outcomes of the Good Friday agreement, coupled with the impact of EU programmes, is the increasing collaboration between the two halves of this island, and between the two principal cities in particular. Cultural collaboration is among the happiest and most benign forms of this cooperation, and it goes along with the resurgence of tourism on both sides of the border; increasingly, the Province and the Republic are being marketed as a single tourist destination, to the huge benefit of both, and the shared culture of the two halves of Ireland is a very important part of the common appeal.

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