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Mini Study 01 – Gazelles

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1 Introduction

The purpose of this mini-study is to serve as input for an INNO-Views workshop on gazelles, which will take place in April 2007. This mini-study will set the scene for the first part of the workshop, which will focus on the role and importance of gazelles for innovation and competitiveness and the question of how to stimulate their development further. This document is presented in a 'questions and answers' format in order to emphasise key issues in recent debate on policy and to offer a clear and concise introduction to this important and contemporary issue for innovation policy.

This document has five main sections.

- Firstly, we briefly introduce the concept of gazelle and discuss its economic importance and its context within the current European Union priorities in economic policy.

- Secondly, we focus on the issue of definitions and what makes a firm a gazelle, examining such questions as how easy it is to define them and why certain definitions are used. Understanding what gazelles are is a key issue if appropriate action to support them is to be provided.

- Thirdly we look specifically at the economic role and significance of gazelles and the contribution which they make to key EU policy goals of competitiveness, innovation, employment and growth.

- Fourthly, we look at the best way of supporting gazelles and their role in the economic process. Here we look at the key issues of support: why we should support them, the rationales, how we decide which firms should be supported, including drivers and barriers for their development, and try to take the perspective of gazelles to understand better what is most likely to support them in their development. Our aim with this section is to understand what gazelles and their representative organisations want and need to help them achieve their objectives.

- Finally, we provide a bibliography in two parts: a set of key references on gazelles which we have cited in the text; and a full extended set of references that we have also consulted in the course of writing this mini-study. Together, these two lists of references comprise the entry to our main database of material in the Inno-Grips Project.

2 Gazelles in the Innovation Context

Why is there interest in policy for small firms and gazelles in particular?

Those studying the economy and implementing economic policy have, over the course of the last three decades, taken an increasing interest in innovation, growth and the factors that influence it. This increasing level of interest has come, to a significant extent, from observing the birth and rapid growth of many firms and the creation and transformation of whole economic sectors by these firms. Almost overnight, a new generation of firms has emerged to establish industries that have attained a size and level of dominance that was wholly unexpected. In the US, some of the most successful firms in terms of growth, profitability, innovation, competitiveness and employment are new firms which 30 years ago were simply small scale SMEs that needed support from government to develop their ideas and products.

The outstanding success of a number of these firms, which include Apple Computer, Chiron, Compaq and Intel (Audretsch et al 2002), has created the expectation that by supporting SMEs, governments can, to some extent, take control of their economic destiny. The opportunities for profit from investing in small firms that subsequently experience high growth rates have also been of interest to venture capitalists. They have also attempted to understand the conditions for growth and success of small firms with the ultimate aim of deciding in which firms to invest. Both policy makers and venture capitalists have developed a range classifications and techniques for small firms in order to guide their respective activities.

To support this process of growth and emergence, policy makers have created differentiated methods of support across the economy comprising a broad policy mix of measures (taxation; grants, awards and competitions; monetary policy; regulatory approaches including regulation of the labour market; training; information, dissemination and networking or restructuring approaches; access to facilities). Many of the policies which have been designed and implemented have been aimed at supporting new firms that have the potential of significant growth.

The attempt to support the growth of small firms has been a noticeable feature of economic policies in most major economies of the developed and developing worlds. In the United States, the Small Business Innovation Research (SBIR) Programme was created in 1982 with the specific purpose of reducing the decline in the competitiveness of US firms and in a number of other countries, major initiatives focusing on small firms are being implemented, for example in the UK where a Small Business Innovation Research Initiative working through preferential procurement for smaller firms has just begun to operate. In the US, the amount of financing available for smaller firms is around 4% of the annual budget of each of the main US federal agencies, and this significant amount, according to Audretsch et al (2002), is around 60% of all government

funding to SMEs in the US and around two thirds the size of amount of private venture capital available to the sector.

Is there a place for support of gazelles in current EU policy framework?

The European Union's Lisbon Agenda defines goals for economic growth, employment, enterprise and productivity and provides the main overall policy context, including that for SMEs. In addition, the Competitiveness and Innovation Framework Programme (CIP) for 2007-2013 (CEC, 2005) seeks to support growth with a focus on SMES, but this initiative has only just started to operate.

Under the relaunched agenda of March 2005, Member States are seeking to achieve more in the area of sustainable long-term growth and high levels of employment (the UK for example has a 80% target rate for employment) through their own national reform programmes. Despite the renewal of the Lisbon Agenda, concerns appear to remain about how well the needs of the fast growing firms are articulated within this, whether there is sufficient action to support them, and indeed how much growth can be expected and the role played by gazelles. There is as yet little that can be concluded about the impact of the CIP on fast growing firms, but concerns are likely to remain about small firms, and particularly those in the process of rapid growth, not being able to access support measures with the ease and at the level they require.

Is the support of high growth firms a particular problem for policy makers?

Yes, high growth firms (of which the most well known and discussed examples are gazelles) present a significant challenge to policy makers. The reason for this is that gazelles reflect a dynamic process of growth, and, as we note later, those firms which at any one time are gazelles are in a constant state of change. The dynamic character of gazelles therefore suggests very strongly that static policies (aimed at all firms in the SME sector, treating them the same, whether they are growing or not) will not work to facilitate growth for firms which start to grow and which continue to grow quickly.

In fact, such policies may put a break on growth, particularly on the fastest growing and most successful firms, because they fail to address the issue of growth. That is, as most SMEs remain relatively small, and because policies have been designed to work for the majority of firms and not necessarily for the benefit of the fastest growing, the current approach may not make the significant contribution to the economy that could be achieved.

Why may it seem paradoxical to support gazelles?

Defining a gazelle firm is not an easy process, as we discuss in the next section; but gazelles are seen as the most successful of the small firms, growing more than most, and with greater potential than other firms in the SME sector to grow more. If this is the case, why should these firms be supported, if after all they are successes?

In most frameworks of policy action, support to firms is justified where a problem of some kind can be seen to be present, such as low investment, low skill levels, failure of information in the form of barriers or even market failures. But gazelles are, by definition, albeit an *ex post* definition, successful; handling the risk that growth and expansion bring far better than other firms. Why then should they be offered *more* help than the other firms when they would appear to need *less*? The answer to this is there is a policy justification for supporting gazelles. The broader social benefits they generate for the economy as a whole can be significant in terms of jobs and earnings. Furthermore, the market failures from risk which arise when gazelles are considering investment may be just as significant for them as for other small and slower growing firms, precisely because gazelles engage in higher risk activities. Knowing exactly when to support gazelles (either directly, or in terms of the environment and context in which they operate) is not easy because there is the scope for much waste of public money and resources.

What evidence surrounds the issue of firm growth and firm size?

It was once held, after work by Gibrat (1931) which is well summarised and reviewed by Sutton (1997), that firm growth rates were independent of the size of firms. So a large firm was just as likely to grow by a specified amount as a small firm. But work by Birch (1979; 1987) on small firms with fewer than 20 employees has led to a change in our views about where growth occurs, by showing that there might be more growth in smaller firms than in larger firms. While Birch's work has been criticised for being more likely to detect gross job creation rather than net job creation, the general conclusion that small firms do grow more quickly than larger ones is now accepted with many studies building on this earlier work. Observation of certain sectors of the economy also suggests that growth rates are not a random process unconnected with firm size. The rise of large retailers in the last two decades suggests that growth is indeed related to sectors over the medium term, although perhaps in the long term such differences might not be visible.

Do all small firms grow more quickly, or is it just some of them?

While there is evidence that smaller firms do, on average, grow more quickly and that past growth is related to current growth rates in firms (Parker et al, 2005), we should not lose sight of the fact that amongst the entire set of small firms, there is only a small minority where real growth of employment actually occurs. So significant growth in employment, at least amongst small firms,

takes place in only a small number. Later, in section 4, we look at the actual number of jobs which they add.

- **Do small firms grow far more quickly and to a larger size in different countries / business systems than in others?**

The evidence is that they do, but there remain some controversies about what contribution this growth makes to the economy as a whole and whether this is a good generalisation. Evidence from the US shows just how quickly – even dramatically – this kind of growth of small firms can be. Just four firms, (Microsoft, Dell, MCI and Cisco systems), which had only been in business for less than twenty years had a combined market valuation of 13% of US GVA in 1999, according to Jovanovic (2001). A major concern for European policy makers, however, is that this level of growth looks unlikely inside the European Union. A challenge European policy makers may set themselves is to create conditions where this kind of growth of firms can take place.

-- Innovation Context: Further Issues Raised --

- *Are the needs of gazelle firms sufficiently recognised by the existing innovation policy mix and the Lisbon Agenda?*
- *How do society and cultural values affect views of entrepreneurship and the patterns of firm growth?*
- *Do broader economic changes make a difference to gazelles? e.g. changes in security, in lifestyles, in changing tastes, associated with economic growth?*

3 What are Gazelles? Issues of definition

What are the main characteristics of gazelle firms?

As noted above, the focus on high growth SMEs came from the realisation that only a small number of SMEs were likely to grow to any significant size. The work which first made this finding explicit was by Birch (1979; 1987) who looked at very small firms which had fewer than 20 employees. His work has eventually led to the coining of the term 'gazelle'. Thus, the main characteristics of gazelles are that they are small firms and that they grow quickly. Birch's work has been the stimulus to lots of work on small firms, asking such questions as: who they are, who owns them, how much do they grow and how many of them grow?

What criteria can be used to label a firm 'a gazelle'?

There are two principal criteria which are in general use for defining a firm as a gazelle, although there is some discussion about other factors too. Both must apply to the firm in question, before it can be called a gazelle. The first is that the firm is small. The second is that the firm has a record of high growth. The Europe Innova Working Paper (Holzl, 2006) also proposes a criterion of age, i.e. how long the firm has been in business. But this criterion is an innovation in the study of gazelles and no policy has yet been based on it.

When policy makers, venture capitalists and academic researchers define a firm as a gazelle, they need precise definitions and not vague generalisations. It is when one tries to be precise that differences arise in which criteria are used, and how they are applied. This leads to a need to define size and growth carefully, and to consider other aspects of the firm, including age. As Autio et al (2000) have observed, wide differences exist between different governments in how a gazelle is defined. For example, in France, the current definition of threshold growth for an SME differs significantly to that used in the UK. The challenge for policy makers is to know what they wish to achieve. The next few questions look at what scope we have to achieve better definitions of gazelles.

How can the criterion of size be defined in practice?

In practice, the criterion of size that is used is that a gazelle is an SME, but we should note that studies of small firms use varying categorisations, so the evidence base for policy and investment is heterogeneous. In the threefold SME definition of the EU (European Commission, 2002), SMEs are split into three categories according to size band and either their annual turnover or their annual balance sheet total.

How can the criterion of growth be defined in practice?

The growth of firms can be measured in a number of ways. For example, one can measure the growth in the number of people who work for the firm (employment) or in terms of the quantity of sales a firm has, or indeed in terms of the net assets of the company. It could be measured in terms of a combination of all three, although no one has done this as yet with gazelles. Depending upon what you measure, (Heshmati, 2001) you may obtain very different results and conclusions.

The need to settle on a single measure that allows for comparison between countries has resulted in a preference for defining the criterion of firm size by employment. This preference, because the definition works better than the others across countries, is fortunate in that much of the interest in gazelles, from the point of view of policy makers, is in employment and employment growth.

However, employment growth can occur in two ways, and it is important to distinguish between them. Firstly, firms may grow because they are growing internally within themselves, that is 'organic growth'. Secondly, firms may grow by taking over other firms. In the latter case, overall growth in employment does not occur, assuming that in the first case, the growth of one firm does not negatively affect other firms by, for example, putting them out of business.

The measurement of the rate of growth can be carried out in a number of ways. Three methods are generally proposed: it can be based on the proportional growth; the absolute growth and, using a method that combines absolute and proportional elements. This third method was the one employed by Birch (1981, 1987) by Schreyer (2000), is used by Europe's 500 and recommended by Holzl (2006) in the approach of the Europe Innova network. This growth measure is known as '*m'.* Any method of assessing growth will not though create a list of gazelles; it just creates a ranked list of firms. Other criteria must then be used to decide which firms to define as gazelles. This is where national differences can be seen in how procedures are used.

How does one select gazelles from the ranked list?

Once one has a list of SMEs in ranked order, one must decide either to select on an absolute basis, i.e. to choose firms from the list that have a growth factor of more than a certain threshold level or to select on an relative basis, for example to choose firms that are in the top 5%. Additionally, one could also choose to select a certain arbitrary number in order to ensure that one had a sample of sufficient firms for analysis purposes and hypothesis testing. This would be done using criteria of what was required to achieve statistical significance in the work one was proposing the carry out.

What other factors might one use to define a gazelle?

Not surprisingly, some people do not think that the two criteria noted above are sufficient. A further view is that those small fast growing firms which meet the two gazelle criteria we have referred to so far should also have plans for further growth if they are to be considered as 'true gazelles'. This view is taken because size and growth are not necessarily the only indicators that can be used to define a set of firms that will respond well to the stimulus of policy or investment support. As we know from the work of Parker et al (2005), the quality of management and management strategy of a small firm can have a significant impact upon the firm's future performance. Supporting firms which are simply small, and which have a track record of growth may use government resources inefficiently.

Is there a preferred scheme for labelling firms as gazelles?

Not really. Lots of different groups use their own specifications, and the reason they do this is that their aims for policy may vary, as do the contexts (the country settings) in which they work. In fact what we have noted is that there is a lot of variety amongst small firms and a number of possible alternative classifications are viable which emphasise different aspects of growth. These different aspects can depend upon the priorities of policy makers and investors.

Why is our knowledge of gazelle firms uncertain?

There are a number of reasons for this. Firstly, we don't know as much about very small firms as we would like. Because they are small, they are often unnoticed and those who collect data about them often do not concern themselves with the very smallest firms; the so-called micro firms which have fewer than 10 employees. As Autio et al (2000) also note, there are a number of other problems which make it difficult to identify and then to track small firms and their rates of growth. For example, firms may change their registered name; they may change the kind of activity they carry out; they may change their location and their owners may change. They may also cease to trade for some time, perhaps failing to file accounts, and then resume business. To make matters worse, they may do more than one of these things, which may make it even harder for them to be identified and tracked. Some of these behaviours are more likely amongst smaller firms, making the job of identifying gazelle firms harder than keeping track of larger firms. So there can be a systematic bias for small firms not to be included in samples of data. Also, gazelles are dynamic: they grow quickly. And because they grow quickly they are only gazelles for a short period.

Are gazelles only found in certain sectors?

Gazelles can be found in many economic sectors. There are gazelles in sectors such as textiles, which are generally declining, as well as in sectors where there is likely to be considerable economic growth, such as biotechnology and

computing. The extent to which gazelles are spread out across economic sectors can lead policy makers into error. As Buss notes, "policy makers chase high-tech firms as a priority when other sectors might pose better opportunities" (Buss, 2002; p.18). Autio et al (2000) draw our attention to Finland, where although there has been spectacular growth in the high technology sector with Nokia's success, there are surprisingly very few high technology gazelles; most are in trade or service companies. When Autio et al compared the actual number of gazelles in various sectors with the number of gazelles they expected to see in those sectors, they found a lower representation than expected in "Other Service Activities", "Health Services" and "Retail Trade in non-specialized stores", "Real estate agencies; management of real estate" (Autio et al, 2000).

The wide distribution of gazelle firms across sectors and the lack of a link between high technology sectors and growth is also true in other parts of the world. In South Korea, high growth firms are not found exclusively in the high technology sectors (Cho, 2006; Hill, 2005) and, as Cho (2006) has noted, the preponderance of high growth firms is in fact within the lower technology sectors.

Are there any sectors where gazelles are not found?

The study by Autio et al on Finland (Autio, 2000) reports that in the following industries there were no gazelle firms: advertising, framing, repairs, publishing, printing and reproducing of recorded media. But in other countries, these industries could have gazelles. The message conveyed from the literature is that differences between countries are common.

Do we need to know more about gazelles?

Yes, our understanding of this kind of firm is limited, both at the policy level and more widely. As Buss (2002; p.18) indicates, the phenomena of "emerging high growth firms [has] been virtually ignored in the professional scientific literature". He gives five reasons: the issue is relatively new for many researchers and policy makers; there are problems of definition, conceptual and practical; much of the data on high-growth firms is proprietary, being held "in the hands of private investment companies, not readily shared because of their value to investors" Buss (ibid.); existing databases, being very small, lead to conclusions which are often inadequate; and there is confusion in the terminology which is used to refer to emerging high growth firms, and lots of different distinctions are made with a number of other species and sub-species of 'gazelle firms' being noted.

Do <u>all</u> gazelles continue to grow?

The answer to this is no. Some gazelles continue to grow to become larger firms. These are the success stories. But other gazelle firms grow for a while and then go into a decline, becoming what we might call ordinary SMEs again,

and of course, some of these firms will then fail altogether, disappearing from view. While we know from the work of Parker et al (2005) that the growth rate of a small firm in one year is positively related to the growth rate in the following year, eventually, most fast growing small firms will experience a reduction in their growth rate. It is only a small number of these fast growing firms that achieve long term, high levels of growth. However, it is difficult to ascertain how many gazelles become really big and successful.

What might help firms continue to grow?

Parker et al (2005) have suggested, on the basis of their research on "dynamic management strategy", that there are certain factors which can explain why some of these gazelle firms continue to grow and why some do not. Their research suggests that successful gazelles – ones that continue to grow beyond an early phase of fast growth – have certain characteristics and a key feature of the approach of these firms is that they adapt to the challenges they face as they grow. What this means is that as gazelles grow, there is no point in holding on to their previous strategy for growth – they must change their strategy, perhaps even continuously. This work has been supported to some extent by work by Sims and O'Regan (2006) which has identified 'agility' as a key survival and success characteristic of gazelles.

What is there to learn from reviewing the Japanese and Korean experience?

The experience from Japan and South Korea reflects much about what our research from the EU and the US tell us about the importance of small high growth firms to a national economy. However, a number of differences can be observed, for example in how firms are financed, with firms from Asia often having access through extended family connections to resources which can facilitate expansion of the firm. It is also noticeable that in the case of South Korea, the number of SMEs which are definable as 'high growth' has fallen over the last decade, a decline which may have generated concerns amongst policy makers in that country. General economic instability from currency movements may be to blame, but it may also be the case that many of these businesses are increasingly losing out to Chinese firms. At present there is no strong evidence of what has led to this trend, but if it proves to be the case that the dynamic growth firms in one area can quickly lose out to firms in another economic area, it will be of great interest to policy makers.

-- Definitions: Further Issues Raised --

- *Is there a need for a standard set of definitions?*
- *What would be accomplished by such a set of definitions if policy continues to be made on a local / regional basis?*
- *What existing definitions are most useful?*

4 Assessing the Economic Importance – Contributing to Innovation and Competitiveness

What is the economic importance of gazelles for innovation? How many start-ups are innovative and fast growing?

Employment generation abilities are usually the focus of attention when assessing the economic importance of gazelles; however, this is not their most important contribution to the generation of wealth and economic growth. In fact it is their role as innovators which mostly gives gazelles their economic relevance, and places them at the centre of public policy decisions (Europe INNOVA, 2006a).

Gazelles consistently outperform the industry average as a result of their distinctive role as innovators. They are entrepreneurial in a Schumpeterian sense, i.e. they are the expression of the dynamic nature of entrepreneurial capitalism, in which competition is dynamic, based not on prices but on product differentiation and on doing things in a novel and different way (Nelson and Winter, 1982). Indeed, Joseph Schumpeter was one of the earliest economists to argue that entrepreneurs were one of the key mechanisms of wealth creation and redistribution for a capitalistic society. Creative entrepreneurs - by bringing innovations to the market - "creatively" destroy existing markets, redistribute existing wealth, and create new products, processes and services (Metcalfe, 1998).

Should we see gazelles as dynamic?

In a sense, our definition of gazelles as 'high growth firms' already attributes dynamism to them; but they are dynamic and changing entities in another sense, deriving from the 'competence and resource-based' views of the firm that make a fundamental departure from the mainstream neoclassical vision of competition as a static concept in which industry is formed by homogenous 'representative' firms competing merely in terms of price. This idea of dynamic competition is in line with the competence and resource-based views of the firm - within the management and organisational literature- and to evolutionary approaches to the firm in economics.[1] In this perspective, the competitive advantage and economic performance of gazelles arises from their firm-specific and idiosyncratic dynamic capabilities: such as their capability of delivering products quickly, their flexibility to adapt to anticipated changes, their ability to provide high performance products and apply updated technology, and their capability of mastering financial management (Bares et al, 2006). These dynamic capabilities, which allow the efficient use of knowledge and technology, are what assure the rapid growth that characterises gazelles.

[1] See among many others Nelson and Winter (1982); Dosi and Marengo (1994); Langlois and Robertson (1995), and Teece et al (1997).

Does all growth in gazelles come from new products and technologies?

It should be emphasised that innovation as a critical source of entrepreneurial economic rents does not only rely on the introduction of new products, markets and technologies but also on new types of organisational arrangements (Nelson and Winter, 1982). With regard to gazelles, in particular, innovation is understood in a broad sense i.e. managerial, organisational and technological. For instance, Bares et al (2006) in their study of high growth business in the Lorraine region in France argue that innovation in gazelles is more remarkable in the new applications of resources and in new organisational structures than in the generation of new technologies. According to their results, the high growth of gazelles in the region is mainly associated with the new applications of resources and organisational processes than in the generation of new technologies. In addition, they argue that, since the development of radical innovations requires great resources, very often high-growth small businesses do not have enough resources to invest in radical changes in their products or processes, and thus develop mostly incremental (rather than radical) innovations.

In addition, and contrary to popular perception, only around one-third of gazelles are 'high-tech' companies (OECD, 1998). Fast-growing firms whose success comes from innovative approaches to marketing, organisation or distribution can be found across a wide range of activities (for example, Wal-Mart, Starbucks, Office Depot, or Amazon Bookstore). Franchising has also provided a way for firms to grow quickly and exploit good ideas, while sharing the risks and reducing the capital the firm would otherwise require in financing expansion (OECD, 1998; p. 248).

Do gazelles have a role in creating new markets?

Yes, they do. Gazelles are also very often responsible for the creation of new markets and industries (Federal Express and UPS, the frozen potato industry, the personal computer and software industries constitute typical examples). They also quite frequently enter existing markets with a significant innovation (either technological or organisational) which provides them with a key competitive advantage and enables them to compete on a basis other than price, thereby creating value for the firm and attracting the resources necessary to fuel growth (Slaughter, 1996; Revenga, 2006).

In general gazelles are quick in detecting and exploring new market opportunities, improving their productivity and efficiency in a continuous manner. Since they are adaptable to changes in their environment once a market opportunity is detected they have the organisational capacity to explore it and reduce the time necessary between its detection and exploitation. Successful gazelles know that opportunities are found where discontinuities exist in the marketplace or where they can create a product that is different from all other products. Taking advantage of these

opportunities allows them to impact both supply and demand - and therefore prices – and gives them their unique role in the generation of wealth creation and growth.

How many new jobs are created by them?

Gazelles create welfare and contribute to economic growth not only by introducing innovations but also through the creation of new and sustainable jobs. A great deal of empirical evidence both in Europe and the U.S. supports the idea that small businesses are significant drivers of employment expansion in the economy (Hölzl 2006; Autio, 2003; Audretsch, 2003). Works by Birch (1981, 1987) in the USA; Westhead and Cowling (1995), and Konings (1995) in the UK; Autio and Yli-Renko (1998) in Finland, Heshmati (2001) in Sweden, GrowthPlus (2002) – study of Europe's 500 Fastest Growing Companies - constitute some examples that illustrate the robustness of the empirical evidence demonstrating the significant role that small businesses have in employment generation in relation to large firms.

The small business job creation thesis or the relationship between employer size and job generation can be traced to David Birch (1987), who emphasised the disproportionate contribution of small businesses to the creation of jobs. Ever since Birch's work, the job-creating process of small businesses has been a polemic issue, the controversy of which hinges on a methodological issue. Results from different methodologies and more recent work by Birch and other authors[2] show that it is the small number of fast growing firms i.e. gazelles, that accounts for the considerable amount of employment gains in the economy. These studies provide both theoretical arguments and empirical evidence that support the idea that, in general, it is not the case that any small firm generates more employment than larger firms, but it is the small firms that exhibit fast and large growth (i.e. gazelles) which pull the average up in the economy. Thus, it is not the number but the quality of those firms producing spectacular growth that is relevant for employment generation.

The main idea put forward by these studies is that job creation is a consequence of the entrepreneurial ability and creativity of gazelles in making a new idea succeed in the market place. For instance, according to the Hölzl (2006) study, fast growing firms affect productivity and employment almost by definition. The employment generation of gazelle firms however, does not necessary imply that more jobs are created within the industry in which the gazelle operates. Jobs may simply be reallocated from declining firms towards gazelles without any aggregate (industry) effect. For instance, according to Slaughter (1996), it is not clear whether the rise in job creation among new, smaller, fast-growing firms is caused by the decline in major company employment. His work, however, shows that growth among these firms, without a corresponding reduction in large firms' level of employment, would not be possible without significant labour shortages and the resulting

[2] For a discussion of methodological issues and the results from more recent studies see Slaughter (1996); Davis, Haltiwanger, and Schuh (1996a); Birch and Haggerty (1997); OECD (1998); Kirchhoff and Greene (1998); Davidsson et al (1998); Schreyer (2000); Audretsch (2003) and Hölzl (2006).

inflationary pressures. Since unemployment levels in 1995 are roughly equivalent to those of 1970 (5.5 % vs. 4.9 %) with an entirely different pattern of employment, a 30% increase in population and a 65% increase in non farm jobs, it is clear that it is fast-growing firms which are responsible for the job creation in that period (Slaughter, 1996; p. 6).

Does work by the OECD support this view?

The work by the OECD (1998) supports the same argument. This work summarises the evidence for eight OECD countries, showing the contribution to net employment change of businesses classified according to size category at start or end dates for the period 1984-1992. In all the countries covered by the study, small businesses exhibited much quicker net employment growth compared with larger ones. In fact, they accounted for most of the net employment growth over the period and their performance was extraordinary in comparison to firms of other sizes. According to this study, it is not possible to draw definite conclusions on whether the small firm sector is indeed responsible for a disproportionate share of net job creation. What is clear, however, is that the bulk of new jobs created are in a small number of fast growth firms which can be found both in the large and small firm sectors. In the United States, these fast growing firms, account for only 3 per cent of all firms but are responsible for 70 per cent of gross job growth (Birch and Haggerty, 1997). The study also shows that the same holds true for the United Kingdom and Australia, where it is estimated that about 5 to 20 per cent of firms are responsible for as much as 70 to 80 per cent of gross job creation (Hall, 1995).

In which economic environment do gazelles flourish best?

The economic environment in which gazelles operate is a fundamental determinant for their economic performance and high growth. Bares et al (2006) analyse the type of links or relationships between gazelles and their environment that foster their rapid growth. According to this work, 'territory' or economic environment can be defined as the broad set of specific environmental variables or factors that affect gazelle activity. These are economic stability and growth, legal systems, cost of production factors or marketing, level of specialised research and educational institutions, the protection of intellectual property rights, tax burdens, and the shared values in the society and cognitive programs that affect the way people notice, categorise, and interpret stimuli from their environment (Bares et al, 2006; p.13).

In this context, the environment is not a passive placement of strategies and actors but is formed by the changing characteristic of its specific participants and their dynamic interactions. These interactions create a socio-economic space in which institutional and economic structures are articulated and regulated. This space of integration in which business transactions take place possesses its own characteristics, and it is of crucial importance for the high growth of gazelles businesses (Bares et al. 2006). It constitutes the support space that includes the social, cultural, economic, organisational and

geographical boundaries that they face and all the interactions the businesses hold. These are qualified or privileged interactions regarding the organisation of production factors; the strategic relationships between the firm, its partners, suppliers and clients; and the relations with political and financial agents belonging to the environment.

In particular, the results of this study indicate that successful gazelles are characterised by a clear *differentiation strategy* which privileges their customers' needs, and by a *'smart' use of the resources available in their environment*, in particular those that allow them both the reduction of risk and uncertainty, and the generation and dissemination of knowledge and innovation.

Based on a revision of the relevant literature, Bares et al (2006) highlight the importance of close contact with customers, and a commitment to quality of product and/or service in order to achieve a competitive advantage. Firms with high growth are better informed about their markets and their competitors since their entrepreneurs deeply understand their products and customer needs. Such knowledge is not static but is constantly renewed through learning by interaction and feedback. The development of strong connections with their customers allows gazelles to be more responsive to customer requirements, and more prepared to adapt to a changing environment, acting proactively to meet customer needs by the introduction of adequate changes in products and services. According to the authors, the development of tight connections with customers facilitates organisational high growth, particularly in the case of business-to business relationships.

What is the importance of proximity to clusters?

As indicated, the environment constitutes a space supporting the reduction of risk and uncertainty and the generation and dissemination of innovation. Thus small businesses will have more opportunities to increase growth in an environment that fosters the development of resources, and nurtures an interaction space for their operation and innovation activities.

In this sense, clusters play a key role in driving innovation and growth. They provide new firms with an ideal breeding ground, by offering them the proximity to other companies, investors, educational institutions and research centres. According to Hölzl (2006) while the existence of networks and clusters are highly significant for decentralised innovation systems, their importance to gazelle policy is less clear. They argue that

> the integration into vertical networks, i.e. into supply chains, is of central importance for gazelles, so that they do not experience delays in their expansion phase. However, the implication of a firm's integration into horizontal clusters – that is, networks of firms producing goods with similar characteristics – is less clear cut. Available research suggests that the survival rate of such cluster firms is higher, and that at the same time growth potentials are exploited by both the individual firms and the cluster as a whole (p.30).

What is the importance of venture capital and proximity to business angels?

Access to finance is an important factor in shaping gazelles, as well as for fostering entrepreneurship, competition and innovation in general. In this respect, angel investors, or simply 'angels' (i.e. high-net-worth individuals who provide money for start-up firms with growth potential) play a fundamental role. According to Marianne Hudson (2007) from the Ewing Marion Kauffman Foundation in the U.S., often former entrepreneurs themselves, angels can bring value to new firms through both mentoring and industry connections. Angels invest in innovative entrepreneurs at the crucial stages when ventures are just getting off the ground. In fact it is estimated that angels in the U.S. are responsible for up to 90 percent of outside equity (i.e. money not from friends or family) in start-up and early-stage firms (Hudson, 2007).

Hudson (2007) argues that venture capitalists have been traditionally considered responsible for providing start-up funding. However, this has not been the case in the last decade – venture capitalists usually get involved with growth funding, after a new firm has proven itself to some extent - and recently this is even less frequent. In the past three years, less than 3 percent of venture capital funds have been invested in start-ups. The result is a large capital gap for innovative entrepreneurs who need funding to get their businesses started. Angels, mostly those who invest through groups, are beginning to fill that gap. Angel investing has been long carried out in an informal, isolated way but is now becoming more systematic and organised in order to achieve higher quality. For instance, the formation of angel groups has become a common trend in the U.S. These are typically regional and help angels in a given area to network and collaborate. Within angel groups there appears to be a growing focus on developing high quality investment processes and some local groups have started cooperating with others in order to better fill the capital gap. Hudson recognises, however, that while the angel investing community is crucial for the starting up and development of businesses, it has its limitations. Most individual angels are very private, which contributes to the inefficiencies of early-stage equity markets. In addition, some angels, despite their own entrepreneurial experience, may not be very sophisticated investors which limits their usefulness and may even hinder the acquisition of additional funding. Often an entrepreneur has not been able to attract venture capital or other growth financing because an angel investor has proceeded in ways that made the firm unattractive to follow-on funders.

A similar argument is put forward by a study carried by the European Commission: business angels provide both financing and managerial experience, which increase the likelihood of start-up enterprises surviving. Business angel networks bring together angels and increase the efficiency of matching up angels and entrepreneurs. The supply of start-up and early-stage equity finance is becoming more dependent on business angels. The reasons for this include changes in the banking sector, which have made lending to small enterprises unattractive for banks due to low margins and high overhead costs. In addition, venture capital funds are often not able to accommodate the large number of small deals with heavy due diligence requirements. The European venture capital market has some serious weaknesses due to market

fragmentation and different national regulatory and taxation systems. Substantial differences exist between the situation of venture capital in the US and Europe when it comes to seed and early stage finance (Europe INNOVA, 2006b). Thus, in a particularly difficult market environment, the capability of business angels to continue investing is a highly valuable feature (EC, 2002).

What is the importance of proximity to universities and research centres?

With regard to the proximity of these for innovation and growth, a United Nations report (2001) states that in the context of university-based incubators, *the perception that most universities have technology for commercialisation has been challenged on the grounds that university research results are rarely of commercial value. On the other hand, the short-term demands of industry may compromise the longer-term goals and objectives of university research*. In addition, universities normally prefer to work with larger firms rather than with small businesses. Another factor relates to the long-term cultural interaction between businesses and universities. Making university staff more aware of industrial enterprise, and allowing prospective academic entrepreneurs an actual view of the range of business skills required should be crucial goals. An example is in the case of Germany where half the estimated 4,000 firms that have emerged from the nation's business and technology incubation centres since 1990 have been university-spin-offs.

According to this work, however, universities can be useful to small businesses in many ways. Local businesses can benefit from local universities by:

> (a) Hiring qualified graduates to conduct operational activities;
> (b) Using faculty members and researchers as consultants;
> (c) Sponsoring joint university-industry research centres;
> (d) Organising training for their employees, both formally and informally, and also intermittently through seminars and workshops;
> (e) Utilising university facilities such as laboratories, libraries and specialised equipment. (UN, 2001; p.17)

From the viewpoint of a commercial firm, proximity to industrially-oriented R&D facilities is likely to be more important than access to a university's educational facilities. Studies in the United Kingdom for instance, reveal only marginal impacts on turnover and job performance as a result of proximity to universities. On the other hand, increased credibility, access to a pool of highly qualified university graduates and professors and access to databases and libraries are highly valued, and seem to confer greater creditworthiness in the eyes of investment institutions.

Can corporate venturing help gazelles?

Corporate venturing, which commonly (though not exclusively) involves a relationship between a larger company and a smaller independent one, can help gazelles in a number of ways. Corporate entrepreneurship and the need

for internal corporate venturing in particular have gained much attention during the past few years (Miles & Covin, 2002).

The most obvious way a large company investing in a gazelle can help is by providing an alternative or supplementary source of finance. It may also be able to provide particular skills or knowledge (for example in technical or management areas) which a smaller company might otherwise not have access to, and access to established marketing and distribution channels (HM Revenues and Customs, 2007).

Although disagreements about definitions prevail in the literature, it might be argued that *corporate venturing* can be more effective in providing support than general *venture capital* because of the superior knowledge of markets and technologies that an investing corporation might have and the ability to perhaps provide access to its own resources and brand (Rasila, 2004). It may enable a new company to break into the market more quickly than it might have been able to by going it alone, or with alternative investment and a gazelle may find that its link with an established company 'opens doors'.

There are of course dangers and limitations of corporate venturing. A gazelle might suffer similar problems, as it might encounter with venture capital and business angels (as discussed in previous questions), in terms of attracting future investors if there is already a corporate venture investor on board. There is also the danger that the proximity to a corporation might in fact hinder the innovation capabilities of a gazelle, and in turn actually disadvantage the investor.

In practice, in the US, Corporate Venturing is an established growth strategy, but in the UK, for example, its use is more limited. Recently the *Corporate Venturing Scheme* (CVS) as outlined in the UK 2007 budget is intended to encourage corporate venturing involving equity investment in the UK. In other countries, Nokia is an example of a company currently utilising corporate venturing (see www.nokia.com).

Do cultural differences play a role?

High levels of entrepreneurial activity and growth have often been ascribed to cultural attributes (Shane, 1993; OECD, 2001). [3] According to OECD (1998)

> *a near unanimous view held by analysts of entrepreneurship is that culture plays a critical role in determining the level of entrepreneurship… Other things being the same, an environment in which entrepreneurship is esteemed, and in which stigma does not attach to legitimate business failure, will almost certainly be conducive to entrepreneurship. However, partly because 'culture' is a broad and diffuse concept there has been little systematic assessment of this issue and its policy ramification* (p. 50).

[3] For a more detailed analysis of this argument and a review of the relevant literature see Suddle et al (2006).

The issue of 'culture' and gazelles is complicated, not least because of the multidimensional nature of culture. The term can refer to psychological variables, such as achievement motivation[4], attitudes to risk-taking, 'learned helplessness' (Peterson et al, 1995), 'locus of control' (Rotter, 1966; Lefcourt, 1966) and these propensities may apply significantly not only to (potential) entrepreneurs, but also to key individuals in their environments: teachers, family members, local and national authorities, business leaders, employers and financiers. The term can refer to social and economic variables, such as the existence of business networks, the extent of institutionalisation of support organisations for SMEs and the integration of higher education and research bodies into the local economy. It can also refer more to the self-image of societies as depicted through their media. Typically, different aspects of this multidimensional phenomenon have been studied by different social research disciplines, and there is limited development of a more holistic and integrated view.

We can summarise that cultural differences *do* play a role but that these differences are numerous and complex and whilst some are clearly institutional and thus can be targeted by policy, some are more intangible, and are to do with attitudes. There is evidence to show that some psychological variables are important and there is limited evidence to suggest that entrepreneurial training including these variables can be valuable but is probably more effective if it includes mentoring /apprenticeship approaches (as suggested by David Birch, 2004). There are also more diffuse attitudes held by other parties that also need to be considered – for example, teachers who do/do not encourage students, parents, media promotion of role models, and so on. There is no simple fix, but it might be suggested that a concerted effort with many *local* partners involved may be effective.

One may also extend the cultural issue to sources of support for innovation – for example, to give a very generalist picture, European attitudes to business failure are often negative and may discourage venture capitalists, etc. from investment, whilst in the US business failure may be viewed as an experiential and learning process which contributes to the future likelihood of success.

[4] McClelland's early work (1961) on 'need for achievement' paved the way for many studies on the *characteristics* of the entrepreneur. McClelland related the concept of 'achievement motivation' to economic development and growth. Evidence suggests it is possible to increase this motivation through training programmes which then increases business performance (Mirron & McClelland, 1979). McClelland's work has, however, come under much criticism.

-- Economic Importance: Further Issues Raised --

- *What is the relationship between gazelle firms and other SME businesses?*
- *Does gazelle firm growth lead to declines in other smaller firms operating in the same and related areas?*
- *Does gazelle growth lead to synergistic and complementary effects amongst other firms and sectors?*
- *Does support for gazelles give them an unfair advantage in competing with other SMEs?*
- *How important are gazelles in winning export earnings for Member States?*

5 Supporting Gazelles – Policy in Practice

What are the key issue for the support of gazelles?

For policy makers, the key issues for the support of gazelles can be summarised in the following way: Why support gazelles? What support we give them? Who should get support? How should support be given to them?

Figure 1. Key Support Questions for Gazelles

Why (rationale)	**Who** (targets for support and who is excluded)
What (type of support)	**How** (implementation and efficiency)

None of these issues are easy to deal with. Gazelle firms are a relatively new interest of policy makers, and although there has been strong academic interest in the area for some time, the methods used for the study of high-growth firms are, as we have noted elsewhere in this document, varying because they have been conducted for different purposes and with different data sets. Systematic large scale studies of firm growth that examine the role of policy have not therefore accumulated. Policies that have had some influence upon gazelle firms have been generally targeted on SMEs; consequently, we can say with some confidence that the area of support to gazelles is a new area for policy.

But there are other difficulties also: we should remember that the concept 'gazelle' is a construct and gazelle firms are not necessarily aware that they are 'gazelles'. Gazelle firms do not have specific associations to represent their interests. They are after all, not typical of SMES, being the small number of firms in any sector that achieve high growth. They are in a sense, unrepresentative of other small firms. And to make matters more complicated still, gazelle firms, being high growth firms, are only gazelles for a relatively short period of time. In other words, the dynamism and change that make gazelles so interesting to policy makers, makes them much more difficult to research and to prepare policies to support them. Once we recognise these difficulties, progress can be made to some extent. Let us look at these major issues in turn.

Why should we support gazelles - what is our rationale?

Government support for firms of whatever kind needs to be based not only on the evidence that a benefit results (in the case of gazelles that they are competitive and therefore contribute growth to the economy), but on a rationale that will allow us to define how such support should be given to specific firms, and in comparison with other areas of policy, and to evaluate this support, when impacts and outcomes begin to emerge.

Commonly, market and or systemic failure arguments are used to justify government (policy) action. Acting to deal with information failures that existing in market settings is a common justification for government support. But information support to gazelles could also be useful to other small firms that may not have the potential for growth. However, information policies which are supported by government are open to all on the basis of need and it would be difficult to withhold such a policy from all firms in a sector, or a geographical location, simply on the basis of firm size. So, it is difficult to define a policy as 'gazelle specific' when we use any of these criteria, because they apply to all firms in a sector or a location (a region or a city) to varying degrees.

Gazelles often face high levels of risk when it comes to expansion, and these levels of risk may be greater than those faced by other small firms. This aspect of new firms has been recognised for many years with Stinchcombe (1965) being the first to identify the issue, terming the risks involved with being new the "liability of newness" and much other work emphasising risk of mortality and a variety of causal factors at different levels (see Garnsey et al, 2003). But because the wider social or welfare benefits are greater because of the scale of this risk, there can be an argument to support them with public money. However, there are increasingly other means open to gazelles to minimise the risk they face, and the availability of venture capital, at low cost, is at present greater than for many years. The argument for government to step in then is not so strong, and the argument is weaker still if it is acknowledged that gazelles are generally spread across sectors and not concentrated where there is high technology and intense R&D activity.

Are there other reasons why we would *not* support gazelles?

There may be a number of reasons why support might not be appropriate. Let us look at a set of cases where support of gazelles would not easily be justifiable, either because there is no rationale or because *conflicts between policy aims* arise that make it difficult to decide what to do.

a) In a particular sector, one firm is growing at the expense of all the others: it is a gazelle and its growth entirely results from its taking the business and manpower from other firms in the industry. Should such a firm receive support from the state? Overall, the sector is not growing, there is simply consolidation. In the longer run, the gazelle firm will be a monopolist.

b) In one sector, support for high growth firms is proposed and some gazelles experience accelerated growth. But with growth comes the risk

of failure, and the firms fail to manage the transition and go out of business. Should these firms have been supported by the state?

c) A gazelle firm is about to embark on major growth. It has a choice though of how to fund its growth: it can either use government grants or it can make use of advice from a business angel, equity from venture capitalist and/or other support from a corporate venturing activity. It decides to use government funds to ensure that its owners retain control of the firm. Is this a good use of government funds? Who is best in a position to make a decision in this case? Is it the firm, the venture capitalists, or those running the business support programme?

What support should be given?

Support for gazelles can take two main forms: direct support to the business and support to the environment in which the gazelle firm operates. Support to the firm can be given at different stages, including to entrepreneurs who may not yet have founded the firm. Support which is given to firms - but not to their environment - can itself be split into two parts as Autio et al (2007) suggest. It is their view that a far more targeted and active pursuit of the firms that need support is the one that works best for gazelles and that this should be the way in which support to gazelle firms is developed in other areas.

At what stage in company formation and development is policy support most effective?

The means of supporting gazelles are really more numerous than is often realised. Research has shown that giving support before entrepreneurs create their firms can be useful in that it creates firms that grow more quickly. This evidence has come from Baum and Silverman (2004) and is based on a study of a number of economies and comes to the conclusion that entrepreneurship of a more ambitious kind is linked to more successful performance in terms of growth. [5] Shane and Khurana (2003) also support the view that the career histories of entrepreneurs are an important factor in affecting the success of ventures.

The following table identifies a number of stages at which support can be given to high growth SMEs. We should also note that support for gazelles can take place either within (or what will subsequently become) a gazelle firm, or in the environment (including the framework conditions) in which the firm will operate. This support to the environment can take the form of enhancing the interactions between firms.

Figure 2. A Typology for Gazelle Support

When support is given / Purpose of Support

[5] See also Autio et al (2007) for a discussion of types of policy applicable at various growth stages of a high growth firm

target	
Support to those who are not yet entrepreneurs but may become ones	To create entrepreneurs
Support to entrepreneurs before they create their firms that may, ultimately be high growth gazelles	To create firms that will, as gazelles, ultimately be high growth
Early stage support to firms before they meet the gazelle criteria of growth	
Support to firms that take on extra risk and which are seeking to expand – still before they meet the technical definition of gazelle	
Support to firms which meet the technical definitions of gazelle	To ensure growth continues and consolidates
Firms which were gazelles	To consolidate the growth achieved in the longer term
Context – framework conditions, cultural values	

What are the priorities for contextual support for gazelles?

Generally, it seems that the most popular thinking is that the removal of barriers to innovation is the key issue for the future of gazelle support and that support for competitiveness, should include a range of measures that impact upon firms and which impact also upon the *dynamic context* in which firms operate. If Europe hopes to keep up with the US and China, who are increasingly providing a better environment for innovation, it must remove some of these obstacles. The Europe INNOVA Report (2006a) suggests that improved intellectual property systems and increased R&D resources are the way forward, a priority identified by the Lisbon target.

The Europe INNOVA scoping paper, however, identifies an important distinction between gazelle and SME policy, stating that "[d]edicated gazelle policies are likely not equivalent to SME policies, as gazelles are not typical SMEs. Gazelle policy is actually more than entrepreneurship policy, if fostering entrepreneurship is understood solely as fostering self employment. Gazelle policy is entrepreneurship policy that is concerned with reducing barriers to growth and fostering innovative growth" (Europe INNOVA, 2006b; p.3). This notion that priority consideration needs to be given to public policies which encourage entrepreneurship is also endorsed by Slaughter (1996).

A European Commission report of 2006 states that the lack of an innovation-friendly market for its businesses is the main barrier to investment in research and innovation and that policy actions should be taken in relation to regulation, standards, public procurement, intellectual property and fostering a culture which celebrates innovation. The report also recommends that the proportion of structural funds spent on research and innovation should be

trebled and that human resources, finance and knowledge should be better mobilised (European Commission, 2006).

Because of the relative youth of entrepreneurs with high potential, there is a further suggestion that consideration should be given to modifying educational systems to "enhance entrepreneurial skill building and foster entrepreneurial attitudes" (Autio, 2003; p.14). Autio also suggests that entrepreneurs should be allowed, through an institutional and regulatory framework, to have fair access to markets and have the opportunity to profit from their work (ibid).

What policies have been implemented to support gazelles?

Whilst there has been much SME targeted policy and related discourse, little has been specifically targeted at gazelles. The relatively small number of policies that clearly target them and which are effective are all very recent (Autio et al, 2007). It is not perhaps surprising therefore that there has been relatively little research to assess whether these have been successful. In addition, the implementation of policies has been quite fragmented, particularly in Europe. Nonetheless it does now appear that support for high growth firms may be moving up the agenda of policy makers at all levels (see Pages et al, 2003). Figure 3 gives examples of programmes and schemes in a selection of countries that have might have supported gazelles. This list is by no means exhaustive.

In the Netherlands, the government has pledged its commitment to creating more entrepreneurs and encouraging start ups (Ministry of Economic Affairs, 2004) and an increasing prominence in the importance of education and skills is echoed in the Dutch emphasis on the training of individuals, particularly through master classes. In addition, some programmes in the country have been the result of policy mix (e.g. technology policy and high growth policy, in the case of *Biopartner* and *Technopartner* (Stam et al, 2006, p.11)).

In Catalonia (Spain) there is a similar rising interest in for education and training, but seemingly more geared towards the *employees* of high growth firms (See Oliveras, 2003). Most existing policies in the country are fairly new and tend to originate in universities.

A wealth of (often controversial) policies were prevalent in the UK in the 1990s. Whilst not necessarily specifically targeted at gazelles they undoubtedly affected them. In the 1990s increasing employment was said to be the underpinning of all business support policies in the UK, and their effectiveness in achieving this aim was often called into question[6].

Outside Europe, the US is put forward by many as a 'role model' in terms of support to high growth companies (Stam et al, 2006). By "creating and opening markets; providing R&D and intellectual property protection and investing in technically talented people" (Von Bargen et al. 2003, p.316) the

[6] See also Roper and Hart, 2005 for a discussion on the effects of the *Business Links* policy.

US seems to have made it relatively easy for gazelles to flourish. Policy measures, have to this end, been designed to change securities, tax, pension, patent and copyright laws and enhance Intellectual Property (IP) protection for entrepreneurial innovations; utilise government R&D funds and change the knowledge base (Stam et al, 2006); allow the effective use of technically trained immigrants; create flexible labour markets (see Chesbrough 1999) and deregulate leading industries (in the 1980s).

Further afield, the Australian Innovation Investment Fund (IIF) program, established in 1997 has been likened to the US SBIC and works on the basis of partnership with private venture capitalists to stimulate investment in developing economies. The program, it was claimed, had several advantages over similar governmental programs implemented in Canada and the UK in this respect (Cumming, 2007).

Figure 3. Examples of policies which have supported gazelles in selected countries

Country	Examples of gazelle policy and networks set up to support gazelles*
The Netherlands	• Growth Facility • Mastering Growth Program • Enterprise Zones • *Growth Plus* and *Fast Growth* • Masterclasses for entrepreneurs • *Biopartner* • *Technopartner*
France	• Gazelles programme (1 of 5 'SMEs' growth programmes') - Ministry of SMEs, Trade, Small-Scale Industry and the Professions (2006) • France Gazelles investment fund (2006)
Finland	• Growth Firm Service (2005) • INTRO
Spain	• Contest of Ideas for the Creation of Technological or Science-Based Industries • Embryo Project - Program for University Entrepreneurs • Prestecs Participatius del CIDEM – Participative Loans
UK	• The Enterprise Initiative • Business Links • Business Birth Rate Strategy (Scotland, 1990s) • Entrepreneurship Action Plan (Wales, 1990s) • Enterprise Allowance Scheme (1990s) • Small Business Service (2000) • Gateway2Investment (g2i) (2005)
US	• Competitive Technology Act • SBIR (Small Business Innovation & Research scheme) • SBIC (Small Business Investment Companies) program
Australia	• Innovation Investment Fund (IIF) • Commercializing Emerging Technologies (COMET) • Co-operative Research Centres • Commercial Ready Program

* includes those not specifically targeted at - but have had an impact on- gazelles

Sources: Dutch Ministry of Economic Affairs (2004); Dutch Ministry of Economic Affairs (2007); Stam et al (2006); Van Stel and Storey (2004) p.2; Chesbrough 1999) Lerner (1999); Autio et al (2007) http://www.gazelles.pme.gouv.fr/partenaires.htm and http://www.pme.gouv.fr/

What support do gazelles and those who speak for them say they really want?

While any policy should pay close attention to users as well as the beneficiaries of these policies in the broadest sense, it is never easy to work out who to listen to when drawing up a scheme for support.

In trying to answer this question we must acknowledge two issues:

1. The type of support required will, to a certain extent, be determined by the industry sector in which the firm operates, and the critical success factors (CSFs) identified in a given sector. (See, for example, Feindt et al (2002) on CSFs in the E-commerce industry). Type of support required will also differ at certain stages of a gazelle's life.

2. There are different and conflicting views on what gazelles want. Some advocate a relatively passive role of government, where specialised assistance is not provided to a specific industry or firm (for example, Levie 1994; Lohmann 1998), whilst others propose a more active role involving the implementation of targeted policies and programmes (for example, Collinson 2000; Hallberg 1999). Most policy makers, it has been argued, prefer the latter.

Findings from a study carried out by Fischer and Reuber (2002) showed that the opinion of 'what a gazelle wants' differed substantially between external resource providers, policy makers, and rapid growth firm owners. Whilst policy advisers saw the role of governments as critical, firm owners said public support could be useful but is not necessary and can be unreliable, whereas external providers doubted the role of government entirely.

A Think Tank on gazelles held in 1997 attended by entrepreneurs, venture capital firms, bankers, consultants, academics and government executives, suggested that gazelles might not actually want to be targeted by policy. They want services to be available to them, but they want to be able to "tap into" these when they are ready (Fulcrum Partners, 1997, p.1). This might be because they do not want to attract the attention of their competitors or they are just too busy at one time or another. This implies that gazelles want a high degree of autonomy and they want to be in control of the kind of help they receive and only at a time when it will benefit them, which they will identify. This is however at odds with some of the literature and the more *active* high growth firm targeted initiatives in Finland, for example.

The Think Tank report suggested that gazelles do not value a business plan. They need to be dynamic and to grab opportunities when they arrive, rather than following a formal process. There are also levels of mistrust prevalent among gazelle owners, according to the report, particularly with regard to professional advisers. A way to overcome this might be to create "win –win propositions" for example by basing fees on success level (ibid, p.2).

Despite such differences of opinion, gazelles themselves, and, more frequently, supporting agencies and governments, have endeavoured to provide

'checklists' of what (they believe) high growth firms want in terms of support. We can look at a geographically diverse selection here.

What has been suggested in France?

In France, according to CroissancePlus, several key factors are instrumental in providing support. Encouraging business innovation is seen as key. One way of doing this, they suggest, is to increase the SME threshold and reduce the need for capital holding from 75% to 25%. They also advocate the creation of "virtuous circles" (CroissancePlus, 2006, p.9), endorsing the notion of "clusters'" through increased implementation of "competitiveness poles" (ibid.) with the idea of giving more autonomy to the actors in these 'poles' (especially universities and research centres). They believe that entrepreneurs should be allowed to manage their own affairs and provided with simple, beneficial fiscal policies, allowing interaction and competition to flourish.

In France, high growth firms want more flexible labour markets and greater freedom in working time arrangements and overall they want the obstacles to their development removed (Croissance Plus, 2006; Betbeze and Saint-Etienne, 2006). A European version of the US Small Business Act could be an effective way to allow SMEs access to government procurement contracts and facilitate increased growth, but would require action at European level. Furthermore, CroissancePlus (2006) propose that within the EU positive discrimination measures in favour of SMEs should be permitted.

What has been suggested in the Netherlands?

Policy in The Netherlands seems to indicate a view that better training and networking is of paramount importance to support ambitious individuals with entrepreneurial ideas or potential (e.g. through master classes). Gazelles themselves have agreed on this point; in that the best advisers are other gazelles, and facilitating of networking is an important support mechanism (Fulcrum Partners, 1997).

The Dutch Ministry of Economic Affairs (2007) also advocates policy mix, to increase interaction amongst infrastructures and between initiatives and to improve international activity and quality.

What has been suggested in the UK?

In the UK, the Small Business Service highlighted the importance of removing the barriers to growth for small firms and suggested the following as key tools for improving economic growth and enterprise (Source: CBI, 2006):

a) Building an enterprise culture
b) Encouraging a more dynamic start-up market
c) Building the capability for small business growth
d) Improving access to finance for small businesses
e) Encouraging more enterprise in disadvantaged

communities and under-represented groups
f) Improving small businesses' experience of government services
g) Developing better regulation and policy

What has been suggested outside Europe?

Outside Europe, many leading US industries in the US (including biotech, computer software, and aerospace) have benefited directly from government R&D funds. Stam et al (2006) report that much has been made of creating financial markets to fund growth companies and opening new markets for them to flourish; providing R&D and IP protection and investing in technically talented people. Some state that an important source of opportunities for high-growth start-ups is the "changing knowledge base of a society" (Audretsch and Lehmann, 2005 in Stam et al, 2006, p.9).

Carroll et al (2000) report, perhaps unsurprisingly, that raising income tax rates discourages the growth of small businesses. Whilst the findings of their research (when marginal tax rates increase, level of enterprise decreases) are mainly concerned with the tax rates of *sole proprietor* entrepreneurs, this might suggest implications for other high growth firms.

Reducing capital gains taxes is seen as one of the most important movements to stimulate venture capital markets (Poterba, 1989; Jeng and Wells, 2000) which can provide necessary financial support to high growth firms. Another way of providing support, in the same regard, is direct government created venture capital, where the government works alongside private venture capitalists (Lerner, 2002). Lerner also purports that government funds should be targeted towards areas where there has been a clear market failure. (Evidence of successful government policy in the form of partnership with VCs can be found in Israel and the US (Lerner, 1999)).

Cumming, following statistical and econometric analysis of the effectiveness of the Australian IIF, suggests that policy measures to make it easier for venture capital investments might include easing reporting requirements and lowering hold periods for publicly listed companies and, again, lowering tax rates (Cumming, 2007).

The Small Business and Policy Branch of Industry Canada in its report on "Global Gazelles" asked gazelles what they wanted and the broad results were that they needed access to more capital and better partnerships to help develop new technologies. They call for policies that "promote incentives", "streamline approvals", "restructure taxes", "celebrates successes" and "invest in the young" (Meyers Norris Penny, 2006, p.23). They advocate, amongst other measures, reducing turnaround times for IP patents, which can hinder fast growth and encouraging corporations to place a greater emphasis on working in alliances with SMEs.

'What a gazelle wants' then apparently depends upon the setting (both country and sector) and the growth stage of the firm, amongst numerous other things. They are unlike any other firm and policy must acknowledge and work with

that. They want different things at different times in different places. It is difficult to say "a gazelle wants X" but if we were to summarise (and somewhat generalise) reports from the literature we might say that a gazelle needs the removal of barriers to growth; a balance of risks and rewards and an environment that makes it easier for entrepreneurship to flourish. The importance of networking, education, training and sharing of skills are emerging as key issues for support, but, as discussed, some conflicting views arise on whether policies should be active or passive.

How should gazelles be supported? Does the support of gazelles have adverse implications for any group, sector, large firms, other SMEs?

Because, as has been established, gazelles are located across the economy in a wide range of sectors, they face a diversity of challenges to their growth; they require different policy measures to provide effective support. Autio (2003) reports that while there are some very general policies that may help to support gazelles in all sectors across the economy, many of the policy instruments available are not suitable for this type of application. There are also the risks associated with high growth, not only for gazelles but for other sectors of the economy, that need to be taken into consideration.

Can support to gazelles be evaluated for its effectiveness and efficiency?

This is a difficult issue. Any government support to firms of whatever kind involves risks that the resources which are provided will fail to be used efficiently because they are not used for the purposes that were originally intended. Indeed there is also a risk that the support which is given is not of the right kind in the first place, what professional evaluators call 'appropriateness'. The risks which can occur when support is not efficient are diverse, but two categories are normally defined: deadweight and substitution. The aim of support policies is that they achieve what is termed "additionality", meaning that they achieve some gain or benefit that would not have occurred without the support, and that when the return on a policy is considered, additionality minus deadweight, minus substitution effects should be positive. Because small firms are not well understood, and because they are difficult to examine from the point of view of policy support, it can be hard to come a satisfactory judgement about the performance of policies that seek to create additionality.

Additionality is often dichotomised into input and output additionality (Buisseret et al 1995). Input additionality is the extra commitment which a firm makes to the project or activities which the policy maker seeks to promote. Output additionality focuses on the end result of the support, in terms of employment or growth, or indeed new ideas and capabilities. So, as far as the support of gazelles is concerned, there is a need to ensure that output additionality focuses on the development of capacities that will lead to higher levels of growth in the longer term. But input additionality can also be

important if one of the inputs which arise is employment by the firm and the target of the policy maker is employment growth. Policy makers need to address additionality when they set targets for their policies for SMEs and for high-growth SMES or gazelles.

Is there a need to coordinate policy for gazelles with other policies?

Yes it is very important to make policy for gazelles coordinate with other policies, in terms of policies for other SMEs and for framework conditions generally, including industrial and market and competition policies. The more policies one has, the more likely there will be interactions between them that undermine or weaken the effects of existing policies. The more widely acting a policy, the greater the risk in principle that such a policy will adversely affect some of the actors involved. While we need urgent action to support these important firms, there should be no rush to act now. Instead we should examine the existing policies we have and the needs of gazelle firms themselves to find out what can be done efficiently and effectively.

What policies may work for SMEs but not for gazelles?

It is sometimes difficult to differentiate between policies designed for SMEs in general and those designed to target gazelles specifically, as some policies have a marked effect on a particular type of firm unintentionally. Autio et al (2007) observe that policies focused only on high growth firms are actually quite rare. It is also worth emphasising that what works in a particular country or particular industry may not be directly transferable to another country or industry.

Because of the nature of gazelles and their association with innovation, traditional public policies are unlikely to be suitable. The OECD (2001) reports that previous government policies in Europe have sometimes been defensive and designed to protect SMEs from change. Gazelles are dynamic and different policies may need to be implemented (and /or modified) at different stages in a gazelle's life.

The policies that will work for SMEs rather than gazelles can depend on the sector the firm is operating in. A policy which strengthens intellectual property rights might favour gazelles in a new sector, whereas in a more traditional sector it is more likely to benefit a larger more established firm because they are more likely to win patent disputes.

An EIM (2005) report indicates that firm growth may actually be penalised by policies in some sectors. Policy to encourage entrepreneurship may support *all* entrepreneurial activity per se, without adequately considering *how* the business will progress. Thus, many start ups and ventures may be supported, which may be fine for SMEs in general, if, as Autio (2007) suggests the general aim of SME policy is to create *more* entrepreneurial firms, but this may be at the expense of gazelles. Morris et al (1996) cite the US, perhaps surprisingly,

as an example where tax and regulation costs are disproportionately heavy on high growth firms, making it an incentive to actually stay small (in terms of employees, turnover, locations etc.).

Subsidising entrepreneurs and new firms in general might also bring about *substitution* and *deadweight* effects (Santarelli and Vivarelli 2002; Vivarelli 2004) that we discussed earlier. That is, subsidies might work to the advantage of ordinary SMEs, in that less efficient or less ambitious entrepreneurs are given financial assistance which they use to remain in the market longer than they might have been able to without such support, to the disadvantage of genuine high growth firms.

In terms of management needs- gazelles are different to ordinary SMEs. Gazelle managers need to be able to pursue their entrepreneurial visions and grab opportunities. Active policies aimed at SMEs, it could be argued, may hinder this ability to some extent; however this is a contested issue.

What policies may work for gazelles but not for all SMEs?

Gazelles are technically SMEs, but as we mentioned in the opening chapter, they are no typical SME. Their dynamic, fast paced and ever evolving character means they are likely to require something other than generic SME policy to support their growth.

As we have said, some claim policies targeted specifically at gazelles should place emphasis on the knowledge base of a society (e.g. Audretsch and Lehmann, 2005). In the US access to government R&D funds and changes to the patent and copyright laws are said to have been effective in enhancing IP protection for entrepreneurial innovations (Stam et al, 2006) but effectiveness is often dependant upon sector.

Gazelles may face difficulties in areas that typical SMEs might not, therefore policies need to be targeted specifically at these problems. For example, they may have trouble in hiring suitably qualified staff able to deal with a dynamic environment; they may have management and organisation problems caused by rapid growth and they may find it difficult to acquire finance on reasonable terms, because of the increased risk perceived in financing a high growth firm (Dutch Ministry of Economic Affairs, 2007). Also, the personal qualities of the entrepreneur are perceived to be of great importance in gazelles. It is the vision and drive of the entrepreneur that is often instrumental in facilitating high growth (ibid). Should policies allow these entrepreneurs some degree of autonomy to use their skills to drive the business? In general SME policy this passivity might not be the best form of support.

According to EIM (2006) high growth firms are more likely to call for and utilise external help, therefore some kind of external support service can assist. Because of their entrepreneurial nature, encouraging education and networking may also help gazelles or firms / people with the potential to become gazelles / entrepreneurs. The Netherlands has been particularly active in this respect, in setting up Entrepreneurship Centres based on the US model.

In Finland however, a more proactive policy approach has been implemented. The Growth Firm Service approaches potential high growth firms to tailor support packages to their specific needs (Autio et al 2007). This is said to be in contrast to traditional SME policy whereby a SME would do the approaching.

The Dutch Ministry of Economic Affairs (2007) stress the importance of providing different support to high growth firms at different stages of growth as they will have different goals as they move through each phase (awareness, idea, start up and growth stages). Therefore different policy measures are advisable at each stage. They may need help to invest/ restructure/ innovate/ increase production at different stages in life and policy needs to be targeted towards these goals.[7]

Results from Spain support the notion that a strong backing for training and knowledge can benefit a gazelle firm, more so than for average SMEs. Gazelles invest more in employee training in comparison to other companies and greater employee involvement can lead to greater efficiency, better quality and greater innovation, resulting in greater diversification and internationalisation (Oliveras, 2003).

A comprehensive report by Autio et al (2007) surmises that policy support to high growth firms should be horizontal and should be

> highly selective; should have proactive approach; participation of private sector actors is preferable; should address managerial motivation and skills; involve highly customized and tailored management development activities; policies require broad-based measures which address multiple aspects of policy design, implementation, and monitoring; at the level of the individual, firm, sector, and society (p.3).

[7] Again, see Autio (2007) for a more detailed discussion of what policies should be implemented at what growth stage

What policies will work for both gazelles and SMEs?

Country settings and sectors vary making generic gazelle policy something of an impossibility. The type of policy that will work depends on the priority of the policy maker. If the priority is job creation then one type of policy might work, but if the aim is to facilitate innovation then something entirely different may be required. As Chittenden (2007) has noted, in the UK, where there is relatively low unemployment at present, policies to increase employment are not likely to be such a high priority for government.

Generally, policies are targeted at (both or either) internal and external growth factors. Internal factors include managerial capabilities, networking, personal attributes of the entrepreneur and education. External include barriers and regulation; capital and market situation; location and access to resources (Cf. Dutch Ministry of Economic Affairs, 2007). This is true for both SMEs and gazelles. In general all firms are helped when policy promotes healthy competition, provides adequate rules, restricts administrative burdens and creates a productive climate (EIM, 2006). Education to increase interest in enterprise and entrepreneurship; raising awareness of opportunities through use of media etc. and the removal of obstacles to growth might broadly be said to help all firms.

There is a need for distinctions in policy based on the life cycle stage of a firm, be it a gazelle or an SME in general, as endorsed by the Dutch government. Also generic policies not targeted at particular types of firms are likely to have less impact than specific ones.

It is however somewhat naïve to recommend focusing policy completely on gazelles. Many agree that economic growth is most likely to be achieved with a mix of small but high-growth firms and larger, more mature firms (for example, Baumol 2002).

Policy will vary at local, regional national and international level. At local level, cities can play an important role in facilitating entrepreneurship by offering enough business locations, by responding quickly to planning applications and creating a favourable local tax system for businesses. At a regional level, physical infrastructure can be an important element for business start-ups or relocation, and at national or international level removal of barriers can stimulate growth (EIM 2006). Chittenden (2007) suggests that there may be a strong case to exempt small firms from some employment legislation as there is evidence that many small firms are in fact exemplary employers, because the day to day survival of such firms depends upon the performance and commitment of their small workforce. Regulatory requirements for firms which are complex, not properly understood and in some cases unnecessary, often have the effect of undermining the enterprise and innovation they are meant to promote.

Will a gazelle policy for countries recently joining the EU be worth considering?

There may be dynamic high growth opportunities in transition countries and benefits both at country and European level, but there may also be a risk that policy in this area could have an adverse effect, in focusing attention away from the issue of skills and training which might be likely to have a more significant impact upon economic growth. We discuss this point later in this section in more detail.

Opportunities exist for entrepreneurs in new member countries. There are many highly qualified and educated people who lost their jobs at state-financed organisations and these people may be well connected to the previous power networks and may well have some standing in their respective countries (Stam et al, 2006).

Another good reason why a policy on high growth firms could be appropriate in new Member States is that, as Bartelsman et al. (2004) have shown, firm creation and destruction is more active in transition countries than in industrial countries. Many new smaller firms have replaced older, larger ones left over from socialist periods. This has been particularly evident in Hungary, Estonia, Latvia and Slovenia. These new firms also create or fill new markets in these countries.

There is however, some argument that supporting new start ups is *not* conducive to creating a growth economy in less economically developed countries. There is some evidence from a report by Van Stel, Carree and Thurik (2005) which suggests early-stage entrepreneurial activity may actually have a having a negative effect in developing countries. Some work by Wennekers (2006) also advocates that less developed economies should focus their efforts on exploiting scale economies and investing in management education rather than promoting more new start ups, however this is a contentious issue.

What role can policy play in these countries?

Does policy have a potential role to play in overcoming obstacles to growth in new members? One obstacle is that the internationalisation of capital markets is not evenly spread (OECD, 2001) so SMEs in transitional countries are often unable to access the finance necessary for growth and may not be prepared for the new competition they will face. In addition, they may not have adequate access to necessary R&D infrastructures. Policy to address this might be an option, if it can improve access to finance and encourage venture capital, but success would depend on how and to what extent this is actually implemented.

Also, the economic structure in new member states may not really engender innovation and high growth in a more international context. EIM (2006) suggest that short-term support measures should focus on eliminating the disadvantages of very small enterprises (i.e. weak management, poor access to finance and access to information). They advocate the implementation of structural actions to improve legislation and taxation; simplify regulations; create flexible labour and supporting financial environments.

Policy to address training issues may also have a role to play. There may be opportunities for increased interaction which would help small firm growth in new member countries, for example through transfer of skills and knowledge between new and existing EU members. It is important however that any transfers and partnerships are equitable. There are suggestions that policy should focus on good governance and entrepreneurial *training*, outside of (or in addition to) the educational system. It is likely though that the diversity of each country might necessitate different mechanisms of support.

Policy in Practice – Further Issues Raised

- *Should social benefits be a priority for policy makers (e.g. gazelle's contribution to society in terms of employment etc)*
- *Aren't potentially very successful firms like gazelles well-served enough by the venture capital industry?*
- *Won't gazelles get more help in the form in which they need it from business intermediary organisations – particularly in the raising of capital?*
- *Don't gazelle owners already have access through our European business schools to some of the best training in the world with which to develop their competences and work up their strategies?*
- *Doesn't further support for the most successful gazelles, whose owners are predominantly from social elites, lead to further social inequality?*
- *Given the apparently high level of success of some of the government support schemes identified, is there not far greater scope for private interests to support gazelles?*
- *Is the main problem the threshold issue and not therefore a business support issue?*
- *What evaluation methods are required to ensure that gazelle support is appropriate, effective and efficient?*
- *How does one decide which sectors' gazelles to support?*

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