

Entrepreneurship and Regional Development Policies

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INTRODUCTION

Policies to promote ‘knowledge-based economies’ (those directly based on the production, distribution and use of knowledge and information) have sought to combine entrepreneurship and Information and Communication Technology (ICT) industries (OECD, 1997a, 1998). ICT developments and entrepreneurship have significant spatial links as regions increasingly become focal points for knowledge-creation and learning (KANTER, 1995; FLORIDA, 1995).

The European Commission’s (CEC, 2000) “New Strategy for Jobs in the Knowledge Economy” promotes employment and skills in the ‘knowledge economy’ and to improve access to the internet and the use of information and communications technology. This is based upon the estimate that by 2010 half of all jobs will be in industries that are either major producers or intensive users of information technology products and services. These policy suggestions explicitly link these developments to the encouragement of entrepreneurship in new services and businesses, particularly through fiscal policies rewarding risk taking (such as stock options), and there is a strong territorial dimension (CEC, 1999a). Similarly the UK and other national governments have also shown considerable interest in capturing the potential economic impacts of ICT and e-commerce for the benefit of their economies (DTI, 1998, CENTRAL OFFICE OF INFORMATION, 1998; PERFORMANCE and INNOVATION UNIT, 1999).

However, what is actually meant by the term entrepreneurship is often imprecise or unclear. For instance, the European Commission (CEC, 1999b, p. 15) uses the term

entrepreneurship in different ways as its policy is to specifically encourage entrepreneurship through promoting business start-ups and self-employment but also through the involvement of emerging actors such as social entrepreneurs. There is also no commonly accepted definition of ICT industries, but in this paper they are taken to include knowledge, creative, e-commerce industries, and wider technology, media and telecommunications developments.

The relationships between entrepreneurship, ICT and local and regional economies are intertwined and each contains overlapping cultural, socio-economic, technological, spatial and temporal elements. How they are interconnected is still not fully understood and there is no clear theoretical framework linking all of them. Indeed although the term entrepreneurship is in common usage there remains ambiguity as to what is meant by it, particularly in policy terms. This paper focuses upon what is meant by “entrepreneurship”. Through an analysis of this it seeks to analyse some of the links between entrepreneurship, ICT and regional and local economic policies. In the following section the main types of perspectives of entrepreneurship are discussed. Section 3 considers the resulting implications of these differing perspectives for policies to promote entrepreneurship and for their links with ICT. This is followed by the conclusions.

PERSPECTIVES ON ENTREPRENEURSHIP

There are at least five main groups of overlapping perspectives on entrepreneurship. These reflect entrepreneurship as: a function in the economy; a new business start-up;

an owner-manager of a small business or SME; a set of personal characteristics; and a form of behaviour.

Entrepreneurship as a function in the economy

The first view of entrepreneurship focuses upon the function of entrepreneurs in the development of the economy (BAUMOL, 1968) rather than on their personal characteristics. In particular the roles of entrepreneurs revolve around the use of resources and around innovation. One of the earliest uses of the term 'entrepreneur' was by the French writer Richard Cantillon, in 1755, who argued that they were those who carried out 'risky' ventures. The importance of risk taking was emphasised by some later writers (LEIBENSTEIN, 1968; KNIGHT, 1921). Another French philosopher, Jean-Baptiste Say in the 19th century thought of entrepreneurs as those who brought together and co-ordinated resources, moving factors of production to areas of greater productivity and yield. CASSON, 1990, 1999, extended this arguing that the skill of an entrepreneur is to make judgmental decisions about the best allocation and use of resources and to co-ordinate scarce resources. Overlapping the other functions of entrepreneurs is that of being a 'middleman', who is alert to and sees opportunities in the economy and uses this knowledge to gain a profit (KIRZNER, 1973, 1997).

The view of entrepreneurs as organisers of businesses with opportunistic and risk bearing roles can be contrasted with entrepreneurs as innovators (BAUMOL, 1993). The former role helps the economy to adjust to its continuous change, while the innovation role generates rather than responds to changes and so causes economic

development. SCHUMPETER, 1942, argued that the role of entrepreneurs was as innovators, who wanted to change things or do things differently. Entrepreneurs are those who implement “new combinations of means of productions” by: introducing new products and methods of production; opening new markets; gaining new sources inputs; or by changing the structure of an organisation or an industry. The changes in ICT have opened huge opportunities to rapidly change what products or services are available and how they are produced and the relationships between different organisations or people – indeed possibly a ‘Schumpeterian’ revolution. Many examples of these innovations are now commonplace, but were unheard of only decades ago (for instance buying an airline ticket over the world-wide-web, or e-mail communications between parts of an organisation or between a network of organisations).

It has been claimed that small and new firms are the main engines of innovation, due to the greater incentives for the people involved (including property rights) than for those in larger firms (e.g. ACS and AUDRETSCH, 1988). However, a focus on innovation does not necessarily imply a focus on new or small firms, as the relationships between firm age or size and innovation are not clear. For instance, HARRISON, 1997, argued that larger firms dominate innovations, as they have resource and market entry advantages and are able to receive immediate benefits from innovations due to their scale and scope. Similarly, SCHUMPETER, 1942, suggests that large firms have the resources and motivation to innovate, including taking-over smaller innovative firms to gain their products, while BEESLEY and HAMILTON, 1984, argued that some large firms use innovation in products and processes to challenge dominate suppliers. From a policy perspective it is important to try to

identify with which types of firms policies are likely to have the greatest overall impact.

It may be useful to distinguish innovative products and production processes in existing industries (where large firms often dominate) from fundamentally new innovative industries (for example, much of the electronics and software industries, or the 'low cost' airline industry in recent decades) where ICT has opened new opportunities. ACS *et al.* (1999) found that in industries where market share is more concentrated among larger firms there is higher productivity growth. They suggested a Schumpeterian transition hypothesis where perhaps certain small firms introduce radical innovations, but their impact is magnified by large firms (these large firms may have recently been small or new ones that grew, such as Microsoft, or large ones that are particularly agile). More generally PENROSE, 1995, combines innovation and opportunity seeking functions of entrepreneurship by suggesting that endogenous technology capability (which is influenced by the availability and use ICT) and market opportunity dynamic are key forces in the growth of firms.

This can suggest a staged process starting with entrepreneurial innovative behaviour in the firms who create the catalytic Schumpeterian event (such as new ICT developments). This is followed by the entrepreneurial activities of identifying resulting opportunities, deciding on actions and allocating resources to take advantage of them (for example improving competitiveness through adopting the new product or process innovations). In the later stage the opportunities presented by the innovations are exhausted and firms focus on improving efficiency and price competition (see Liebenstein's discussion of 'routine entrepreneurship' below). At each stage there

would be the need for different government policies (see Section 3), with perhaps support for innovative start-up or more general firms or commercialising basic research and supportive 'entrepreneurial culture' in the first stage. In the second phase the role of government may be to ensure universal access to new ICT infrastructure (or other physical or 'soft' infrastructure to gain access to the innovations) or to help to create markets (including the government itself) and other micro-level policies. In the final stage the role may be to ensure a stable macro-economic environment and effective market operation. In each stage the types of policies overlap but there needs to be integration between policies and policy actors, and a long-term perspective.

Kirzner's view identifies a key role for entrepreneurship as an equilibrating force by restoring markets to equilibrium through the process of price adjustment. Schumpeter conversely views entrepreneurship as a disequilibrating force that causes economic development and leads to the 'creative destruction' of capitalism where some large firms, new firms and industries destroy older ones. The innovative impact of small firms and agile large firms may be Schumpeterian (and disequilibrating), but the role of larger firms in assimilating the innovations more fully into the economy may result in temporary equilibrating pressures (until further innovations arise).

Closely related to innovation is the idea of entrepreneurship as a creative force, whereby the entrepreneur is someone who imagines and creates new opportunities or solves problems in a new way, or someone who develops a niche in the market or develops a strategy to meet some market need (GARFIELD, 1986), rather than just identifying existing opportunities. So entrepreneurship is seen as the source of change and dynamism in society and the economy and this view underlies much of the general

policy support for enterprise in society mentioned at the start of this paper. This view can also be seen as suggesting that entrepreneurship is temporary and when an entrepreneur ceases to develop new products or services or develop the organisation then they join the ranks of small business owners and managers rather than entrepreneurs (see below).

Entrepreneurship as starting-up a businesses

A second meaning of entrepreneurship concerns the event of creating new business ventures (GARTNER, 1988; SHAPERO, 1984). Here the focus is upon looking at the process of creating the organisation rather than on the individual person who originally created the organisation or the current owner or manager. This suggests that the entrepreneurial role ends once a new organisation has been created. The organisation itself may continue (perhaps to growth, maturity and decline) but the original entrepreneur takes on different roles in each stage, moving from being an innovator to being a small business owner, or senior manager of the firm if it becomes large.

This suggests that the behaviour of an individual who is a manager running an organisation will be different from that when they acted as an entrepreneur. However, this view would classify a person setting up a standard, unsuccessful website (which contained no innovative or novel products or service which is significantly different from those offered elsewhere) as an entrepreneur when perhaps they should be called a small businessperson. Conversely someone who transforms a 'sleepy' existing organisation into a global leader (e.g. Ray Kroc's transformation of McDonalds Restaurants) may not be displaying entrepreneurship under this perspective.

STOREY, 1994, suggests that most jobs linked to new firms come from only a tiny percentage of them, who often target global markets. Similarly LYNCH and ROTHCHILD, 1996, found that 1.4 million jobs had been created in the US between 1975 and 1995 by 25 firms that had not existed in 1975. Access to global markets has increased, partly due to the characteristics of and changes in ICT such as: relatively consistent international technical standards and equipment; easy worldwide access (e.g. via the world wide web); and sharply declining costs (together with other factors such as changing pricing structures for telecommunications). This creates opportunities for ICT start-ups, especially those with high growth potential due to an expanding accessible global market, as well as opportunities for other firms using ICT.

It can be argued that fast growth firms that are key to job creation in an enterprising economy, rather than the number of new start-ups *per se*. This leads to a policy quandary, as it may be more efficient and effective to concentrate support upon those few firms likely to have greatest growth potential, but it is extremely difficult for policy makers (or even venture capitalists) to identify such firms (GLANCEY and MCQUAID, 2000)¹. However, a counter argument is that a larger of new start-ups creates not just more small firms but also more fast growth ones, as the risks and firm strategies are more diverse.

Further, policies focused on business start-ups as exclusively a means to increase employment growth need not be synonymous with per capita income growth and may be counter-productive to wider economic development (BINKS and VALE, 1990,

p.19)². Indeed many developing countries have large subsistence economies with high shares of employment in small and new firms.

Entrepreneurship as an owner-manager or Small and Medium Sized Enterprise

Third, entrepreneurship has been considered as the owner-manager of a small business. So a more entrepreneurial economy is one with more self employed people or small businesses. LEIBENSTEIN, 1968, terms 'routine entrepreneurship' as "the activities involved in coordinating and carrying on a well-established, going concern ... which operates in well established and clearly defined markets" (p. 72). Similarly the OXFORD ENGLISH DICTIONARY, 1996, sets out one definition of entrepreneur as "the person in effective control of a commercial undertaking".

Certainly many of the small ICT related companies are small owner managed, particularly in the cultural sector such as print and broadcasting media (BAINES and ROBSON, 2001). However, successful ones may grow rapidly and change their management and ownership structures. So while small firms and the self employed play an important role, such as providing many jobs, this view of entrepreneurship ignores the crucial dynamism and job and wealth creation of medium and large firms and those small firms that grow to become large corporations and fails to distinguish an 'ordinary' owner-manager from one who transforms the business.

In policy documents the ideas of new, owner-manager and SMEs are not distinguished or often appear to be used interchangeably (a view reflected in a number of UK Department of Trade and Industry small business policies in the 1980s and

1990s). While OECD (1996) largely supported BIRCH's, 1979, findings that the bulk of jobs were created by SMEs, these were not necessarily new firms, the original study has been highly criticised (e.g. HARRISON, 1997; BROWN *et al.*, 1990). In the European Union, SMEs have had a significant role in job generation with firms employing between 1-200 people contributing some 3 million jobs between 1988 and 1993 (ENSR, 1994)³. However, the composition of SMEs, owner-managed businesses and start-ups is not homogeneous and varies by time, sector, demographic make-up, and location.

Entrepreneurship as a set of personal characteristics

The fourth approach to entrepreneurship commonly used in social science research is to describe entrepreneurs according to their personal characteristics or personality and the social and institutional context in which they operate (CHELL *et al.*, 1991).

Samuel Smiles in 1859 wrote about many of the most famous Victorian entrepreneurs including Josiah Wedgewood who “by his energy, skill and genius, established the [porcelain pottery] trade upon a new and solid foundation” thus providing employment and good wages to many thousands of families. According to Smiles, the key psychological traits of an entrepreneur were integrity, self-learning, courage, conscientiousness, patience, perseverance, self-discipline and self-respect.

More recent psychological and sociological approaches to entrepreneurship are useful in stressing the multi-disciplinary nature of entrepreneurship research (BYGRAVE, 1989). They concentrate upon: particular qualities or attitude (see for instance:

ROBINSON *et al.*, 1991); motivations (KURATKO *et al.*, 1997); their being a ‘great leader’ (HUGHES, 1986); or social forces (REYNOLDS, 1991).

These approaches to the characteristics of entrepreneurs have been criticised for sometimes providing long lists of traits that when taken together would result in the description of a sort of generic ‘Everyman’ (STOREY, 1994). Further criticisms are the neglect of resources (OSWALD and BLANCHFLOWER, 1998) and of demand side perspectives (THORNTON, 1999). Further, the experiences, characteristics and inter-relations of the strategic team of top managers in an organisation may be more important than those of one particular individual, even if they are in overall control. Learning is also important in how individuals respond to different circumstances, so while personality may be important, it is only one of many factors that may influence entrepreneurial behaviour.

While important, they are by themselves an inadequate explanation of entrepreneurship or of the role of entrepreneurship in the economy. However, there may be interesting questions concerning the particular sociological or psychological characteristics of those involved in ICT industries. The perception of ICT industries being dominated by technologists is inaccurate as much of the growth in employment is in the ‘so-called’ creative industries such as design (for web based advertising etc.) and business skills such as marketing and logistics (to ensure that products are efficiently delivered). Hence, there is need for greater understanding of the different psychological and social characteristics of different groups and how they interact.

The study of characteristics can be useful in helping identify important policy questions. Why are certain groups or types of people over or under represented among entrepreneurs and how is this changing in ICT industries? It has, for instance, been argued that some groups such as women or some minorities have in the past been held back by institutional forces including not being able to so easily access appropriate finance or information. More recently the number of new firms set up by women has increased dramatically, especially in the US, why? Also how do how certain characteristics, such as an entrepreneur's network of social relationships (MCQUAID, 1996) influence the manifestation and success of entrepreneurial behaviour.

Entrepreneurship as a form of behaviour

The fifth approach to entrepreneurship is to consider it as a form of behaviour, i.e. entrepreneurship should be defined according to what entrepreneurs do, rather than who they are (or their personal characteristics) or their links to new or existing firms.

Entrepreneurs behave differently from a manager or small business owner in terms of being strategically oriented and pursuing opportunities, rather than being preoccupied with and restricted to the resources they currently control. DRUCKER, 1985, argued that an entrepreneur is a person who “always searches for change, responds to it, and exploits it as an opportunity.” He continues that entrepreneurship is a form of behaviour that can be learnt through the practice of systematic innovation, which “consists in the purposeful and organised search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation” (p.49). He also argues that entrepreneurship goes beyond size, newness or

growth of business, so large existing firms can be entrepreneurial as can any part of the economy or society – e.g. in government as well as in the latest biotechnology start-up company. This suggests that entrepreneurs include those who exhibit such behaviour and systematically analyse and grasp opportunities arising from ICT developments and build upon their experiential learning.

Similarly STEVENSON and SAHLMAN, 1989, believe that “entrepreneurship is most fruitfully defined as the relentless pursuit of opportunity without regard to resources currently controlled”. As with SCHUMPETER’s, 1942, ideas on innovation the key is ‘doing’ things differently: making a new product, or re-organising how the product is made, or how the organisation itself operates. An important aspect of this view of entrepreneurship as a form of behaviour is that it may be found in not-for-profit or other organisations (‘social entrepreneurship’) or in government (‘civic entrepreneurship’) as well as in the private sector (YOUNG, 1983; NEL and MCQUAID, 2002). Hence the opportunities offered by ICT in all types of situation and organisation offer scope for increased entrepreneurship.

Each of these perspectives on entrepreneurship offers scope for different types of research. That they cover a number of different disciplines and basic assumptions may be a potential strength in helping to move towards a more ‘holistic’ view of entrepreneurship and to its relationships with ICT, which may vary across time and space. There is a danger of entrepreneurship meaning ‘everything and nothing’ but it is crucial when discussing policies that the perspective of entrepreneurship is explicitly recognised. The next section considers policies to promote entrepreneurship and how these relate to ICT.

POLICIES TO PROMOTE ENTREPRENEURSHIP AND ICT

Public policies to promote entrepreneurship can broadly be considered under those aimed at the macro-economic environment, the micro-level (supporting individual firms) and the entrepreneurial culture. The OECD (1998) argues that entrepreneurship is the result of these three dimensions working together. First, is the need for conducive framework conditions, i.e. the institutional arrangements within which economic activity takes place, particularly well working markets. While these policies are particularly important for previously state controlled economies, the macro environment within which entrepreneurship takes place is important in all economies. Second, well-designed and well-targeted government programmes can encourage and maximise the benefits of collaborative behaviour, augment the flow of information for financing and provide a flexible response to location-specific factors affecting entrepreneurship (these are termed 'micro-level' policies below). Third, helping to create supportive cultural attitudes in which entrepreneurship is esteemed and there is a high level of trust and co-operation can lead to greater entrepreneurship. Each of these overlapping sets of policies is now considered.

Macro-level policies to promote entrepreneurship

The UK government has argued that its support for entrepreneurship includes seeking to achieve low and stable low inflation, altering the taxation system and making it easier for small firms to sell their products to the government (DTI, 1998). Similarly

the European Union (EU) has argued that policies of stable exchange rates, low inflation, and a low interest rate environment with ‘sound’ public finances lead to a virtuous “crowding in” effect. This is where short-term investment and employment is encouraged due to the improved confidence of the private sector and a reduction in the risk premium and interest rates (CEC, 1998, 1999). Such policies leading to a stable environment should improve the ability of entrepreneurs to make judgemental decisions and identify opportunities with lower levels of risk and uncertainty. However, as discussed, an unstable environment also creates opportunities for entrepreneurs. Other related policies include reducing regulations, improving access to markets and seeking to create a culture that supports entrepreneurship (often through educational and other programmes) and are discussed below. Table 1 sets out the major links between perspectives on entrepreneurship and various policies.

TABLE 1 ABOUT HERE

In terms of ICT, in the autumn of 1998, the government set the target that the UK should be the best place in the world to trade electronically by 2002 although progress has been mixed. Similarly the European Commission’s “e-Europe Action Plan” sought to ensure the right conditions for flourishing e-commerce, a simplification of the business environment in order to stimulate business start-ups, and the provision of low-cost, high-speed communication infrastructures for all businesses and citizens. Additionally the UK government and the EC are seeking to ensure that governments and public administrations at all levels exploit new technologies and that most tenders for government contracts can be accessed through the internet, hence helping to create a market for both ICT based firms and other firms to utilise ICT⁴. Hence the ideas of

entrepreneurship as an economic function or as start-up businesses are again important as the new ICT infrastructure permits new innovation in products and processes and also permits new combinations of resources and other innovations. Generally the socio-psychological, behavioural and small businessperson perspectives on entrepreneurship have little direct influence on such policies.

Micro-level policies to promote entrepreneurship

Micro-economic policies and programmes are broadly those targeted at individual firms and entrepreneurs and are often developed by local and regional government and agencies (MALECKI, 1994). Such policies are implicitly or explicitly influenced by the perspectives taken upon entrepreneurship and ICT. These policies involve: advice and training; finance; technology; markets; physical infrastructure; and influencing the characteristics of the locality. Some explicitly support ICT industries while others seek to use ICT to support non-ICT firms.

Although a strong and healthy business infrastructure (in terms of the supply of private sector support services, such as accountants, financiers, patent agents etc.) is crucial for entrepreneurs, national, regional and/or local bodies commonly supplement these by providing a range of training, information and advice to assist potential or existing entrepreneurs to improve learning, to develop their business skills and to assess and take opportunities (STOREY, 2000; GLANCEY and MCQUAID, 2000). They may provide basic or advanced courses on issues such as taxation, regulations, business practices, opportunity identification, motivation and technical training, as well as business skills in areas such as bookkeeping, marketing or generating business or

product ideas, with the type and levels of support varying according to the experience of the entrepreneur (BIRLEY and WESTHEAD, 1993).

In the UK over 200 Business Links centres (Business Shops in Scotland) were set up in the mid-1990s to help small or new firms to identify and diagnose their problems or identify opportunities (DTI, 1995). Often private consultants are paid or subsidised by government to provide direct support to firms, with the aim of improving turnover, value added, employment or survival rates (DEAKINS *et al.*, 1996). They are often aimed at assisting new and small firms to develop necessary skills, identifying opportunities and assemble resources, but the 'definition' of an entrepreneur is usually a small businessperson or start-up⁵. As well as targeting support at 'creative' and ICT based businesses some regional agencies are seeking to provide their services via ICT.

A second group of policies relates to access to finance (including equity, grants and loans) for businesses. SMEs can have difficulty obtaining finance due factors such as a lack of a 'track record', lack of economies of scale which make the cost of agreeing finance for relatively small amounts extremely high, a higher perceived risk in investing in new or small firms, discrimination or limited personal capital (ENSR, 1997; STIGLITZ and WEISS, 1981; US SMALL BUSINESS ADMINISTRATION, 1996). Reflecting the perspective of entrepreneurship as an economic function, particularly of resource allocation and risk bearing, a number of policies exist to improve public and private sector finance from banks, venture capitalists, business 'angels' and public bodies. For example, in 1996 the US SBA assisted 52,700 businesses with loans, to a value of \$10.2 billion, going to small businesspeople and start-ups. 19% were to minority businesses that often in the past had difficulty

obtaining finance (reflecting the socio-psychological perspective). Similarly the European Union and others have helped part-funded venture capital funds that focus on small firms, such as their 'Joint Venture Action' programmes, often as part of a wider regional development strategy.

Third, entrepreneurship as a force for innovation is reflected in policies to support the growth of the knowledge economy and opportunities offered by new technologies, through improving access to and support for developing new technology. One set of policies has been to encourage the commercialising and disseminating research carried out in universities and government research establishments. Grants or other support to firms to develop new products or production processes have also been provided by agencies in many cases. Other policies have sought to improve technology transfer and access to information and advice on new technology, which are also influenced by the perspective of entrepreneurship pulling together resources in new ways (in the case of the network of Innovation Centres, part funded by the European Union and other bodies, it concerns pulling together resources of firms from different parts of Europe).

Fourth, product demand and access to markets is crucial for entrepreneurial firms. A number of studies have indicated that demand deficiency is the greatest hindrance to small firm growth, with SMALLBONE, 1992, finding that the most common problem facing firms after their first two-and-a-half years and the most common cause of failure was lack of demand. Many policies have been used to help firms to gain access to supply chains and to other public or private markets. These include marketing training and advice, marketing initiatives, forming joint or co-operative marketing bodies, improving means of joint bidding for large contracts, market intelligence, trade

fairs, trade directories, and 'marriage brokering' services with foreign firms (for instance, the European Information Centre network). The perspective here is to help SMEs (not necessarily owner –managers) identify opportunities.

Fifth, the lack of physical infrastructure can significantly hinder entrepreneurs. Local agencies have sought to improve access to ICT networks, such as broad bandwidth Internet, although such services and infrastructure are not evenly spread with regions, and countries such as Korea, far ahead of most others in terms of broadband access per capita (e.g. US DEPARTMENT OF COMMERCE, 1999). In some US cities, the local authorities insist that network infrastructure providers connect businesses in any part of a city, to avoid only most profitable locations being picked for connection and remote businesses being ignored⁶. Such insistence on access reflects its importance for assembling resources (including information), identifying and accessing opportunities and developing innovative products or production processes.

Similarly, in rural areas 'tele-cottages' are sometimes provided where small firms can access 'state of the art' information technology connections for an hourly or daily charge. This is a way of providing small firms who could not afford their own information technology equipment and connections to effectively share costs and have access to the latest technology. However, the characteristics of peripheral regions types of business may have limited access to key sources of knowledge (both via ICT and face-to-face) which may still leave them economically marginal. For instance, empirically, RICHARDSON and GILLESPIE, 1996, found that the major communications infrastructure investment in the Scottish Highlands and Islands

created some employment, but that this was mostly from inward investment seeking relatively skilled labour at low cost and not from indigenous firms.

The availability, flexibility, cost and letting terms of suitable premises or incubator units with access to 'up-to-date' soft- and hardware and specialist support may be a problem, especially for new firms. Several local authorities in the UK have set up specialist 'digital media' centres to provide such support. Such physical centres (or centres based upon virtual networks) have been suggested to help create some of the conditions for the development of inter-related industry links and 'clusters' of creative, design and ICT industries.

The perspective of entrepreneurship as a start-up is important in basic property infrastructure, such as Business Centres. Landlords demanding long leases may deter start-ups and prevent young growing firms (as many new ICT related firms are) moving to more efficient premises. This may be because a new firm hoping to expand will not want to sign a 25-year lease for a property that may be large enough for it in the first few years, but not after it expands. Also a long lease increases the risks for the entrepreneur in case the business closes. However, Business Centres generally offer short-term flexible leases to overcome these problems.

Sixth, local leadership, the characteristics of a local economy, its industrial structure and the 'embeddness' of ICT in the local society are important. CAMPAGNI, 1995, argues that *innovative milieux* (i.e. wide synergies among local actors which give rise to fast innovation processes) are present in lagging regions in the EU, but they are rare and present only in potential and not fully developed forms (due to lack of entrepreneurship

or ‘backward’ social environment etc.). Access to ICT infrastructure or services is not a sufficient condition for a dynamic economy, particularly if there is not a culture of support for entrepreneurship. Indirect (e.g. public procurement) policies, institutional factors and contrasting inter-firm links have all been important in the development of successful technological regions. The reasons for this are explained below.

In parts of the US, Europe and East Asia certain regions and countries appear to have an ‘entrepreneurial engine’, where there is a diversified economy with many firms at different stages of their life cycle (from birth to declining, or dying) and across a range of industries. In such areas, there appears to be a reallocation of resources such as entrepreneurial skill, skilled workers, market knowledge and networks from declining to growing firms within the same region (OECD, 1997b). This fermentation, or creation and development of ideas and firms, within the economy can help sustain it and avoid its stagnation. Here the perspectives of entrepreneurship as an economic function, particularly innovation and resource allocation seen to be important, as do start-ups in some cases.

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The OECD (1998) claims that most clusters of firms, especially large or region-wide agglomerations, have occurred spontaneously rather than as an outcome of public policy, although policy can consolidate or improve some of the benefits of existing or embryonic clusters by ensuring suitable institutional conditions. For example, this may be done by promoting the establishment of supplier associations and learning circles, and facilitating contacts among participants in the cluster. While some of these may be based around ICT or ‘high tech’ industries, the impact of ICT may be greater in terms

of improving the efficiency of firms and facilitating interaction between firms in a network or cluster, i.e. as an enabling technology rather than as a 'product' (see for example, PORTER and STERN, 1999). They can expand the geographic boundaries of the cluster and aid the creation of global 'virtual' clusters, although geographically dispersed clusters may fail to accumulate adequate social capital to continue in the long-term (MASKELL, 2001).

However, in some cases the governmental role has been 'unintended' or not explicit (see PREVEZER, 1998, on differences between clusters in the USA and UK). These include defence spending supporting the development of the basic physical and human capital and other infrastructure an area (such as the M4 corridor in the UK, HALL *et al.*, 1987; or Silicon Valley, SAXENIEN, 1994), or the presence of government regulatory or research agencies located near Washington DC indirectly aiding the development of biotechnology firms there. Here again entrepreneurship is seen mainly as involving innovation, but also the functions of allocating resources and accessing opportunities (in the form of government contracts) are important.

A relatively high density of related firms (in terms of both sector and usage of ICT) and population may also aid growth and development through agglomeration economies, although ICT may create new linkages between formerly unrelated sectors. However, this may give certain entrepreneurs a competitive advantage and lead to widening disparities between regions, such as urban and rural areas and between groups (the 'digital divide') (US DEPARTMENT OF COMMERCE, 1999).

In geographical terms, a crucial constraint on many entrepreneurs is the ability to attract and retain skilled, well-educated and experienced labour, with good education and retraining facilities and adequate access to ICT infrastructure (FLORIDA, 2000), which clusters may help to promote through the creation of agglomeration economies.

Entrepreneurial culture

Finally, as discussed earlier various bodies have stressed the need to develop an entrepreneurial culture (e.g., CEC, 1998). As regions are increasingly interdependent and integrated they have become focal points for economic, technological, political and social organisation as the nation state is squeezed between accelerating globalisation and rising regional economic organisation (FLORIDA, 1995). He argues that there is likely to be an associated shift from emphasising national competitiveness to ones that revolve around the concepts of economic and environmentally sustainable advantage at the regional as well as at the national, or global, scale.

To respond effectively to such changes an entrepreneurial culture in term of greater entrepreneurial behaviour is required, i.e. one that supports the searching for change, responding to it, and exploits it as an opportunity. In such a culture such behaviour can be learnt through the practice of systematic innovation, education and role models. More generally, an entrepreneurial culture in terms of behaviour, such as team working, adaptability, presentation skills etc. and a more positive attitude towards taking opportunities should improve entrepreneurship, and such entrepreneurship policies have been introduced explicitly in some places within schools, colleges and

universities. However, it is essential that there are also adequate entrepreneurial firms to take up the opportunities available.

An entrepreneurial culture need not restricted be to private firms and individuals, but involves social and 'civic' entrepreneurship (GLANCEY and MCQUAID, 2000). This should increase the efficiency and effectiveness of government and of inter-agency linkages, as well as providing easier access to government services and the government as a market to local firms, as discussed earlier.

SUMMARY and CONCLUSIONS

While the promotion of entrepreneurship has become major policy issues for government at all levels, the term has been used inconsistently. Five main overlapping perspectives upon entrepreneurship were considered: a particular function in the economy (such as innovation, risk-taking or allocation of resources); a new business start-up; an owner-manager or SME; a set of personal or socio-psychological characteristics and; a form of behaviour. Each of these perspectives offers scope for different types of theoretical and empirical research. Many policies explicitly aimed at entrepreneurship seem to focus on the owner-manager/SME perspective. Other perspectives are generally more useful when considering growing businesses and the links between ICT and entrepreneurship and appropriate policies to promote them. However, by covering number of different disciplines and basic assumptions, when taken together the different perspectives together help us to move towards a more 'holistic' view of entrepreneurship and its relation with ICT.

Different stages of the entrepreneurial process can be linked predominantly to different perspectives of entrepreneurship. The catalytic Schumpeterian event is linked predominantly, but not exclusively, to entrepreneurship as both an innovative function and a form of behaviour and to the start-up event. The next stage embraces the entrepreneurial activities of identifying resulting opportunities, deciding on actions and allocating resources to take advantage of them (linked particularly to the function of opportunity identification, decision making and resource allocation, as well as entrepreneurial behaviour). In the later stage the opportunities presented by the innovations are exhausted and firms focus on improving efficiency (predominantly owner-managers and 'routine entrepreneurship', but also linked to larger firms). At each stage the socio-psychological perspective may be apparent (e.g. what are the characteristics of those starting-up in the first phase).

Different policies to directly support entrepreneurs can be broadly associated with each stage and with the different perspectives, although there is great overlap between them all. Support for innovative individuals or firms or commercialising basic research and supportive 'entrepreneurial culture' may be broadly related to the first stage. In the second phase the role of government may be to ensure universal access to new ICT infrastructure (or other physical or 'soft' infrastructure to gain access to the innovations) or to help to create markets (including the government itself) and other micro-level policies. In the final stage the role may be to ensure a stable macro-economic environment and effective market operation. There needs to integrate policies and policy actors, to take a long-term perspective and to develop trust between the various actors. However, it remains unclear as to what policies are likely to be

most effective in bringing the benefits, and reducing the costs, of the rapidly changing ICT and knowledge industry developments.

Acknowledgements

The author would like to thank two anonymous referees for their very helpful comments and ideas. All errors remain those of the author.

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Table 1 – Links between perspectives on entrepreneurship and policies

Policy

<i>Perspective on Entrepreneurship</i>	Macro-level	Advice, information	Finance	Innovation	Marketing	Physical infrastructure	Regional characteristics	Culture
Function in the Economy								
<i>resource allocation</i>	+++	++	+++	+	+	+++	+++	+
<i>risk</i>	+++	+	+++	+		+	+	+++
<i>opportunities</i>	++	+	+	+	+	+++	++	+++
<i>innovation</i>	+++	+	+	+++	+++	+++	+++	+++
Start-ups	+++	+++	++	+	+	+++	+	+++
Owner-managers	+	+++	++		+		+	+
Socio-psychological		++	++	+			+	+++
Behaviour	+	++	+	+	+	+	+	+++

+++ - relatively major influence on policy

+ - relatively minor influence on policy

¹ Hence some eligibility criteria for policy support (such as high turnover and employment growth rates in the previous year or two) can be used to sieve out firms less likely to grow quickly, although this is of limited use in identifying new firms. Also others argue that it is not possible to ‘pick winners’ and so policies should be aimed at encouraging a large number of start-ups, of whom some will be fast growth (e.g. SCOTTISH ENTERPRISE, 1993), although the success of the Scottish Enterprise Business Birth Rate Strategy has been at best limited (DOW and KIRK, 2000) and the policy is changing.

² This can be seen as part of the wider economic development debate upon whether regional development policies should focus upon job creation or upon the competitiveness of firms and regional economies and the interaction between the public and private sectors (e.g. PORTER and STERN, 1999; DTI, 1998; ROPER, 1998).

³ DAVIS *et al.*, 1996, argued that while small firms (with under 20 employees) create a disproportionate share of gross new jobs in the USA, they also lose a disproportionate number due to their high closure and shrinkage rates, so their net contribution is sometimes lower than that of other types of firms.

⁴ However, the courts and legal system may also be significant in influencing the use of the internet and ICT (as illustrated in the differing interpretations in the US and UK concerning the responsibility for liability on the world wide web).

⁵ In some cases a more socio-psychological approach is taken whereby specific groups (e.g. women or ethnic minorities) are targeted for support, while in others the training will involve acquiring entrepreneurial skills, so including the idea of entrepreneurship as a form of behaviour.

⁶ As well as the availability of physical ICT infrastructure, the structure of pricing and cost levels of using telecommunication systems may influence the rate and level of adoption of the internet and e-commerce.