



A Theory of Local Entrepreneurship in the Knowledge Economy

Pierre-André Julien



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Edward Elgar

Cheltenham, UK • Northampton, MA, USA

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Published by
Edward Elgar Publishing Limited
Glensanda House
Montpellier Parade
Cheltenham
Glos GL50 1UA
UK

Edward Elgar Publishing, Inc.
William Pratt House
9 Dewey Court
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the British Library

Library of Congress Cataloguing in Publication Data

Julien, Pierre-André.

[Entrepreneuriat régional et économie de la connaissance. English]

A theory of local entrepreneurship in the knowledge economy/Pierre-André
Julien.

p. cm.

Includes bibliographical references and index.

1. Entrepreneurship. 2. Business networks. 3. Regional economics.
4. Knowledge management. 5. Information technology—Economic aspects.
I. Title.

HB615.J8513 2007

338'.0401—dc22

2007029877

ISBN 978 1 84720 388 5

Printed and bound in Great Britain by MPG Books Ltd, Bodmin, Cornwall

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Foreword

The general question under discussion in this book is why some regions grow while other regions decline. Can we understand the reasons behind such a phenomenon and even construct a general theory to explain the circumstances in which a region will be dynamic? In this book Professor Pierre-André Julien has developed such a general theory. It is a dynamic approach which tries not only to understand the actual situation in a region but also to take into account why regions might be prospering during certain time periods and declining during others.

This is an impressive piece of research, and there are many reasons to read it. Throughout the book Pierre-André Julien gives numerous practical and empirical examples to illustrate his statements and theory developments. He also illustrates the previous research work already undertaken in several areas in the macroeconomic as well as in the microeconomic field. Furthermore, he uses a metaphor based upon crime novels featuring Columbo, Sherlock Holmes, Maigret and William of Baskerville. By employing such a metaphor via these novels, he can find different types of research methods as well as research tools and also variations in underlying theories. By using both a large number of empirical examples as well as this type of metaphor, the author makes it easier for us as readers to understand different theoretical developments.

The purpose of the book is to give a holistic or cross-disciplinary theory of local entrepreneurship. The author emphasizes the importance of context in a region and the need for a complex approach, as well as the fact that entrepreneurs do not work in isolation but are very dependent on networks, norms and values. To illustrate this, we need to understand different entrepreneurship approaches. We learn about a behaviourist approach as well as sociological, regional economic and economic approaches. However, the book also illustrates that many of the approaches mentioned cannot explain why firms are created in different regions and why it is possible to create positive dynamics in some regions. To address this type of problem issues such as how to create learning organizations will be of importance, as well as the regional milieu and also the need for information, the importance of networks and innovations.

According to the author one can in fact see the regional milieu as consisting of resources, conventions and entrepreneurial culture. This generates

social capital and rich networks which in their turn can provide knowledge learning and possibilities for promoting innovative small businesses. If the process is dynamic and developing, there will be possibilities for local development. There are several explanations of the complexity involved in such development processes, for example, a description of the importance of collective entrepreneurship. As an entrepreneur one must both compete and cooperate.

Pierre-André Julien also discusses the complementary role of the state in this process. According to him, the government should primarily set the targets but also has to help to develop complex networks via its agencies. Furthermore, the state should support proactive firms or groups of firms as well as, for example, stimulating innovation. Overall it is important to realize that this is a supplementary role.

Territories that innovate and learn must meet a number of conditions concerning the need for innovations in their industrial base, the development of an educated workforce, good infrastructure, easy access to risk capital or risk financing, a set of open conventions and behavioural rules, rich information networks, and ongoing learning and change at different levels in the region. Developing a new theory of entrepreneurship, the author declares that there is a need to go from single-track theories in explaining endogenous entrepreneurship to a more complex approach towards how to overcome uncertainty to create more of a knowledge economy, as well as a need to go from a view of strong rationality to more of a so-called weak rationality and uncertainty. This is one reason for the need for openness to change in all levels of an economy, the idea being that rationality is subjective and time-dependent and derives from collective learning through interpersonal relations, rules and conventions. It is in such areas that the author sees the need for more research and theory developments. He has also developed three levels of analysis for local endogenous entrepreneurship describing an increasing complexity and deepening of the terms 'information' and 'networking'.

As I stated earlier, this is an impressive study containing many interesting ideas and approaches. It is an important piece of work to develop our understanding of the complexity concerning how to create dynamic milieus for regional development. So take the time to read this book and follow Pierre-André Julien on his journey to give us all a better understanding of a very complex process.

Anders Lundström
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Stockholm

Acknowledgements

I would like to thank:

First, Suzanne, not only my first critic but also the source of my most enlightening reflections.

Second, the many colleagues with whom I discussed this new theory.

And, finally, Christine Gardner for the very efficient translation.

Introduction

In virtually every economy, there are some areas that develop more than others, and some that seem able to develop mainly from their own resources. There are also certain periods that appear especially conducive to economic growth in localities. The question is therefore: why do some small regions grow while others – even those located close by – either fall into decline or find it difficult to keep up with the general economic trend? This book attempts to answer this question with a general theory, by looking more closely at areas where entrepreneurship and venture creation seem able to flourish, and comparing them to others where venture creation is much less common or involves mostly mundane firms such as small garages or hairdressing salons rather than firms producing plastic, metal or pharmaceutical products, for example, and where many local firms either fail to thrive or simply die.

Clearly, there are regions that appear to have strong absolute advantages – for example, an abundant supply of natural resources, a large population or a very favourable geographic location which attract outside investors. Investors will, for example, be more likely to support development in areas that have oil reserves, gold mines, sunny beaches or easily accessible snowy mountains for tourists. Similarly, a small region that is home to a metropolis or large regional capital will generally develop well over a long period because of the importance and density of the population and what we will refer to as economies of agglomeration.

Even so, there are two significant problems. First, the number of such lucky territories is limited. Second, their advantages can be neutralized or even wiped out by competition from new materials or richer, more accessible sources, new technology, population migration or changes in fashion. Cities can become less attractive owing to pollution or traffic, driving residents to other cities. And the impetus for the development of other areas that do not enjoy these advantages must come first and foremost from within their borders, a phenomenon we will refer to in this book as endogenous development, which has already been defined by Romer (1990) or Barro (1997).

The question of endogenous local development encompasses both venture creation and business growth – in other words, entrepreneurship. The majority of short-term and long-term economic growth in most areas

is derived from entrepreneurship or new initiatives by businesses that are then imitated by other businesses. Baumol (1986) or Aghion and Howitt (1998) have already described this process, using the work of Schumpeter (1911) as their basis. The question we asked earlier can thus be rephrased as follows: why is endogenous entrepreneurship more dynamic in certain small regions and during certain periods?

I.1 THE DEFINITION OF LOCAL ENTREPRENEURSHIP

Before examining this question in detail, we will begin by defining the term ‘entrepreneurship’. As pointed out by Davidsson (2001) or Steyaert and Hjorth (2003), there is very little agreement on this issue. Cole (1942), for example, who was one of the earliest researchers in the field after Schumpeter, defined entrepreneurship as an activity involving the creation, maintenance or extension of a profitable enterprise. Gartner (1990) refined Cole’s definition, explaining that entrepreneurship derives from behaviour leading to the creation of a new organization. Other researchers have focused on the aspect of innovation. Venkataraman (1997) described entrepreneurship as the production of new goods or services in response to an opportunity, with all the ensuing consequences, and as a new business initiative designed and then developed to fulfil a market need. The Organisation for Economic Co-operation and Development (OECD, 2003), for its part, defined entrepreneurship as a way of looking at things and a process of creating and developing economic activity that is based on risk, creativity and innovation, and is subsequently managed within a new or existing organization.

All these early approaches can be summarized by dividing entrepreneurship into four different types, based on whether the firm is created or purchased, and on the level of innovation it generates. The resulting typology is shown in Figure I.1.

The north-west quadrant in Figure I.1 represents entrepreneurship through the creation of a new firm that copies or imitates an existing process. It can be small – for example, a newspaper stand on a busy street corner or a trucker who buys a truck and uses it to transport locally produced goods to a nearby city. Or it can be much more complex – for example, a manufacturing firm with digitally controlled machine tools and a production line manned by a dozen employees. The new firm will innovate to some extent, even if most of its activities involve imitation or reproduction of an existing process or product.

In some cases the firm created will be much more innovative, resulting in a new product or process. Examples would be a spin-off launched by a

		MARKET	
		OLD	NEW
FIRM	NEW	New copycat firm, imitating an existing process	New innovative firm
	OLD	Buyout with minor or major changes	Market extension, internationalization, and so on

Source: Adapted from Davidsson (2001).

Figure I.1 A typology of individual entrepreneurship

university researcher or inventor wishing to market an invention. Most researchers consider this new venture creation to be the archetype of entrepreneurship, and it is thus the most frequently used definition. The new firm is created from an intuition or idea. Such cases would be classified in the north-east quadrant of Figure I.1, and their creators would be described as 'improvement' or 'venture' entrepreneurs, as described in Chapter 3.

Entrepreneurship may also take the form of a buyout, provided it involves some form of change, either organizationally and politically or in terms of marketing and product range. Such cases would be classified in the south-west quadrant. If a management buyout does not involve change, then it is not entrepreneurship. An example would be the purchase of a franchise controlled by a major chain; here, the purchaser could be described more accurately as an investor, rather than an entrepreneur. Similarly, if the only change to the purchased firm is its juridical form, it would not be a case of entrepreneurship.

This definition goes somewhat further than the question as to whether entrepreneurs are still entrepreneurs 10 or 20 years later (Davidsson, 1991), or whether they become 'occasional' entrepreneurs, in the Schumpeterian sense, each time they make a significant change or introduce an innovation. Here, a large firm that changes both internally and externally (for

example, through acquisition or merger) fits the definition of 'entrepreneurial'.¹ But change does not necessarily mean growth or a shift from small to medium to large size. A change can be made to respond to market fluctuations without triggering growth (Gibb and Scott, 1986). Similarly, 'growth' does not necessarily mean a linear progression, as supporters of the staging theory have tried to prove, despite extensive criticism by Stanworth and Curran (1976) or Watson (1995), for example. According to its critics, this theory is tied too closely to the evolutionary metaphor, whereas firms are social organizations with a great deal of liberty and no predestined path.

Finally, the south-east quadrant of Figure I.1 covers existing firms that extend their markets by introducing a new product or range of products at the national or regional level, or offering the same product to a broader market, for example by exporting.

But these definitions are not sufficient, as indicated by Bygrave (1989) and Aldrich (1990), because they are confined to individual entrepreneurship, when the general environment and relations, for example, with family, networks and role models from the milieu play an important role in each firm's development, and when our purpose is to study local entrepreneurship generally, or the creation and change in a large number of firms. As we said earlier, our approach in this book requires us to look at venture creation and change on more than a case-by-case basis. Here, then, we try to answer the question raised by Gartner (2001) as to *why* new organizations are created, by extending the question to cover organizations within a given territory and why many of them change or innovate after being created. Our focus is on venture creation and growth within a given small region or a local territory. Venture creation and change not only have an impact on local, national and possibly international markets, but also trigger changes in the local industrial fabric. In other words, new and different links are generated between the area's socio-economic players when a new firm enters the market or an existing firm undergoes a change, and this, in turn, triggers a need for adjustment and possibly even the creation of new firms, all of which stimulates the industrial fabric towards change.

In short, in this book we regard entrepreneurship as a new and complex value creation on a local market that triggers a change – examples would be a new production structure, a new product or new premises – and affects the locality's other firms, actors and economic players. The new value disturbs the market in some way, causing the locality itself to change and ultimately develop by responding better to the needs of its own citizens and outside customers, and by creating more inside jobs and wealth, leading ultimately to local economic development.

I.2 DIFFERENT FORMS OF ENTREPRENEURSHIP

New value creation can therefore take different forms, and can also change over time and in space. As a result, it cannot be judged simply on its 'newness', and can only be understood within the context of its social environment. It is seen in different economies and territories through the lens of a specific social and cultural context and a given history or level of general development. In other words, new value creation, like any other research topic, must be taken in its context, a fact that has already been pointed out by Kuhn (1970) and Chalmers (1994). Entrepreneurs and what they do are reflections of their time and place (Filion, 1997). New venture creation can only be fully understood within the society in which it takes place (Chell, 2001); in other words, in its ambient culture. Torrès (2001) proposed four ideal types of entrepreneurship, listed below; we have added more explanation and a further two types.

1. North American liberal entrepreneurship based either on the Protestant ethic defined by Max Weber or on Jeremy Bentham's utilitarian, positivist approach. The type of neo-liberal application adopted by many American firms produces the excesses witnessed in recent years (the Enron affair, for instance), but is nevertheless a simplifier of reality, including in the USA. Ogbor (2000) even speaks of an ideology formed by Western culture that is too simple to represent the complexity of reality.
2. French-style corporate entrepreneurship, where many firms, at least the larger ones, seek security through legislation and operating rules.
3. Middle-class entrepreneurship, Belgian and German style, or what the British call the 'petite bourgeoisie', adopted mainly by more conservative firms.
4. Japanese-style network entrepreneurship, which Dana (1998) divides into three subcategories, namely *Sanchi*, similar to the Italian industrial district, *kuodokumiai*, where small firms band together for functions such as purchasing, and *shita-uke gyoscha*, a multi-level subcontracting system. Network entrepreneurship is also found in many countries as in the industrial districts of Italy (Beccatini, 1989).
5. Asian entrepreneurship, where thousands of firms each with their own well-defined functions work within a hierarchy of very small to large businesses (Guiheux, 1998).
6. African-style informal or community entrepreneurship in which women play a leading role, based in part on the tontines or micro-credit unions (Tillmar, 2006).

Even this typology is very general in nature, however, and should be used with caution, since several different types or sub-types may be present within a single territory. Italy, for example, has three separate entrepreneurial regions that are well documented in the literature (Conti and Julien, 1991); but the Terza Italia industrial district system also exists in numerous other European countries, as well as in North America (Pyke and Sengenberger, 1992), and their forms and dynamism have changed greatly since the 1970s (Paniccia, 2002). In Spain, entrepreneurship in Catalonia is not the same as entrepreneurship in Andalusia (Guzman Cuevas, 1995). In Africa, Muslim entrepreneurs behave differently from their Christian or Animist counterparts. In Asia, the new Chinese entrepreneurs are unaware of the notion of loyalty to suppliers and customers, while entrepreneurs on the Indian Ocean islands have their own systems that are neither Asian nor African (Valéau, 2001).

As an example of entrepreneurship that is far removed from the American capitalist small business, I studied the industrial district of Prato, near Florence, in the 1980s. I quickly realized that even the small entrepreneurs were members not only of the Communist Party but also of the same unions as their employees. In the USA, this would be tantamount to heresy, punishable by prison or even execution in certain backward areas (as in the 1960s film *Easy Rider*). For these Italian employers, the 'enemy' was the large Milan- or Turin-based corporation, usually a supporter of Christian Democracy, with branches throughout the country. This explains why the hundreds of millions of post-war dollars from the Marshall Plan went almost exclusively to organizations in Northern Italy, forcing the small firms to get by using their own devices, through cooperative initiatives and endogenous entrepreneurship.

Another example of a new small enterprise performing on a multi-national market is the firm in Québec City which specializes in the logistical problems of printing comic magazines, which are produced in Los Angeles by a comic writer team from Cali (Colombia) and are printed in Amsterdam.

In some countries, new types of virtual enterprises favoured by the Internet are starting up at the national or supranational level. There are also the otherworld (altermundialist) firms launched, for example, to promote fair trading practices, as well as the countercultural firms, which all develop in parallel markets.

This complexity is enlarged when we discuss the informal or black market sector, not only in developing countries but in industrialized countries as well, as many anthropological studies on entrepreneurship (Steward, 1991) have shown. For the black market, Fadahunsi and Rosa (2002), for example, discuss the case of Nigerian entrepreneurs working at the country's border and who must face the dilemma of whether to bribe customs officers or use a more legal system that is less expensive but less efficient too. Enterprises such as these create thousands of jobs and maintain a strong economic activity for a significant part of the region's population. Another example is given by Rehn and Taalas (2004), who explain that, contrary to the general belief of economists and journalists in Western countries, a kind of small and more or less illegal entrepreneurship always existed in the Soviet Union to counter the limitations of the central plan.²

Hofstede (1994) pointed out that an organization (and hence entrepreneurship) is influenced by the way society perceives authority, individual behaviour as opposed to social behaviour, the relationship between men and women, uncertainty, the short term and the long term, the legal or illegal frontiers, and so on. For example, behaviour towards competition varies tremendously from culture to culture. In some cases, weak or extremely aggressive behaviour is the norm, while in others the focus is on cooperation. Moreover, competition itself varies within a given country, depending on the industrial sector and the elements on which the notion of competition is based. On the other side, the Japanese, with their tendency to rely on the right side of the brain (more holistic, better able to integrate different data-sets), have often been compared with Westerners, who would rely more on the left side of the brain (analysis and logic).³ Furthermore, there is no hierarchy of entrepreneurship types; they are all valid in and of themselves, and can all be sources of development and constraint.

Here, however, we will be focusing more on certain aspects of Western-style entrepreneurship, which lies somewhere between the American and European models with which we are more familiar, although we will also be looking at some more universal elements too.⁴

At the same time, entrepreneurship cannot be confined to a given era or a given territory, and can certainly not be limited to 'private enterprise'. Nor is it necessarily more likely to be found in some groups than in others, although levels and intensity may vary at different times and in different areas, and the groups themselves may be less present or less dynamic at certain periods, or may not operate in the same way in all areas. We come back to this aspect throughout the book.

In short, while existing theories of entrepreneurship are not necessarily false, they are often associated too closely with the individual behaviour

of each entrepreneur and with a given area or a given period, and are almost always incomplete. The time has therefore come to go one step further by devising a more complex theory, as recommended by Shane and Venkataraman (2000) and the group of researchers managed by Steyaert and Hjorth (2003).

I.3 THE NEED FOR A COMPLEX APPROACH

The subject of local entrepreneurship must necessarily be examined from a broader standpoint, one that is able to take into account different types of individuals (age, gender, origin, education, and so on) such as entrepreneurs, different organizational forms of firms created or managed (size, industry, links with other firms, and so on) and different socio-economic environments (milieu, market and era).

Sandberg and Hofer (1987) have already tried to do this, using an approach that took into account the entrepreneur, the strategy and the structure of the industry. Their approach was re-examined by Storey (1994), who added the management process.

However, in neither case did the authors go far enough. Local entrepreneurship is a multifaceted phenomenon situated at the junction of several disciplines. It cannot be properly understood through the naive empiricism of research designed only to establish links between a series of purely economic variables, as the critical title of Curran and Blackburn's (2001) book, *Researching the Small Enterprise*, in all its complexity, points out.

In the real world, for example, the systemic principle of *required variety* applies to all entrepreneurship research – in other words, the approach of local entrepreneurship must be as complex as the question it is trying to answer. However, being too complex can actually obscure reality, as Chia (1998: 344) explains: 'complexity science is thus ultimately reductionist in its intent'; since it is, of course, impossible to address all elements of entrepreneurship at the same time. Not only that, but we must also be in the same time period (Bacharach, 1989) in order to be comprehensible. On the one hand, we will limit the number of major variables. On the other hand, we will use four standpoints, namely, the anthropological/psychological approach, the sociological approach, the geographical approach and the economic approach. Even so, our findings will not be exhaustive.

In the *anthropological and psycho-sociological or behaviourist approach*, the firm, at least in the early years of its existence, is run mainly by the entrepreneur with all his or her individual, psychological, family and broader psychological characteristics (origins, culture, education, training, and so on). These form the basis of the entrepreneur's dimensions and behaviours,

allow him or her to develop certain thoughts, and are reflected in the firm that is created or transformed. This approach is based on the paradigm devised by Schumpeter, and led ultimately to the focus on the central role played by the venture creator, at least in the early years.

For the entrepreneur, the principal factors are the development of cognitive skills, thinking capacities and alertness to seize opportunities (Baron, 2006; Kirzner, 1979). The aspects to be considered include past and present experience, knowledge acquired from family members or developed after the initial idea was formed, and the development of the strategy and organizational form (that is, the subjective individual and collective structure used to facilitate market positioning).

Entrepreneurs are core elements in the venture creation and development process. They have their own special characteristics and can be found more or less everywhere, not just on the capitalist market. However, they are also social beings, influenced by the opportunities or limitations present in the society in which they live. This goes against the ideas put forward by Pareto and Hayek, who, based on Jeremy Bentham's somewhat simplistic clichés, describe the entrepreneur as an entirely selfish, calculating individual. Entrepreneurs have personal interests, relatives and friends, and consequently a range of different affinities and interests. Relatives and friends may be present in the firm as managers or employees, in roles that may not be clearly defined. Entrepreneurs also have activities outside the firm, and hence emotions, social experiences and 'optional' contacts not based on the notion of duty.⁵ Their success can also be explained by the ties they maintain with their social and economic community, and by a favourable environment.

Alongside entrepreneurs, then, are a number of other players known as stakeholders, who may be relatives, associates, employees,⁶ business partners or anyone else in the entrepreneur's milieu, who serve as a model or are able to provide useful information.

Entrepreneurs and, by extension, local entrepreneurship itself, are therefore a sociocultural phenomenon. Like other consumers, entrepreneurs are tied to a community and cannot act on their own to follow a path mapped out for them since birth. They need impetus and support from their environment, and in particular from those close to them.

The *sociological approach* is therefore vital in an examination of entrepreneurship. Here, the entrepreneur is regarded as an organization creator with ties to other organizations and institutions within society, and hence within the social environment that serves as their mediator. The organization may be more or less complex, depending on its size, and may be more or less dynamic, depending on its strategy. In local entrepreneurship, the organization appears to be more important than the entrepreneur, since it forms the basis of the industrial fabric and hence of the development of the

area providing jobs and products. The organization's initial position and any subsequent gradual or sudden adjustments to the market will influence its development. If it eventually closes down, because the entrepreneur wants to retire and has either achieved his or her objectives or cannot find a buyer, for example, this would be considered a failure for territorial development.

The *geographical or regional economic approach* is used to differentiate between the regions based on their ability to maintain an enterprising culture and support the creation or opening of new firms – in other words, based on their dynamism. Because entrepreneurship differs from area to area, the organization's place in society and its ties to the community must be taken into account. Every firm is located in a territory that provides resources and social capital, in addition to the financial and human capital, that the firm needs to support its development, regardless of its age. The small region has consumers, production structures, institutions into which they are built, infrastructures, and so on. Accordingly, the entrepreneurial act cannot be understood outside the society that contains it (Giddens, 1991).

The *economic approach* will be used to situate entrepreneurship in its context – in other words, within an economic cycle. It is true that entrepreneurs and entrepreneurship are virtually absent from economic theory. In neoclassical theory, for example, the entrepreneur is either absent or considered to be without importance. The only things that count are large corporations, a situation that was criticized, for example, by Kirchoff (1994). And yet, entrepreneurship can only develop in a given economic environment (market, structure or industry, competition, and so on) and in certain economic conditions (expanding, stagnating, declining) within which the entrepreneur acts, and which provide the information the entrepreneur needs to adjust and identify business opportunities. Without a complex environment beyond the market, there would be no capitalist firms, and thus no entrepreneurs, regardless of what Casson (1982) says.

Casson, like far too many other economists, states that there will always be a market of entrepreneurs willing to emerge if the salary is sufficient.⁷ He refuses to regard the entrepreneur as anything more than a producer or a specialist salesperson with initial competencies separate from those of the firm, but which nevertheless cause him or her to change, as we will see later.⁸ If Casson ventures into other fields, such as John R. Commons's institutional economy, he takes a purely hierarchical vision of control. Similarly, when applying Williamson's negotiation theory, he is unable to go beyond straightforward rational calculation. The assumption of total rationality and the systematic use of marginal analysis prevent him from going further. He refuses to see entrepreneurs as human beings with possibilities and limitations,⁹ and his approach is consistent with that of Pareto, who said it was

not necessary for economists to know why individuals make certain choices. For Casson, as for the 'pure' economists, humans are simply agents, buffeted by economic forces beyond their control.

Casson's approach is rather like that of Gary Becker, who was so keen to force sociological notions into a purely economic mould (believing that every societal concept can also be analysed from the market standpoint) using simplistic equations. For example, Becker (1976a) showed that the problem of criminality in a region can be explained simply by low fines and short sentences, which are insufficient to discourage criminals. For him, crime is the same as entrepreneurship, in that it can be analysed as a rational choice. On the contrary, however, just as entrepreneurs, when taking a risk, firmly believe their project will sell and their luck will hold, criminals believe they will not be caught. The sociologists found this approach to be so simplistic that most refused to refute Becker's work on the basis that the similarities with the sociological situation he describes are purely fictional or random. This led Pierre Bourdieu (1984) to describe this economist as being totally anti-culture, although his thinking itself is beyond criticism because it is based on its own elements of rationality, even if those elements have no connection with reality.¹⁰

Thus, the entrepreneurial phenomenon is too complex to be viewed simply through the economic prism, and requires a combination of all the above approaches, as summarized in Table I.1.

Table I.1 Different approaches to entrepreneurship

Approach	Entrepreneur	Firm or organization	Environment and space
Anthropological, psychological or behaviourist	Characteristics	Personal and centralized	Poorly considered, or not considered at all
Sociological	An organization creator	Linked to other organizations and society	The organization is a stakeholder in the industrial fabric
Geographical or regional economy	One of the main actors, but not the only one	An element of diversification	Strong ties to the community and vice versa
Economic	The entrepreneur as an economic agent	Part of the industrial fabric and a response to market needs	The firm's dynamism depends on the economic conditions and other economic cycles in the medium and longer terms

I.4 THE ENTREPRENEURIAL PYRAMID

These approaches can take into account not only the individual actors, but also the result of their actions and the impact of those on them personally or on the field in which they work, generating change, or in other words, *the ontology of the phenomenon*, as recommended by Chia (1998). They have been used to build a pyramid (Figure I.2) showing their connections and the main variables on which our analysis is based – variables that we will refer to as the actors of local entrepreneurship and the factors that encourage it.¹¹ The first three actors, namely, the entrepreneur, the organization and the milieu, belong more specifically to local entrepreneurship, and are examined in the first part of the book. The other two, namely, the environment and time, are external elements that can be regarded as constraints but also as possibilities for entrepreneurial action. They appear throughout the process.

The pyramid comprises four triangles whose logic forms the basis for the discussions in the book. The first triangle, on the right, represents the three basic elements of local entrepreneurship, namely the entrepreneurs, who are the primary actors or the catalysts of entrepreneurship activity, as described, for example, by Holmquist (2003), the organizations, which complement or supplement the entrepreneur's activities, and the milieu, which often explains not only the number of entrepreneurs but also their level of dynamism. The second triangle, at the front, links entrepreneurs to the environment and hence to the economy in which they will find markets and resources, depending on the type of sector in which the firm operates. In the case of smaller firms, for example, this will probably mean the local

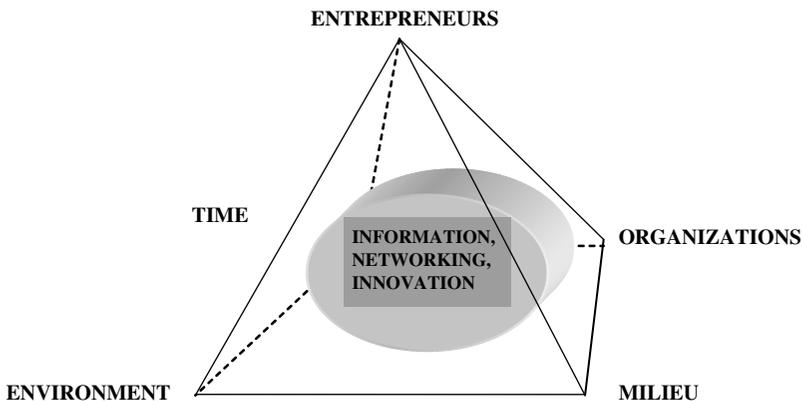


Figure I.2 *The entrepreneurship pyramid*

market and local resources. The third triangle, on the left, links entrepreneurs, the environment and time. Timing affects the behaviours of entrepreneurs, who make choices that may or may not be appropriate for the period in question. An example would be a short-term behaviour by a listed corporation to meet its shareholders' needs, rather than a long-term investment. This same triangle also explains changes in the environment and environmental dynamics. The last triangle, at the bottom, reiterates the links between entrepreneurs, organizations and time, showing that both actors change considerably over time, and either submit to its effects or take advantage of it.¹²

In the centre of the pyramid are the main factors conducive to the marketing and development of local entrepreneurship, namely: (1) the information that forms the basis of the knowledge economy and serves as fuel for the entire economy, since virtually everything in the economy requires information; (2) networking, which allows the information to be accessed, sorted and adapted; and (3) innovation, which is essential for distinguishing between firms and for their competitive capacity within the knowledge economy, and which is derived from the information provided by the networks.

In this complex logic, we first see the well-known managerial dialectic between the entrepreneur and the organization (or firm). However, this dialectic alone is not sufficient. A third dimension, the near environment, plays a key role, as shown by the economists. Every enterprise is an open system that obtains its resources from and acts on one or more purchasers' markets. However, the milieu, this near environment, is not passive but develops jointly with entrepreneurs and enterprises, nor is it merely general or global, but specific to each territory and each period. For far too long, the economists failed to recognize the role played by this milieu (friends and relatives, institutions and business contacts) in the environment; as we said earlier, most thought the economy was usually favourable, or at least that demand was buoyant.¹³ However, the milieu, which forms part of the environment, is not simply a field of opportunity or a constraint on competition, or even simply a context; it is something that can be extremely active: while development depends on firms, firms are also transformed by their milieu and the larger environment. Finally, time, is also a factor because the time at which an opportunity is taken up will have an impact and may actually be responsible for the success or failure of the undertaking. Indeed, the time factor (the period) is implicit in the term *opportunity*, in that a business opportunity (including opportunity that is 'created', as we discuss in Chapter 3) can be too early or too late. Also implicit is the notion of *opportunism*, clearly showing the relationship between the idea, its application and the author of the application (the entrepreneur).

We could include other variables, for example, large as opposed to small enterprises, institutions, and so on. However, for the sake of concision we will examine these variables either indirectly or at another time. Even so, this approach goes further than the initial approach by Porter (1981) and his examination of the fit between the organization, its resources, its strategy and its ability to seize opportunities in the environment. In addressing the strategy, the behaviour of the decision-makers within the firm must also be examined, because the entrepreneur and the organization can influence the milieu, the environment and, finally, the economy; they are not just takers of resources and opportunities. The element of strategy, especially at the level of the organization (from *organ* and *organic*: the firm is not an order-based assembly but a living, growing system), has been explained by Brown and Eisenhardt (1998), who showed that the application of the strategy is just as important as the strategy itself. Strategy involves competing on the razor's edge, by creating an unbroken flow of small competitive advantages of all kinds in order to stand out from the competition while managing the environment (Marchesnay and Julien, 1990). It requires five elements of process, namely: (1) *improvisation* (between permanence and flexibility, bordering on chaos), (2) *co-adaptation* and *collocation* (proximity and cooperation by the multidisciplinary team), (3) *regeneration* (using the old while creating the new, through re-engineering), (4) *experimentation* (anticipation and tests to explore the future in an inexpensive, flexible way) and (5) *pace* (the natural rate, trajectory and itinerary that maintain the natural capacity for change while taking advantage of the synergy created by start-up). This is the dialectic between structure and chaos, where consistency comes from culture and vision (Morin, 1981).

This is consistent with what Hitt et al. (2001) explained, by allowing entrepreneurial thinking to be consistent with strategy. Venkataraman and Sarasvathy (2001) state that entrepreneurship is concerned with creation, strategic management and how to establish and maintain a benefit from what is created in the marketplace. Such a vision can also generate a culture within the firm that enhances the consistency between the behaviour of managers and employees and their links with the environment. Again, what we have here is intrinsic complexity.

I.5 FROM COLUMBO, HOLMES AND MAIGRET TO WILLIAM OF BASKERVILLE

The paradox of the need for a complex analysis and a good understanding of entrepreneurship can be solved partly by using a metaphor as a deliberate attempt to simplify the complexity through an easier image for

comprehension purposes. In this book, we use the metaphor of the mystery novel, whose proponents are concerned with researching not just a crime, but its causes too.¹⁴ As examples, we will take four of the best-known fictional detectives, namely, Columbo, Sherlock Holmes, Maigret and William of Baskerville, whose creators have sold millions of books throughout the world and seen their heroes come to life on screen.

The approach taken by Columbo, this seemingly naive policeman with his drab raincoat, star of a number of films, is simple, if not simplistic. In every Columbo film, the audience knows from the outset who is guilty, and the detective quickly identifies the right suspect, even without evidence. The only question left open is how he will force the suspect to confess. To link this to entrepreneurship research, the 'research logic' at issue in the Columbo stories is therefore limited, rather like that of authors who think entrepreneurship depends solely on economic vigour or individual dynamism. In the former case, this would be neoclassical economic theory, which states that economic growth is the only element required for entrepreneurs and new firms to emerge and grow.¹⁵ In the latter case, it would be the theory of entrepreneurial traits, whose supporters regard the entrepreneur as being the primary if not the only cause of entrepreneurship, someone special or remarkable who is able, by his or her own genius, to detect business opportunities that other people do not see.

Sherlock Holmes, this old English private detective with his deerstalker and magnifying glass, is a much more complex detective who finds the guilty party by gathering clues and looking at where they were found and how they are linked. In entrepreneurship there are all kinds of entrepreneurs and firms that do not have the same level of importance and do not act in the same way. Clearly, the milieu plays a role in supporting entrepreneurial action. More important than this, however, are the subtle links between the variables at issue. In *A Scandal in Bohemia*, Holmes tells Watson, his faithful chronicler, that he looks without seeing. 'You look, but you don't see. The distinction is clear . . . That is the whole question.' Researchers must go beyond appearance, gathering facts and reconstructing reality in all its complexity. For example, the role of the entrepreneur must be situated in its context, the different types of entrepreneurs and organizations must be identified, and the environment in which they operate must also be defined. This was pointed out by Karl Vesper (1985) who described entrepreneurs as complex beings whose actions could not be distilled into a handful of traits or behaviours. Spinosa et al. (1997: 41) wrote that to understand entrepreneurship, researchers needed to go beyond appearances and *feel* the complexity of entrepreneurial activities within the economy.

This is what Maigret, our third superintendent running a team of a dozen detectives to investigate many Parisian murders, does – looks beyond

the clues. He concentrates on the victim's history and psychology, explaining that killers rarely choose their victims by chance unless they really are mad. The killer's knowledge of the victim at least partly explains the motive, and hence the killer's behaviour. Maigret believes detectives need to put themselves in the victim's shoes to understand why the killer went after them. To do this, they must become a kind of 'sponge', soaking up the mystery and solving it through self-discovery.¹⁶ To understand entrepreneurship, this means that we, as researchers, would need to put ourselves in the entrepreneur's shoes and make the connections between the entrepreneur's milieu, origins, path, preferences and behaviours, as well as the resources obtained from the milieu and the networks in which the entrepreneur works. This explains the remark by Gartner (1988) to the effect that it is not who the entrepreneur is that is important, but what he or she has done and is doing now, and why.

The fictional detective who goes furthest in his search for the truth is undoubtedly the Franciscan William of Baskerville. Indeed, the name chosen by Umberto Eco for his famous creation links him to both Sherlock Holmes¹⁷ and English philosopher William of Ockam (1270–1349), who believed the Church, and hence the Pope, should take care of spiritual issues only, leaving the Emperor to govern the nation. In seeking out the people responsible for a series of deaths in the Melk monastery in the fourteenth century, Baskerville realized he would have to go beyond the monks' personal conflicts, jealousy and hatred in order to understand what had happened. For example, there was the long conflict as to whether the Emperor or the Pope should lead the Empire, and then the conflict between the minor orders, including the Franciscans, who supported the Emperor, and the major orders – the Dominicans – who supported the Pope. There was also the question of controlling souls by controlling the books containing the truth.¹⁸ The murders were simply an outcome of all these conflicts.

As Table I.2 shows, William proves that the truth can only be uncovered by looking at different levels of reality. In the case of entrepreneurship, the first level is the entrepreneur and the organization. However, their dynamics depend on the milieu in which they work and their links with the networks that provide their information. This second level must therefore be considered too. There is also a third level, which involves reconstructing the specific sociocultural context, history and level of development of the milieu, the entrepreneurial models it contains, the conventions (the rules of the game) existing between the actors, the entrepreneurial culture of the locality and its 'industrial atmosphere'. Leaving aside these various levels would be tantamount to describing a gang murder as a conflict between two individuals, ignoring not only the development of the gangs but also the social environment, whether it fosters or restricts their activities.

Table I.2 *The mystery metaphor and the complex problem approach*

Detective	Research tools	Research method	Underlying theory	Level of understanding
Columbo	Indirect interrogation to prove the facts	Linear (cause and effect)	Positivism	First level
Sherlock Holmes	Accumulation and synthesis of clues	Induction	Post-positivism and interpretationism	Second level
Maigret	Clues, empathy and intuition	Induction/deduction	Interpretationism	Second level
William of Baskerville	Clues, intuition, reconstruction and deduction	Circular or spiral	Constructivism	Third level

As we see throughout this book, entrepreneurship is much more than simply a dynamic between entrepreneurs and their firms. There is also a milieu that is able to provide resources (and a territory large enough to offer complex resources), as well as links with the outside world and the environment, and a particular atmosphere within which the spirit of enterprise, resources and market potential are able to come together – in other words, an entrepreneurial culture conducive to the creation of synergy between all these elements and supporting exchanges of information in networks, leading to increasingly widespread innovation.

Clearly, the task of understanding all this is not easy, and is by no means completed in this book. In our analysis of local entrepreneurship, we look at different environments with different resources, cultures and histories. Even in known economies, firms adopt different paths or itineraries, and socio-economic conditions can vary. At the same time, change does not occur at the same rate in every industrial structure and for every technology. Time is always present, and is an important factor. The theories and analyses produced in the 1970s, 1980s and 1990s are often related to specific situations based on different organizational and territorial experiences, with varying levels of success and failure. Some of these theories are contradictory, and some are not applicable.

In short, what we are facing here is a kind of anamorphosis, and we will have to step back in order to see through its fuzzy, deformed outer appearance, using a many-sided mirror to understand the different facets of our complex reality.

I.6 THE BOOK'S PURPOSE AND METHOD

The purpose of this book is to propose a holistic or cross-disciplinary theory of local entrepreneurship, as recommended by Bygrave and Hofer (1991) and Bull and Willard (1993), or as Montesquieu suggested for all complex problems more than 275 years ago in his *Persian Letters* (1721 [1761]) and in his major work, *The Spirit of Laws* (1748 [1958]). In the *Persian Letters*, Montesquieu criticized the eighteenth-century French society through the observations of a fictional Persian traveller. He went further in *The Spirit of Laws*, examining political structures and economic behaviours (to such an extent that he had an impact on many national constitutions including that of the USA, and on Adam Smith's economic theory), explaining that wealth should be derived from trade and industry and their links with the environment.

A cross-disciplinary approach is required, first, because local entrepreneurship involves the creation and development of many different types of small firms that are personalized by their entrepreneurs and, second, because the entrepreneur's personal contribution extends to the area in which he or she lives or in which the firm is created, and it is this small region that is often the firm's initial market and the provider of material and immaterial resources. Similarly, we have no choice but to regard small firms as being very different from their larger counterparts because the central role played by the entrepreneur is translated into a specific type of operation where there is little or no separation between the functions.

This holistic theory is even more necessary in the new knowledge economy that is currently transforming industrial societies throughout the world. The knowledge economy, as a collective process involving the production and sharing of information that is then converted into knowledge, shapes entrepreneurs and entrepreneurship, and at least partly explains the need to obtain information. Information can only be compiled and converted through the sociocultural behaviour of the entrepreneur or the firm, via the milieu and networks. Indeed, as we will see and as Chandler (1977) wrote, a firm is first and foremost a mechanism for converting information into knowledge in order to meet market needs, and entrepreneurship is a relations system that provides the basic information required to develop knowledge.

This book is based on dozens of field surveys, numerous North American and European readings, and discussions with colleagues at hundreds of international conferences, as well as during guest lectureships at other universities. It is derived from work done by the OECD since 1990, via dozens of researchers from different countries, to define the problem

situation and propose solutions to an international question at a series of workshops on entrepreneurship and small business run by Marie-Florence Estimé in Paris. It is also based on the results of a 10-year networking initiative in Québec, Canada, known as the Bombardier Chair Network, involving more than a hundred company leaders along with dozens of small subcontracting businesses throughout Québec. As director of the *Revue Internationale PME*, the only international French language academic journal on small business, created in 1988, I have also read several dozen manuscripts every year. In addition, I have studied hundreds of other small firms, some of which subsequently grew into large corporations, initially retaining their original behaviours and ideas but gradually becoming more technocratic and cutting their ties to the region as the second and third generations took over. The approach taken is therefore constructivist, along the lines of the William of Baskerville model, since it is based on a step-by-step, angle-by-angle reconstruction of real life, as well as on developing concepts,¹⁹ ultimately taking the links between the various constituents much further, to a situation where the whole becomes greater than the sum of its parts.

In this book, small firms are therefore the core elements of entrepreneurship, not as minor phenomena but as the motors of development in most small regions. Here, small firms are the only source of development support, and sometimes the only response to the decline of large enterprise in many regions. The importance of small firms is obvious, as they continue to be the principal job creators in Western economies, a role they were also called upon to play in the 1970s, during the withdrawal of big business when the Fordist system, based on standardization and *Taylorization* of production, was called into question.

Again, however, the book is not intended to become a 'recipe' and does not propose a single entrepreneurial model. Further work will always be needed. Watson (1995) points out that entrepreneurship is an 'intriguing' story, one that will forever need to be developed, because it is still young, having been in existence for only 30 years, as pointed out by Curran and Blackburn (2001) or Steyaert and Hjorth (2003). Instead, the book tries to identify the main variables explaining entrepreneurship in different situations, while remembering that new combinations of those variables are possible and even desirable in other situations. For instance, the examples and applications given need to be adapted to other cultures. Every model must be consistent with its environment, or it will soon become inapplicable. Similarly, if a firm is to survive it must remain coherent with market developments, available technology and the values of the economy in which it operates (DeSarbo et al., 2005).

I.7 PLAN OF THE BOOK

The book is divided into four parts. The first sets out the context in which the analysis of current endogenous entrepreneurship takes place. The second looks at the major actors in entrepreneurship. The third discusses the factors underlying enterprise dynamics. The fourth and final part ties the actors and factors together to explain how entrepreneurship functions in dynamic territories.

The first part comprises two chapters. Chapter 1 shows how the new knowledge economy differs from the economy of the 1970s to the 1990s or the recent golden age²⁰ of small business, how it increases ambiguity and uncertainty in the economy, and how firms and small regions should position themselves in relation to the need for new knowledge in order to reduce uncertainty and ambiguity. Chapter 2 reviews the different types of development in different regions and examines some old theories explaining these differences.

The second part of the book comprises three chapters. The first of these, Chapter 3, looks at entrepreneurs, who are the primary actors in local endogenous entrepreneurship, leaving aside time and the environment. These latter two elements are important, but are difficult to manage in a territorial context because they depend on the national and international economy and its dynamics. Clearly, regions can impact upon their smaller environment, if only by agreeing with other regions to obtain government assistance programmes for their firms. Similarly, the time factor can be used to pre-empt the competition or to anticipate future changes and position the firm accordingly. The second actor is the organization or the firm, a necessary complement for the entrepreneur, and the subject of Chapter 4. The book examines the strategy, controlled by the entrepreneur, to increase the firm's knowledge and expertise, and hence the competitive capacity of the firm and of the small region. The third actor is the milieu, a term that refers to the collective material and immaterial assets, including reputations and contacts, which promote venture creation and development, as well as an entrepreneurial culture (Chapter 5). The presence of a dynamic milieu to promote active and proactive entrepreneurs and firms is the 'sufficient condition' or the key that explains why a given small region has become and continues to be dynamic, in contrast to other areas that have developed more slowly or gone into decline.

The third part of the book is also divided into three chapters, each concerned with one of three differentiation factors in firms and environments, namely, information, networks and innovation. Chapter 6 examines information. This is the factor that allows firms and localities to face up to

uncertainty and ambiguity and to keep up with or pre-empt change. Chapter 7 presents networks as mechanisms that seek, sort, provide and circulate information, and Chapter 8 describes innovation as the objective of firms and areas wishing to maintain or increase their competitive advantage on national and international markets. The more the small region fosters research and information sharing and the more its networks stimulate the sharing process and improve the quality of the information, then the greater the likelihood of efficient innovation and the more dynamic the localities will become.

However, the presence of networks does not mean that information exchanges are sufficiently rich. The fourth and final part of the book is divided into two chapters. Chapter 9 looks at networking, showing not only how efficient networks function, but also how they are able to convey information that fosters or stimulates innovation throughout the territory's industrial fabric. Chapter 10 extends the information exchange process (via networks or by other means) to the entire area and looks at how the localities can become a source of idea sharing and production, as well as the locus of an entrepreneurial culture that supports and stimulates dynamism.

In our conclusion (Chapter 11), we come back to the mystery metaphor as we examine the major economic and management theories to identify the theoretical foundations of our approach, in response to new theories and an environment in which the knowledge economy is a key factor.

These parts and their elements fit together in a kind of spiral movement, from the simplest element (the entrepreneur) to the most complex (the milieu and conventions), as represented by the 'expanding rubber balloon' metaphor that Bergson (1907 [1911]) uses to explain how we can gradually understand the complexity of the society or, in this case, the dynamic of local entrepreneurship. Bergson goes on to explain that, in order to achieve understanding, we must ultimately gain intuition or insight so as to grasp the totality of the phenomenon.²¹ Our mystery novel metaphor, with its relatively simple image of collective behaviour, is another means of reaching this intuition.

Each chapter is preceded by a citation from Montesquieu that summarizes its content and shows that comparable considerations have existed throughout history, with their similarities and differences. Most of the chapters also present examples, some drawn from scientific case studies or our own work with firms over the past 20 years. The examples are clearly identified in boxes, and it is up to readers to choose whether or not to read them. These examples, like the metaphor and diagrams, are simply another way of helping the reader to grasp the complexity of the theory.

NOTES

1. A case such as this is in fact entrepreneurship. Watson (1995) explains that, although the entrepreneurial mindset may be sporadic, it is almost always present among owner-managers but may well not exist in subsidiaries under management; indeed the term 'manager' is closely related to the French verb 'ménager', meaning to use sparingly or to economize, or the French word 'ménagère', the housewife who manages the budget so the family can survive for the next month or year.
2. These authors talk of 'a tremendous amount of parallel economic activity' based upon acquaintance and connections (Rehn and Taalas, 2004: 237). A colleague from the United Nations Open University, who had worked in Moscow in the 1970s, explained that in this period, more than 1 million pigs were bred in Moscovite houses, normally in the bathroom, to provide meat for the obligatory Christmas celebration meals, to bribe neighbours and hygiene inspectors, and to use for trade, via intermediaries to accelerate transactions. This '*blat*' system existed during the same period in other eastern countries such as Poland, promoted by the industrial organization of large firms, where employees worked from 6.00 a.m. to 2.00 p.m. only, allowing a large part of the population to barter, buy and sell during the afternoon, obtaining essential commodities and making money to complete their salaries.
3. This theory has been strongly criticized since then and is not used now. In this respect, see Rao et al., (1992).
4. For example, the importance of models, mainly from the immediate or more distant family circle, in improving a new entrepreneur's chances of success, has been measured in Western African countries (Matsanga, 1997).
5. Family and social obligations are common in the venture creation process (Huse and Johannisson, 1998), and are particularly strong and widespread in certain African communities.
6. For example, employees who were present at start-up and who have helped to develop the firm's specific elements.
7. Although Casson criticized Walras, who said, in the theoretical world, as his first assistant pointed out (Antonelli, 1939), that the equilibrium price should be announced before producers take action, he did exactly the same thing with his discussion of the salaries available on the market, saying that the salary had to be sufficient before a potential entrepreneur would take action. The problem with this is that he was referring as much to Cantillon's entrepreneur employees (an entrepreneur is not the same as a capitalist) as to entrepreneur owners, and used the terms interchangeably. Casson does not admit that entrepreneurs launch businesses because they *believe* they will make money, even if they end up going bankrupt or abandoning the firm during the start-up process if they are unable to innovate and overcome the obstacles in their way, or if they are unlucky.
8. Most of his references are derived from research into large or very large firms, not entrepreneurs.
9. Kets de Vries (1985), for example, discusses the 'dark side of entrepreneurship', seeing many failings (such as distrust and psychological trouble . . .) in some entrepreneurs which can explain their desire to create their enterprise, but which can also slow down the development of the enterprise.
10. For another strong criticism of Becker's views, see Monzingo (1977).
11. Johnson-Laird (1983) explain that small-scale models of reality, like clocks, do not need to be completely accurate, nor do they need to be an exact reflection of reality to be useful. There is no complete mental model of any empirical phenomenon. Models simply help understand complexity.
12. Thus, time gradually drives entrepreneurs to become managers through the aversion to risk trend.
13. Schumpeter, of course, and other economists including Kirzner (1973) and Leff (1979), had objected to this belief.

14. Care is needed when using metaphors, which are reductions of a much more complex reality, and further study is needed to understand the subtleties of the subject, as pointed out by philosopher Paul Ricœur (1975). For the use of metaphor in management science, see Morgan (1980) or Grant and Oswick (1996).
15. See, for an example of this neoclassical view, Lucas (1978).
16. *Maigret's Special Murder* (1964).
17. *The Hound of the Baskervilles*, one of Holmes' best-known adventures, by Conan Doyle (1902).
18. Including a book from the Abbey library, which said that Jesus must have laughed during his life on Earth, calling into question the doctrine of the time to the effect that humans were on Earth as penitence and had to avoid pleasure in order to earn a place in heaven.
19. In other words, and as pointed out by Bygrave (1989) and explained by philosophers such as Heidegger, the approach to building an entrepreneurship theory can be *phenomenological*.
20. To paraphrase the *golden decade*, which followed the Second World War (1945–73, before the first two oil crises), when the national revenue increased by about 5 per cent in real value in most industrialized countries, versus about 2.5 per cent since 1990.
21. Bergson defines intuition as the immediate knowing of something without an intermediary and the conscious use of reasoning. Others, for example Csikszentmihályi and Sawyer (1995: 358), prefer to call it *insight*, or an extended mental process based on a previous period of conscious preparation, requiring a period of incubation during which information is processed in parallel at a subconscious level, followed by a period of conscious evaluation and elaboration. Particularly with this concept of intuition, Bergson and others are sworn enemies of positivism.

PART I

Context: The Knowledge Economy and Different Dynamics

In starting an applied study of entrepreneurship such as this, it is important to understand the socio-economic environment in which entrepreneurship (or criminal activity, to use our metaphor) takes place. All research is marked to some extent by the time and place at which it occurs, and it is equally important, before getting to the heart of the matter, to clarify what we understand by the knowledge economy and the differences in local or small regional dynamics.

Advanced knowledge is not the be-all and end-all; many small production and institutional routines that require very little knowledge, or no new knowledge at all, are perfectly valid. To go back to our metaphor, some crimes are not solved simply because they are too 'normal' for anyone to notice them – as would be the case for certain disappearances, for example. Similarly, globalization is not the be-all and end-all either; many types of production are local and will remain so for long periods, just as there are always crimes that are completely unique or confined to particular national or international gangs. To suggest that advanced knowledge is always necessary or that globalization is a factor in every type of production can be quite meaningless. Similarly, the fact that a business is local or regional in no way negates globalization – quite the contrary. Many firms are able to escape international pressures, or at least manage perfectly well without continually having to consider international competition.

Some small regions that attract tourists in search of local customs and folklore actually benefit from the international market precisely because they have managed to avoid the changes imposed by globalization. And some areas are perfectly happy with a slow knowledge transformation process, since it enables them to support their production and still develop at their own pace. It is true that the most dynamic regions systematically use new technology and innovation, both of which are knowledge-dependent, and are therefore strongly connected to the international market. It is important to understand the differences between small regions and to show that there are many different ways of moving beyond appearances and explaining the reasons underlying their different dynamics.

Ultimately, the main factor underlying the differences in local dynamics is the capacity of the firms, and therefore of the territories themselves, to face up to uncertainty and ambiguity in a complex, changing economy.

1. The knowledge economy: uncertainty, ambiguity and potential

The King of France is the most powerful prince in Europe. He has no gold mines, like his neighbour the King of Spain; but he has a far greater wealth, since he derives it from the vanity of his subjects, more inexhaustible than any mine

Furthermore, the King is a great magician: he exercises his power over the very souls of his subjects; he makes them think as he wants. If he has only a million sovereigns in his treasury, but needs two, he merely has to convince them that one sovereign is worth double; and they believe him. If he has a difficult war to wage, and has no money, he has only to place the idea in their heads that a piece of paper is in fact money; and they are immediately convinced of that fact.

(Montesquieu, 24th *Persian Letter*)

The knowledge economy is essentially an economy whose development is based on ‘the ability to create and use knowledge’ (Viginier, 2002: 5) and, therefore, on the transformation of information of all kinds concerning innovation. Knowledge¹ is used to modify products and processes, and to support the development of distinctive and competitive businesses. In fact, we are entering an increasingly immaterial economy, in which traditional investment in areas such as natural resources, equipment and infrastructures lags behind immaterial items such as training and research and development (R&D). The same can be said of both small and large firms, and small and large regions. If we come back to our metaphor, the same also applies to criminal production, which has to refer to international networks and use complex virtual methods to launder money earned through illicit trafficking, for instance.

Some researchers, though, consider that the transformation of the economy has yet to happen,² that it is not, in fact, a new event (Howitt, 1996), or even that it is a myth (Gadrey, 2000). It is rather like worldwide crime, which is very ancient: we need only think of the Boxer War in 1900, triggered by the French and English to prevent the Chinese from removing foreigners, many of whom supported the highly lucrative production and trafficking of drugs to certain European capitals. Drug trafficking was flourishing at the time Conan Doyle wrote his novels. In fact, his hero, Sherlock Holmes, was a cocaine addict,³ and even Holmes’s friend, Dr Watson, was unable to eradicate the habit despite its harmful effects.

Knowledge and innovation have always been important ingredients in development (Foray and Lundvall, 1996). For example, Schumpeter (1939) pointed out that the upward phase of long economic cycles, such as 25- or 30-year Kondratieff cycles, was founded on an acceleration of knowledge, deriving mostly from small enterprises or individual innovators and leading to major technological change, whereas the downward phase was linked to the exhaustion of technological change and a reduced ability to renew it using new knowledge. One example is the first Industrial Revolution, which gathered pace as innovations of all kinds were introduced into manufacturing through the application of steam power. Previous revolutions in the seventeenth and eighteenth centuries had seen major innovations in the wake of many thousands of small innovations in the area of wind and water mill operation, and the development of canals and other forms of transportation (Gille, 1978). Another example is *Fordism* in the early twentieth century, mentioned in the Introduction, and mainly based on new forms of work organization (*Taylorism*⁴), primarily in large firms, which involved transformations that went well beyond investment in equipment. However, it appears that the need for new knowledge, and the pace of change to which entrepreneurs are subject, is accelerating.

In this chapter, we look first at the accelerated pace of change, linking it to market globalization. We measure change with some international data on industrial structure (information-based services and jobs). The situation generates increased uncertainty and ambiguity for most firms and small regions, while opening up all kinds of new possibilities for entrepreneurs, as we will see. To reduce uncertainty and ambiguity, it is important to exercise better control over information, the fourth topic in the chapter. Finally, we see how competitiveness has evolved and is now based on knowledge and know-how, as demonstrated in several new management theories.

1.1 THE PACE OF CHANGE AND MARKET GLOBALIZATION

An accelerated pace of change is nothing new. For example, in 1926 the economist John Maurice Clark looked at the upheavals of the late nineteenth and early twentieth centuries, such as the invention of the automobile, telephone, aeroplane and phonograph, and at the institutional level, large private corporations and rapid urbanization. These changes probably had a more profound effect on people, small enterprises and, finally, the economy than, for example, space exploration and the Internet today. However, given the growth in income in recent decades, many consumers can take advantage of new products to meet their need for variety, both in

terms of domestic comfort, change and entertainment of all kinds, involving the multiplication of small specialized stores and the change of air provided by travel and national or international tourism in small regions.

Growth in income has led to greater differentiation, and consumers are now segmented into many different markets, each representing a small group or trend. The range of needs is especially obvious in the service sector, where the potential for variety is enormous, since by definition services must adapt to the characteristics of both individuals and businesses. However, some innovations or changes are artificial, linked to the planned obsolescence policies followed by some companies.⁵ For example, it is known that roughly 80 per cent of the innovations introduced in the field of medication are intended only to allow the company concerned to retain control of the product by adding tiny differences that allow a new patent to take over when the original patent expires (Angell, 2004).

Variety is encouraged by the opening up of borders and the flow of products from all corners of the world. An example is the availability of small stores specializing in recordings of music and singers from around the world, especially Africa, although once again this trend is not as recent as we may think.⁶ Another example is, unfortunately, the multiplication of international mafia branches (Colombian, Russian, Asian, and so on) in large cities and small ethnic gangs in small cities.

This type of globalization, though, does not affect all markets, and does not affect all small businesses in the same way. For example, more than one-third of international trade involves transactions between the branches or subsidiaries of multinational corporations (UNO, 1993). This percentage is increasing rapidly, because many standard manufacturing operations are moving to low-wage countries, in South-East Asia in particular. Other countries, especially in Africa, are prevented from taking full advantage of globalization by the endemic corruption maintained by large companies from industrialized nations operating in their territory, but influencing a large proportion of small firms' behaviour.

In addition, a range of constraints still exists in industrialized countries. Many indirect barriers remain, such as specific standards and policies to block trade. For example, despite World Trade Organization (WTO) agreements, producers from industrialized countries continue to apply pressures that not only create unfair competition for the agricultural or mineral output of developing countries through direct and indirect subsidies, but also block imports from other countries. Finally, some cultural barriers that limit trade still exist, with government support in some areas such as Japan and China.

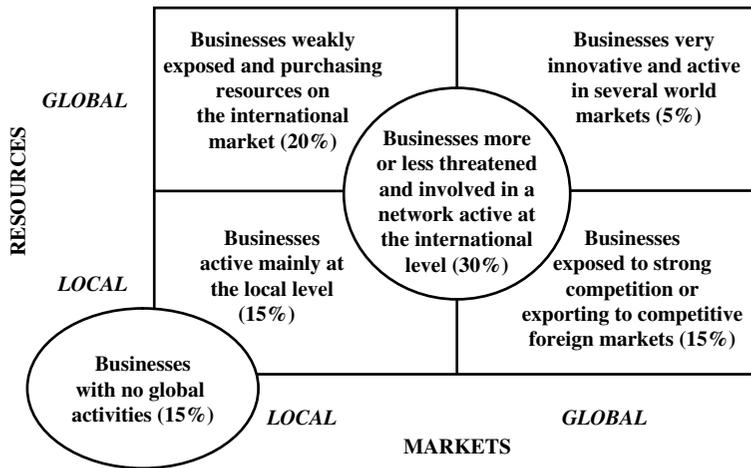
Free trade does not flow freely in all directions, as noted above in the case of developing countries that must deal with the insidious barriers

erected by industrialized countries. However, it has led to the opening up of ancient trade routes that had been blocked by customs barriers. For example, the abolition of most duties between Canada and the USA, which for decades had forced transactions to follow an East–West axis, has led to a tenfold increase in trade between Québec (Canada) and New England (USA), whereas trade between the Canadian provinces has increased by only 2 per cent (Julien and Morin, 1996). Similarly, after Spain joined the Common Market, trade between Catalonia in Spain and the French regions of Languedoc-Roussillon and Provence, and Northern Italy, increased just as it had between the fifteenth and eighteenth centuries (Braudel, 1979).

A similar situation can be observed in the area of financial transactions which, although they appear to flow in all directions in an extremely speculative way, have not led to a standardization of financial institutions, as we can see from the importance of cooperative banking in Québec or in Luxembourg and as shown by Guinet (1993), even though the essentially scriptural nature of currency could have been expected to lead to the disappearance of national differences as a result of globalization.

The disappearance of borders as a result of globalization has not eradicated differences between countries, and access to low-wage countries has not created the catastrophe apprehended by the more technological sectors in industrialized countries, just as the entry of Portugal and Greece into the Common Market in the 1970s, when both were just emerging from the status of under-developed countries, did not lead to disaster for the older members. The people who, today, fear the low wages and unique dynamism of China forget that, 50 years ago, the same fears were created by the rise of Japan⁷ and, 30 years ago, by the arrival of Mexican and Brazilian products on North American markets. Who, today, considers that these countries pose a grave threat to small firms in mundane and technological production sectors in most industrialized nations? As they develop more complex products, the newly industrialized countries need a more educated workforce that they must pay more, and the result is more world imports and the emergence of a new level of competition.

Some international trade constitutes an attempt by major corporations to forestall the competition by taking advantage of low wages in developing or formerly communist countries to intersect, at its lowest point, the average cost curve described by microeconomic theory and compensate for the growing diseconomies of scale caused by bureaucracy and the lack of flexibility of large organizations in the face of change (Julien and Marchesnay, 1990). However, this strategy does not appear to be any more effective than the multiple mergers that characterized the so-called rationalizations of the later years of the preceding decade.⁸



Source: Adapted from Torrès (1994).

Figure 1.1 *Manufacturing firm involvement in globalization*

In any case, not all businesses are subject to the laws of international trade. As shown in Figure 1.1, around 15 per cent of small manufacturing businesses are almost completely unaffected by globalization because of their highly specific markets or hand-made products.⁹ And this percentage is greater in local service. A further 15 per cent are affected only to a small degree, using only local resources and working in niche markets that escape the effects of international competition, such as most firms producing luxury goods, products that must be adjusted to customer cultural differences or markets protected by distance. In addition, around 20 per cent of firms are only affected either by globalization when purchasing equipment or raw materials from overseas, directly or through agents and intermediaries, or because their production contains enough knowledge to compensate lower costs including transportation and after-sales service costs. In the service sector, the separation from globalization is even more marked, at least for most individual and family services (hairdressing, child day care, psychology, plumbing, and so on) and even business services, especially in outlying regions (such as consulting, especially in information technology). Fewer than 50 per cent are affected to some extent by international competition: 15 per cent (or 30 per cent of the 50 per cent) work in very competitive markets and most will probably be condemned in the short or long term if they are not able to modernize their processes; a further 30 per cent working as subcontractors for large firms are pushed continually to buy new equipment and use new immaterial technology (see

Chapter 4) and at the same time export their production; finally, about 5 per cent, which can be described as global firms, are innovative enough to sell products with advantages and to compensate for the international pressure.

However, some manufacturing and service firms that have little international involvement in terms of goods are affected by the rising importance of the immaterial factors, which is becoming common in the economy.

1.2 THE GROWING IMPORTANCE OF THE IMMATERIAL IN WESTERN ECONOMIES

The knowledge economy, regardless of whether it is seen as an extension to or acceleration of a change that began centuries ago, is characterized by, first, strong growth in services as opposed to goods for industry and, second, an increase in immaterial as opposed to material factors in production systems and most personal services requiring more knowledge. In the first case, the importance of services is not only evident in the industrial structure, but is also reflected in the addition of all kinds of immediate or after-sales services connected to material goods. One example is the offer of specialist advice by equipment manufacturers after selling a complex piece of machinery. It is why, the number of white-collar, managerial or specialist positions in company offices is increasing faster than the number of blue-collar workers on the shop floor. With regard to the increase in the number of personal services offered by small firms, it derives from new needs caused by increasing revenues (for example, the growing numbers of interior decorators), population changes (new social and psychological services for seniors) and more free time (entertainment for different kinds of parties).

Just for the first two cases, in the USA, as in most industrialized countries, the percentage of service jobs compared with overall positions increased from roughly 25 per cent in 1870 to over 72 per cent in 1992 (Maddison, 2002). Service jobs are primarily based on knowledge. Psychologists, accountants, systems specialists, trainers, as well as sales clerks, bankers to an increasing degree, transporters and communications experts, are offering knowledge as part of the relation between customers and producers. Examples include financial advice from banks, logistic advice from transportation firms, and information analysis systems from communications firms. For this reason, research is focusing increasingly on services, whereas 30 or 40 years ago it was almost exclusively aimed at industry (MIFE, 2001).

In addition, whether in services or production, growing numbers of jobs rely on information and more basic training at the hiring stage and ongoing professional development at a later date. For example, employment linked directly to advanced knowledge in Canada grew from 5.3 per cent in 1971

to 8.9 per cent in 1996. More specifically, the relative percentage of specialized positions connected to the social sciences and humanities almost doubled. Then, while management positions almost quadrupled during the same period, over a 25-year span the percentage of positions requiring university training, especially in the social sciences and humanities, progressed by over 100 per cent. On the other hand, the percentage of workers involved in the production of goods dropped by almost a third (Lavoie et al., 2003). Similar trends have been observed in other countries, including the USA (ILO, 2003). This strong growth in the number of positions requiring advanced training obviously has an effect on the ability to absorb and process the information needed to produce goods and services, absorption requiring proximity or face-to-face relations as we discuss in Chapter 6.

Finally, the immaterial is gaining ground in the economy, to the detriment of the material. Table 1.1 shows that in 1929 the percentage of tangible assets (buildings, equipment, materials and natural resources) in the domestic production of the USA was roughly double that of intangible assets (education and training, health, innovation), whereas by 1990 it represented only 87 per cent of intangible assets. More specifically, education and training accounted for 41.3 per cent of total assets, and probably over 50 per cent today.

Table 1.1 Total real domestic assets in the USA (billions of 1987 dollars and as a percentage)

Components in total real assets	1929	1948	1973	1990
Tangible assets: total	6 075 (65.1)	8 120 (57.8)	17 490 (50.2)	28 525 (46.5)
Structures and equipment	4 585 (49.2)	6 181 (44.0)	13 935 (40.0)	23 144 (37.7)
Materials	268 (2.9)	471 (3.3)	1 000 (2.9)	1 537 (2.5)
Natural resources	1 222 (13.1)	1 468 (10.4)	2 555 (7.3)	3 843 (6.3)
Non-tangible assets: total	3 251 (35.3)	5 940 (42.2)	17 349 (49.8)	32 819 (53.5)
Education and training	2 647 (28.8)	4 869 (34.6)	13 564 (38.9)	25 359 (41.3)
Health, safety and mobility	567 (6.1)	892 (6.3)	2 527 (7.2)	5 133 (8.4)
R&D	37 (0.4)	179 (1.3)	1 258 (3.6)	2 327 (3.8)

Source: Kendrick (1994), quoted by Foray (2000).

The contribution of human assets, including that derived from advanced training, has become crucial to economic development,¹⁰ even in new small firms. One example is the problem of high unemployment that exists in many localities, even where many jobs cannot be filled, especially for small firms demanding good knowledge, such as designers. We have moved from a supply economy in which control over resources and economies of scale were the key factors, to a demand economy based on innovation, value-added production and greater control over knowledge as a key to success. In other words, in the old economy relatively homogeneous goods were produced by large corporations taking advantage of all possible economies of scale, whereas in the new economy heterogeneous goods are required by consumer groups with widely varying needs; the goods are produced by both large and small corporations, and are subjected to increasingly intense international competition. In the new economy, the new resources are primarily highly qualified, specialized workers whom companies must compete to attract and retain by offering much more than good wages – for example, the participation arrangements found in many small firms.

To deal with the change, even large corporations must move away from a rigid, integrated production system¹¹ that targets quantity with a minimum of service, to production featuring improved quality and the ability to change quickly to meet the needs of critical customers (Volverba, 1998) similar to that found in many small firms. Large or small companies must learn to work in a new way, in particular using the new decentralized innovative organizational forms, and maintaining relations of varying degrees with partner firms and other organizations from the milieu to increase innovative capacity. This creates an economy with an even clearer focus on knowledge, research and training, generating organizations that have the ability to learn in order to support constantly improving know-how and carve out a niche, dealing with uncertainty and ambiguity, and therefore with competition, through innovation. Figure 1.2 summarizes the various ways in which the economy has been transformed.

1.3 UNCERTAINTY AND AMBIGUITY

As would be the case for unaffiliated local criminal gangs in our crime metaphor, the uncertainty is even greater for entrepreneurs and the managers of small companies since they must face growing numbers of producers (or organized national or international gangs) around the world who are able to enter a local or national market by offering substitute products, and also because of the rapid pace of technological change. A high proportion of companies offering consumer or intermediate products are

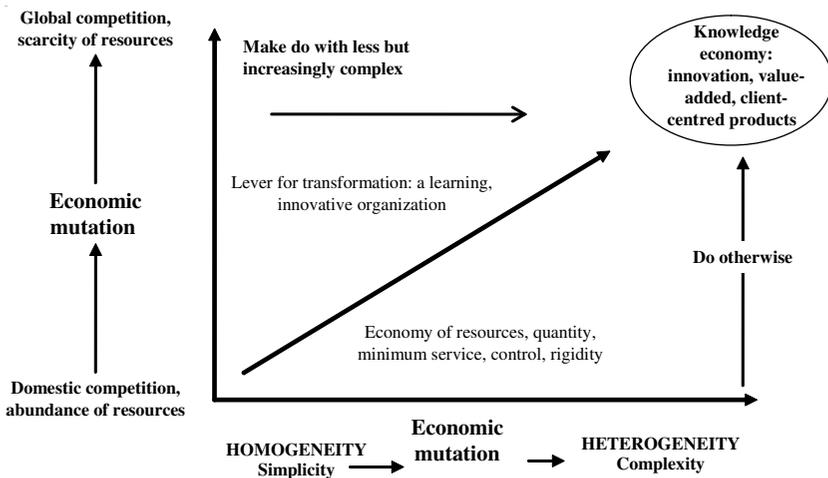


Figure 1.2 Key elements in the transformation of industrialized economies over the last 30 or 40 years

likely to face competition from products from countries whose ability to produce them was not even suspected only a few years ago. And with the extension of markets and transportation routes, products face competition from substitutes that offer different, and sometimes superior, features.

Uncertainty is a measure of ignorance. It is an inability to answer the questions that must be asked to reduce risk, but it decreases as additional information is obtained. Ambiguity also arises when a large range of information with conflicting meanings is present, leading to confusion.

Uncertainty includes the notion of risk, which can be calculated in terms of probability. It involves non-foreseeable events. It is reduced when adequate information is available. However, not all information is knowledge; too much information also leads to ambiguity, and systems must be developed to assess and complete the information received.

We are submerged by information, but we live in a time of growing uncertainty. For example, even when an entrepreneur hears that a Japanese or Brazilian producer is manufacturing a product similar

to his or her own at a far lower price, he or she still does not know if the product is adapted to the domestic market, if it is effective over the long term, if its quality and delivery schedule are comparable, and especially if, and when, the manufacturer is interested in exporting the product and developing a distribution network to reach the entrepreneur's locality. To react, the entrepreneur must know more about the long-term ability of the producer to supply a new market, such as the producer's financial structure, R&D capacity to adapt the product to domestic needs, and so on.

Information is rarely sufficient in itself, and often introduces extra ambiguities that require explanation and further information that is not always available. To reduce ambiguity, meaning must be extracted from the information, which must be sorted, interpreted and completed with other information that must be analysed and linked, before knowledge emerges. Valid information is the difference between the data obtained on a given situation or event, and the way that data is interpreted to select one of a possible range of options.

Four more-or-less concomitant strategies for small and medium enterprises (SMEs) can be applied to deal with the growth in uncertainty and ambiguity:

1. The first strategy is to go with the flow, without trying to obtain adequate information, by picking up quickly on new material and immaterial technologies and innovating constantly or on a regular basis. This strategy is based on the premise that, first, it is almost impossible to know what will happen in the future, because globalization means that danger can strike from any quarter and, second, that most potential competitors, wherever located, can be faced on an equal footing. In a study carried out to verify the strengths of small businesses working in sectors that would bear the full force of the abolition of tariff barriers following the gradual implementation of the free trade agreement between Canada and the USA, we found that, since complex information affecting the products involved was hard to obtain, many businesses had decided that by modernizing systematically they would be able to face all competitors, whether in California, Italy, Brazil or China (Julien et al., 1994b). One variant of this strategy is to compensate for potential low-cost competition from low-wage countries by investing in developing countries or making alliances with other companies there. However, this approach is often not cost-effective, and has hidden direct and indirect costs, such as bribery, inefficiency and unforeseen transportation

costs that increase overheads considerably. We are aware of at least one company that 'lost its shirt' through overseas investments of this kind.

2. The second strategy involves increasing flexibility, first by attempting to obtain complex information as soon as possible after the initial tip-off is received and, second, by developing room to react quickly, for example by imitating the feature of the competing product as closely as possible, adjusting the product price, adding extra features, and so on. Flexibility can also take the form of a market choice. For example, investing for a small firm in a large market such as a major city reduces market uncertainty up to a point, given the number of potential consumers, some of whom will always be interested in the product, at least until the company is able to react more effectively.
3. The third strategy is to innovate systematically to stay ahead of potential competitors by carving out a market niche and introducing regular changes to maintain a lead. This is the strategy followed by many high-growth small businesses, known as *gazelles*, as shown in an international study of the subject (Julien et al., 2001). Uncertainty has a good side, which is to encourage innovation, in other words to do different things differently, which is not possible if everything is already cut and dried. Investing in a new industry, such as the nanotechnology industry today, is always uncertain since practically everything remains to be discovered; at the same time, the potential rewards are enormous for a patient investor.
4. The fourth and final strategy involves systematically gathering information, especially through informational networks, sorting and analysing it, and transforming it into knowledge and action – in other words gaining control over the information flow, as we see in Chapter 7.

1.4 CONTROL OVER THE INFORMATION FLOW

Better control over the flow of information involves more than just use of information and communication technologies (ICTs). The new knowledge economy is sometimes explained wholly or partly in terms of ICTs (Foray, 2000), but it is not at all clear that these technologies, even though they multiply the amount of information available and facilitate the exchange of information, actually create more knowledge. Improving the container does not necessarily improve the contents. Research has shown that many businesses have understood the limits of ICTs, and do not adopt them blindly. For businesses that have done so, studies show that only a small proportion, less than 5 per cent according to Oxbrow (2000), report a real improvement in the quality of the information within their organization.

The bursting of the ICT financial bubble in late 2000 can be explained not only by excessive speculation but also by the dashed hopes of users, who expected ICTs to solve automatically the question of control over the flow of information. In fact, control comes from human factors, because knowledge is a human process, and from organizational factors that go well beyond the use of ICTs. The crisis was also due in part to the fact that consumer use of the new technologies was far less widespread than forecast by enthusiastic producers. All too often, knowledge management translates simply to buying software, however complex, that is often hardly used or hard to use, and that can never replace human processing of information. The many failures of enterprise resource planning (ERP) software in businesses confirm this conclusion.

The information problem is extremely complex, and its importance has been recognized for many years. For example, Olivier de Serres in the sixteenth century ranked information first among the agricultural methods that would ensure that land was improved year after year despite the uncertainty of weather, competition and political setbacks.

Economists were probably the first people to look at the question of information and control over information. Although for the classical theorists, information was not an issue, since the market always ended up providing information if only in the form of price changes for products that reflected variations in the cost of production factors, locating and analysing information was a costly process that was necessary in order to survive in a given market. Hayek (1945) explained that information was the basis for the competitive edge. The economists of national growth, after initial work on the Cobb–Douglas function, concluded that control over information and its application in the areas of training and innovation, at least in the form of a residual variable, was crucial to the measurement of differences in growth between countries (Denison, 1974). These results led to the current distinction between more strongly information-based industries with a clear technology or knowledge component, such as computing and biotechnology, and traditional industries. However, these distinctions are becoming less valid in the knowledge economy. Most, if not all, sectors are affected to varying degrees by knowledge, such as the traditional garment industry, whose recovery in industrialized countries (such as Italy) has depended to a large degree on design and knowledge of the market, in order to counter the low wages paid in developing countries.

The main constraint on applying economic theory to information is that, first, its effects are intangible and therefore unmeasurable and that, second, economic theory considers control over information to be gained mainly through individual analysis, whereas information is a collective or social phenomenon and is understood via collective means. For example, airlines

have extremely sophisticated systems to manage variations in weather, passenger arrivals, baggage handling, and so on. However, they are increasingly inefficient in terms of managing flights and airports. Similarly, the health-care system is deteriorating in all countries despite the existence of new techniques to monitor patient health, infrastructure use, examination systems, and so on.¹² In both cases, the philosophy of individual management and case-by-base operation by most, if not all, managers and employees has created a situation where no one knows how to improve the situation despite all the complaints received from passengers or patients, and the despondency of politicians.

Information is the basis for a community's knowledge and know-how (small firm or locality), which both vary according to the form and type of the market, rather than in terms of importance. For example, a standard product does not meet consumer needs in the same way as a custom product. In the latter case, the significance attached to the product by the community is far more important than its individual use value, which means that the producer must have a strong understanding of the customer base and the environment, which is the case for most small businesses (Pacitto and Julien, 2004). Similarly, a component that changes regularly should not be seen as a standard product that can be purchased at the least possible cost on the international market (China, for example); a decision to purchase must take into account the ability of the producer not only to make changes, but also to conduct a dialogue with the order-giver. Our experiment shows that it is easier with a small local subcontracting firm than with a large foreign firm. This requires a different type of business behaviour from that prescribed by neoclassical economic theory, which limits the analysis of competition to cost, process innovation and the use of new technologies.

The knowledge economy is a response to the main failure of economic theory, according to which information is always available, even if it is not at the same level for each firm or consumer, creating asymmetry in the market and in the industry. Because uncertainty grows as markets broaden and the number of products and producers increases, the search for information, either to understand and do better than competitors or to innovate, becomes the keystone of the economy.

1.5 KNOWLEDGE AND *NEW* KNOW-HOW: NEW FORMS OF COMPETITIVENESS FOR FIRMS AND SMALL REGIONS

The knowledge economy shifts the foundations of competition for both small and large firms, which can now only be based on knowledge, at least

in industrialized countries, whereas in low-wage countries, competition based on cost is still possible. This explains why the sector labels used by national statistics institutes are increasingly inaccurate since they do not take into account the many differences affecting not only products and services but also production and marketing processes. For example, it is known that many of the differences in productivity measured in terms of the number of hours worked are cancelled out by the specific characteristics of the products concerned (Paranque and Rivaud-Danset, 1996).

The difference between competitiveness and productivity could also explain why most major order-givers repeatedly try to buy supplies from new industrial countries because of lower wages, before finally returning to producers in their own country in particular because the other competitive elements, such as quality and delivery times, and especially the ability to update the product systematically, were not part of the deal (Julien et al., 2003a).

Another example to understand this difference would be the great painters, such as Vermeer or Picasso, who were extremely competitive, with their paintings selling for many millions of dollars, but the worst from the point of view of productivity.

Price competition is only one aspect of purchasing behaviour, especially for consumers who do not always have the ability or opportunity to compare, for example when buying prescription drugs. Another example is the survival of small neighbourhood butchers or fishmongers despite the arrival of supermarkets, thanks to their special ability to understand and satisfy customers mainly through quality and differentiation. Transportation or transaction costs and the cost of looking for the best producer must also be calculated, as well as short- and long-term confidence in the ability of the provider to continue offering service and response to the needs of the purchaser.

Competitiveness in the new economy is based increasingly on knowledge and know-how, and therefore on the immaterial capacity of each organization to vary the product (goods or related services) almost infinitely; it is often expressed by subtle or diffuse innovation developed by small and flexible enterprises and affecting various elements over part of, or the whole, value chain – for example, marketing in different markets. The broadened theory of competitiveness based on resources and competences explains how competitiveness is based first and foremost on the combination of, or a different or specific ability to mobilize human and material

resources, as well as skills (Reed and Filippi, 1990; Véry and Arrègle, 1997). The combinations are based on various resource configurations that cannot be imitated or substituted, generating special value. In particular, the choice and organization of human resources is the basis for differentiation, in contrast to the post-war scientific organization of work (Taylorism), in which equipment often dictated how work was organized (Foray and Mairesse, 1999). Another variable is the importance of the relational capital developed by the small business, allowing it to make up for its own limited resources by relying on a network, as pointed out, for example, by Hall (1993), Foss (1999) or Barringer (2000). These advantages are obviously not permanent in a turbulent marketplace where the focus is on the search for new opportunities. This makes it necessary to regularly reconfigure resources and links with outside players to maintain an advantage and, especially, promote systematic training and real-time exchanges of information, using informational bridges and catalysts to create new knowledge and special know-how, as discussed below.

The resulting differentiation explains the relative stability of transactions, with both small and large firms. For example, some of the firms with which we have worked for more than 10 years explain that they do not necessarily provide products to meet a client's needs, but rather a complex response to needs developed together.

One example is a firm producing coil springs, which can be manufactured by many small businesses. Its competitive edge comes from its unique ability to respond to various types of load, torsion and resistance, as well as variations in temperature, humidity and salinity; the ability goes well beyond what can be built into the products themselves. Similarly, the special ability of a small business to produce several types of products for the aviation industry, including steering systems (helicopter joysticks) and systems to analyse engine performance, is based on the division of its factory according to the use of different materials, allowing them to be combined in subtle ways using specific knowledge and know-how, giving it a major advantage in terms of solving problems and offering a range of highly specific products.

Eisenhardt and Martin (2000) note the growing importance of three elements in this special ability of businesses, namely, (1) a range of complex responses, (2) proximity for discussion purposes, and (3) flexibility in the face of change, as needs evolve. This explains the reliance of major

order-givers on national, and even local, small businesses and on directors from the home country, or sharing the same culture, in their subsidiaries overseas, despite the effects of globalization. Examples would be American, European and Japanese car manufacturers.

Proximity, flexibility and variety are integral parts of the innovation concept that helps firms distinguish themselves in areas other than productivity. It is true that productivity is the key factor for companies producing mass-market, standard or low-change products. In this case, the tendency to transfer production to low-wage countries will continue. For high value-added products that change on a regular basis, however, the ability of the organization and of its qualified workers plays a major role in maintaining production facilities in regions that are able to produce and support the required resources. Competitiveness in this case goes well beyond productivity.

Figure 1.3 shows a continuum. On the right are products that mainly require knowledge, know-how and therefore systematic innovation, and on the left are products based on a docile, low-cost workforce that accepts Taylorism, as was the case in industrialized countries up to the 1960s. As a result, on the right are high-quality if not almost unique products produced for specific markets, and on the left are mass-market products that are low cost and often, low quality.

Proximity, flexibility and variety allow for a new response to the knowledge economy and new know-how, by creating the ability to re-combine resources and skills in a new way in order to generate a specific response, if possible, for each customer. To go back to our metaphor, the same applies to the criminal individual or criminal gang which diversifies and

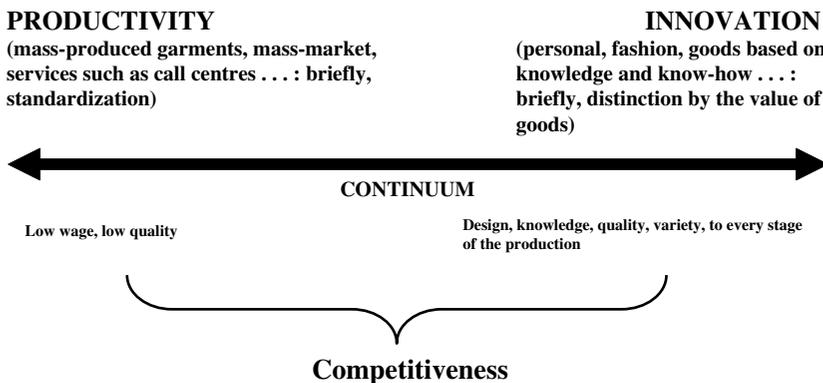


Figure 1.3 *Productivity/innovation continuum showing how competitiveness varies depending on the type of product*

adapts its behaviours to each casualty or territory, as Maigret explains in *The Lazy Robber*, with a significant ability to deal with change in the police organization. This requires organizations that are able to manage information properly and deal more effectively with uncertainty and ambiguity, as demonstrated by many small businesses. This ability to do things differently can be a feature of the areas where the small businesses are located. Some entrepreneurs have known this for a long time, others not, and this may explain some of the current differences in the field of entrepreneurship.

NOTES

1. Kenneth Boulding (1955: 104) defined knowledge as not 'simply the accumulation of information in a stockpile, even though all the messages that are received by the brain may leave some sort of deposit here. Knowledge must itself be regarded as a structure, a very complex and loose pattern with its parts connected in varying degrees of strength. Messages are continually shot into this structure: some of them pass right through the interstices without effecting any perceptible change in it. Sometimes, messages "stick" to the structure and become part of it . . . Occasionally however, a message which is inconsistent with the basis of the mental structure, but which is of such nature that it cannot be dishevelled hits the structure, which is then forced to undergo a complete reorganization.'
2. The OECD (2001: 7) refers to a 'move towards the knowledge economy'. One of the 10 challenges recently defined by the European Union is that of entering the future learning or knowledge-based society, highlighting the fact that this has not yet occurred (IRTS-JRC, 2000).
3. For example, Holmes, in *The Man with the Twisted Lip*, smokes opium and injects himself with heroin.
4. In other words the 'scientific approaches' to work organization based on the work of Frederick W. Taylor in the USA and Henri Fayol in France, in the late nineteenth and early twentieth centuries.
5. A good example of planned obsolescence is the replacement of computers by companies, forcing employees who work from home to change their own computers in order to remain compatible, even if their old computers were perfectly capable of performing the required tasks.
6. For example, J.S. Bach's Cantata no. 78, composed around 1730 in Leipzig, presents an overview of fashionable styles from around the known world, hinting at the Italian concerto style as practised by Vivaldi, dance rhythms from the French suite, learned counterpoint from Germany, the Spanish *cassata* in the definitive form adopted by Lully, and religious styles like the Catholic motet and Lutheran chorale.
7. In the 1950s, Japan began producing low-quality goods that were sold for a few cents or given away in boxes of candy. In the 1960s, Japan's annual national growth increased between 8 per cent and 10 per cent – rates very similar to those we are seeing for China today. As Japan's manufacturing industry evolved, wages increased and the current competition from Japan is of the same type, sometimes of higher and sometimes of lower quality, as that in the industrialized nations, and follows international trends.
8. Three-quarters of the American firms that bought other firms consider that they paid too much. United States groups consider that 80 per cent of their acquisitions should never have been launched (Lynch, 1993).
9. For example, the builders of custom-made kitchen cabinets or reproductions of period furniture sold for tens of thousands of dollars, like the consortium Permanente Mobili di Cantù near Milan (founded in 1893).

10. In the 15 European Economic Community (EEC) countries in 1999, roughly 25 per cent of the active population (in other words, 38 million workers) held so-called highly qualified positions (OECD, 2001).
11. For example, before the 1970s, the development of production lines in the automobile industry was so costly that their structure could only be changed after five years in order to remain cost-effective.
12. Probably no other production system would allow consumers to be made to wait for two or three hours in a crowded airport, or would ask all patients to arrive at the same time even if the doctor knows in advance, barring relatively rare circumstances, how long it takes to see the average patient. On the first point, see the book by Mintzberg (2001) on painful experiences as an 'ordinary passenger'; for him, the most important reason for this inefficiency is probably that 'the owners of airlines never fly'!

2. Differentiated entrepreneurship: regional and local disparities

You will tell me that a battle was gained by means of certain spells; whereas I hold that you must be blind, not to see that the situation of the field, the number or courage of the soldiers and the experience of the captains, are sufficient to produce that effect, of which you wilfully ignore the true cause.

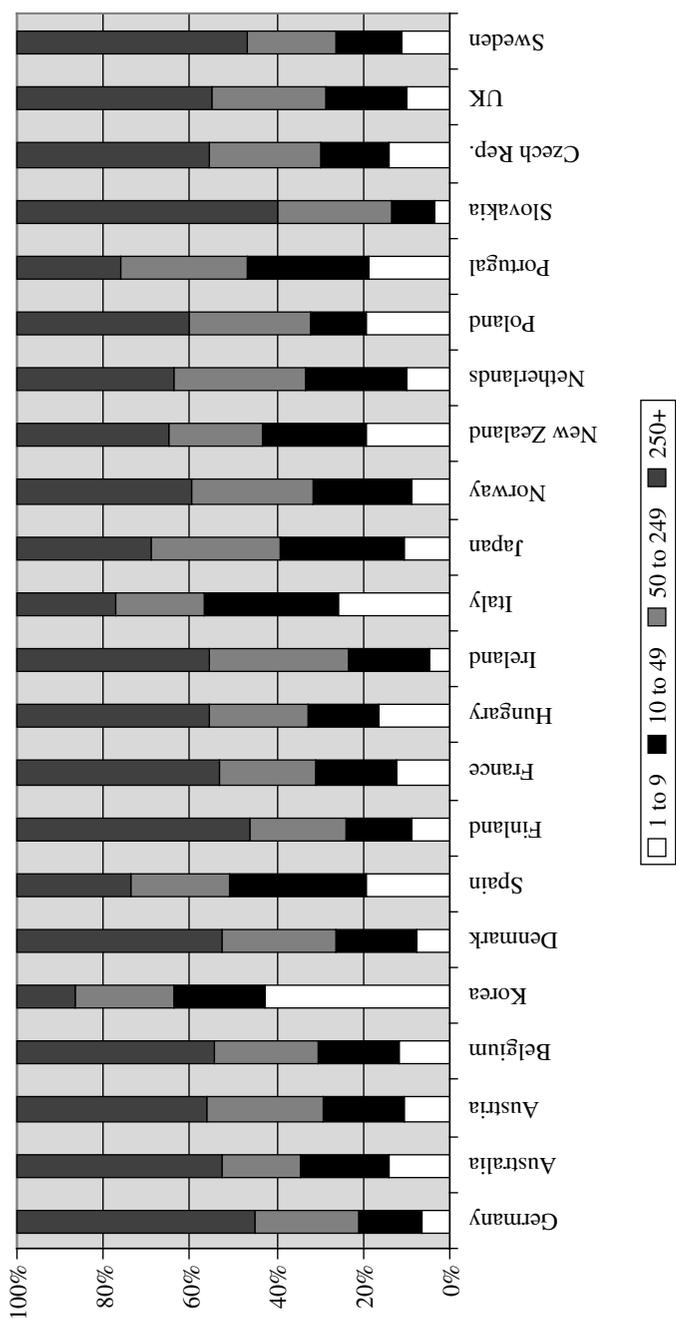
(Montesquieu, 143rd *Persian Letter*)

Small and medium enterprises appear to be doing well, since they continue to be the primary source of employment and local development. In all OECD countries except Germany, Finland, Slovakia and Sweden, they are responsible for more than 50 per cent of jobs in firms with fewer than 500 employees, and in many cases for more than 30 per cent of jobs in firms with fewer than 50 employees, as Figure 2.1 shows. However, their contribution varies from area to area, and they do not all contribute in the same way, nor do they all have the same vigour as far as local development is concerned. For example, and to return to our metaphor, many detective novels explain that Los Angeles holds the record for the most hold-ups per capita in the USA and even in the world.¹

This chapter is divided into six sections. The first examines the number of firms per region, while the second considers venture creation vigour. The subsequent sections consider the causes usually proposed to explain these differences – first the general or macroeconomic causes (section 2.3), and then those related more to entrepreneurial behaviours and microeconomic causes (section 2.4). Section 2.5 presents a summary of causes based on an international model, while section 2.6 discusses the need to go further in explaining territorial entrepreneurial differences by examining the combined roles of the entrepreneur, the organization and the milieu.

2.1 THE DIFFERING LEVELS OF IMPORTANCE OF SMALL AND MEDIUM ENTERPRISES

The difference in the number of firms is one of the main indicators of disparities in local or regional development, because SMEs are often the primary generators of employment and hence of revenues to ensure the



Source: OECD (2005).

Figure 2.1 Percentage share of jobs in the manufacturing sector by size of firm, for certain OECD countries (2003 or most recent year)

well-being of the area's inhabitants. Clearly, to measure this number, it is important to consider the size of the territory, especially in terms of population, and then the size of the firms and their effectiveness as job creators.

For example, in the USA, Table 2.1 shows that, while many states (including the District of Columbia) had more than 300 firms per 10 000

Table 2.1 Number of firms in more or less dynamic American states between 1994 and 1997, at year end, percentage per 10 000 adult inhabitants (18 and over) and changes between the two periods

	2000	2003	2003/2000 (%)	Rate per 10 000 adult inhabitants in 2003
Most industrialized states				
District of Columbia	25 157	26 633	1.8	477
Wyoming	18 566	19 616	5.7	391
Montana	32 593	33 991	4.3	370
Vermont	20 976	20 922	-0.3	338
Washington	194 977	206 699	6.0	337
Colorado	134 085	143 821	7.3	316
New Jersey	265 758	268 203	0.9	310
Delaware	24 782	25 289	2.0	309
New Hampshire	36 643	39 508	-0.3	307
Idaho	39 089	41 539	6.3	304
Maine	38 711	39 691	2.5	303
Rhode Island	32 666	32 594	-0.2	303
South Dakota	22 556	23 161	2.7	303
Less industrialized states				
North Carolina	172 661	179 580	4.0	213
Louisiana	96 441	94 437	-2.1	210
Michigan	213 865	210 803	-1.4	209
West Virginia	38 665	37 144	-3.9	205
Indiana	124 654	125 129	0.4	202
Ohio	232 755	229 648	-1.3	201
Kentucky	88 460	81 407	-8.0	198
Arizona	103 893	109 692	5.6	197
Alabama	88 222	85 768	-2.8	191
Tennessee	110 510	110 427	-0.1	189
Mississippi	53 509	53 641	0.2	186
Texas	388 439	398 928	2.7	181

Source: Calculations are based on data from the Small Business Economic Indicators, SBA (<http://www.sba.gov/advo/stats/bei03.pdf> and <http://www.census.gov/popest/states/tables/NST-EST2006-01.xls>).

inhabitants in 2003, others had less than 200 (Kentucky, Arizona, Alabama, Tennessee, Mississippi and Texas). Mississippi, which is less urbanized than, for instance, Wyoming, and is located on a plain west of the great river (unlike the mountainous Wyoming), had less than half the number of private firms per 10 000 inhabitants. Even so, the position of Texas, in spite of its oil, is worse, far removed from that of the forestry regions such as Montana (deviation of 51 per cent) or Vermont (deviation of 46 per cent).

Table 2.2 for the UK is similar. For example, the capital, London, had the largest number of firms (nearly 270 000) in 1998, for a rate of 478 per 10 000 adults, which is much higher than any other region. The North East of England (204 firms), the North West (294), Yorkshire and Humber (295) and Scotland (287) ranked at the bottom of the scale. Other regions fell between these two extremes – for example, Northern Ireland (438), the South East (398), East Anglia (382) and the South West (381). Even Wales, a more rural area whose economy, before the influx of SMEs, depended on coal mining (plus fishing and farming), had converted fairly successfully and reported a rate of 323 firms per 10 000 adult inhabitants, which is fairly close to the national average (352).

However, these data provide no information on entrepreneurship as such, and especially on net venture creation, unless we look at the changes. In Table 2.1, we see, for example, that the number of firms had increased somewhat in Texas (2.7 per cent), and also in North Carolina (4.0 per cent) and Arizona (5.6 per cent), between 2000 and 2003, but had increased much more in Colorado (7.3 per cent), Idaho (6.3 per cent) and Washington State (6.0 per cent), all of which have more firms per capita. Similarly, in Table 2.2, the Yorkshire and Humber region of the UK lost 3.84 per cent of its firms between 1994 and 1999, but Wales lost even more, at 5.33 per cent. Only in four regions did the total number of firms increase. They were London (+11.42), the South East (+3.98), Northern Ireland (+3.70) and East Anglia (+2.02).

2.2 DIFFERING GROWTH RATES BY REGION

Changes in the number of venture creations between countries can be compared by examining data from the international study Global Entrepreneurship Monitor (GEM project: Acs et al., 2005a), which compared the percentage of adults (aged 18 to 64) engaged directly in the process of launching a new business. The business in question had to be either pre-start-up or have been in operation for less than 42 months. The 2004 version of this study examined 34 countries accounting for approximately 800

Table 2.2 Number of firms registered in the major regions of the UK at the beginning of each year from 1994 to 1999, and 1998 rate per 10 000 inhabitants

	1994	1995	1996	1997	1998	1999	1999/1994 (%)	1998 rate per 10 000 adult inhabitants
UK	1 629 230	1 609 335	1 600 065	1 603 220	1 619 365	1 651 285	1.38	352
North East	44 120	43 425	42 455	42 035	41 815	41 995	-4.82	204
North West	162 900	159 875	157 365	156 585	157 580	160 060	-1.74	294
Yorkshire and Humber	122 410	120 460	118 350	117 665	117 240	117 710	-3.84	295
East Midlands	111 795	110 755	110 005	109 485	109 995	111 195	-0.54	336
West Midlands	138 145	136 595	135 215	134 840	134 595	136 290	-1.34	324
East Anglia	159 490	157 450	156 030	157 470	159 995	162 715	2.02	382
London	242 175	241 465	245 055	249 790	258 660	269 955	11.42	478
South East	243 370	241 055	240 440	241 815	246 115	253 045	3.98	398
South West	152 870	150 065	147 560	147 085	148 015	149 715	-2.06	381
England	1 377 275	1 361 145	1 352 475	1 356 770	1 374 010	1 402 680	1.84	358
Wales	79 465	77 200	76 060	75 415	73 335	75 230	-5.33	323
Scotland	119 825	118 610	117 785	117 525	118 265	119 160	-0.55	287
Northern Ireland	52 665	52 380	52 875	53 510	53 755	54 215	3.70	438

Source: 'Business start-ups and closures: VAT registrations and re-registrations 1980-98', London, Government Statistics Office (1999), URN 99/111, Department of Trade and Industry.

million inhabitants and more than 80 per cent of total international gross domestic product (GDP). To obtain the data, the 2004 research consortium conducted telephone interviews with 113 000 people, or more than 2000 per country, using a questionnaire that was slightly adjusted to each one. It also consulted about 30 to 70 entrepreneurship experts per country to identify the elements that facilitated or limited entrepreneurship. The study distinguishes between participation in venture creation or development through *necessity* (for example, following a lay-off), and venture creation to take advantage of an *opportunity*. It then calculates a mean of the two, known as the total entrepreneurial activity indicator.

This analysis shows that Peru, Uganda and Ecuador rank first in terms of entrepreneurial activity, with more than 25 per cent of adults aged 18 to 64 (one or two out of every four) engaged in some form of venture creation activity. They are followed by Jordan, New Zealand, Iceland, Brazil, Australia, Argentina and the USA, all of which report rates of 10 per cent or more. At the other end of the scale are Japan, Estonia, Hong Kong, Belgium, Sweden, Croatia, Portugal, Hungary, Italy, Finland and Germany, with rates of less than 5 per cent.

Obviously, the study does not compare the number of firms really created after the commitment to launch a business or whether the new ventures survived over time. Furthermore, the quality of the inquiry may be a source of controversy, particularly in the developing countries (six of the 10 more dynamic countries, in this 2004 version), in that most of the population does not have access to a telephone.² In addition, the questionnaire used does not give sufficient consideration to cultural or territorial differences.³ For example, some countries may exhibit a strong national commitment combined with a high rate of venture creation in the metropolis but stagnation in peripheral areas, while in others the reverse may be true. Thus, the GEM study, while interesting, needs to be refined and is ill suited to our purposes here.

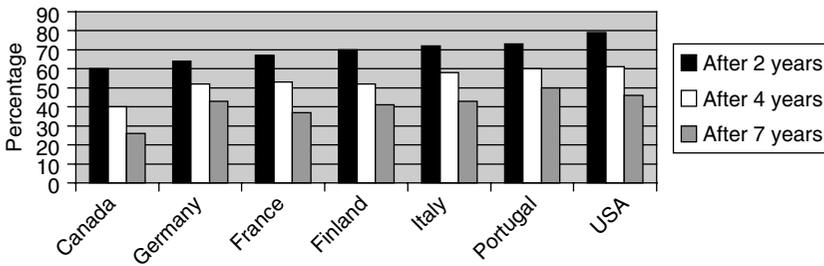
We therefore need analyses that are more detailed at the local or regional level. For example, in Canada, the GEM researchers broadened their analysis to the major regions. Here, entrepreneurial activity for 2004 involved 5.3 per cent of adults for Ontario, 7.2 per cent for the Prairies, 4.9 per cent for Québec and 3.1 per cent for the Maritime Provinces (Riverin, 2005). In addition, there were some fairly significant inter-yearly fluctuations for no obvious reasons: for example, in the French speaking region of Québec, entrepreneurial activity ranged from 8.1 per cent in 1999 to 3.3 per cent in 2000 and 4.0 per cent in 2002, even though overall economic activity did not change much during this time and the government did not develop new programmes to sustain entrepreneurship. This unexplained variation clearly illustrates the limits of the inquiry.

2.3 DIFFERENT KINDS OF NEW FIRMS

Although comparisons can be interesting, we need more information, for example the type of firm created. For instance, as soon as a population base is established, someone will open a small grocery store or a garage. If the population continues to grow, someone else will open a hairdressing salon, the local seamstress will hire additional employees and the cobbler may agree to start making made-to-measure shoes. The local garage may expand by opening a tool shop. Social and community organizations will be created to support entrepreneurship development and regional dynamics or to respond to social problems. In the end, the combination of activities will speed up the pace of development. However, all this entrepreneurial activity is merely a non-innovative response to demographic growth and will be referred to here as *mundane* entrepreneurship.

The GEM study provides no information at all on the type of firms actually created, for example, in Peru, Uganda or Ecuador (or in the Canadian provinces for that matter), nor on their size, structure or industrial sector, and even less on whether or not they have a ripple effect on other firms. Especially for the three developing countries, it is, of course, likely that the informal sector, often more important than the formal one, will be more developed than the formal sector, and part of it may be underground. A good part of this sector exists by necessity, since people need second jobs to complement their salaries and enjoy a modest level of comfort in their everyday lives. Even so, this is a long way from the GEM's necessity entrepreneurship. In addition, some enterprises may actually be illegal – for example, in Uganda and, as Fadahunsi and Rosa (2002) showed, in Nigeria. This importance of the informal sector means that the views of experts regarding these countries is necessarily distorted because they must choose between the variables affecting one sector or the other. On the other hand, many of the firms in the GEM data will probably never be created, and many others are probably community initiatives of the type described above – in other words, they do not involve any form of innovation but are merely a response to strong demographic growth. For example, in the 2002 version of the study, most respondents in fact said their firms would copy something that was already being done, and only 7 per cent thought their firms would be significantly different (Reynolds et al., 2002: 5).

Another question concerning the new firms is their survival rate. Some firms disappear soon after creation, or survive by the skin of their teeth. For example, studies showed that nearly 25 per cent of the smallest firms in Canada and 27 per cent of those in the USA disappeared within a year of being created (Baldwin and Gellatly, 2003; Phillips and Kirchoff, 1989). Given that nearly 80 per cent of firms start small, the impact of this finding



Note: * The figures refer to the average estimated survival rate for different cohorts of firms that entered the market from the late 1980s to the 1990s

Source: OECD (2002b: 40).

Figure 2.2 Seven-year* survival rate in seven OECD countries, 1990

is major. A year after start-up, a quarter of all firms with less than 20 employees no longer exist. The figure rises to 40 per cent after three years, and by the end of 10 years, barely 30 per cent will have survived. Survival rates do vary somewhat, as shown in Figure 2.2 for the seven OECD countries. They tend to be slightly higher in the early years in the USA, and slightly lower subsequently in Canada (depending on the economic situation and calculation method used).

The survival rate may increase where venture creation is facilitated by outside or additional aid, such as start-up incubators or other venture-creation support agencies, and also through the spin-off process with the support of the mother organization. Companies created by groups of people with different types of experience are also thought to have better chances of survival.

When firms disappear from official data, however, they have not necessarily gone bankrupt. Some may have been purchased, merged or simply suspended their activities with the intention of resuming them later. In France, for example, buy-backs accounted for more than 30 per cent of all 'new' venture creations, and resumptions for more than 25 per cent. Less than 25 per cent of losses are actually business failures – and even then, the firm's leader may have learned some important lessons for his or her next venture (SESSI, 1999a).⁴ Many studies have shown that more than 75 per cent of new entrepreneurs are still in business four or five years after a first or second attempted venture, resumption or buyout (European Observatory on Small Business, 1995; Reynolds and Miller, 1989).

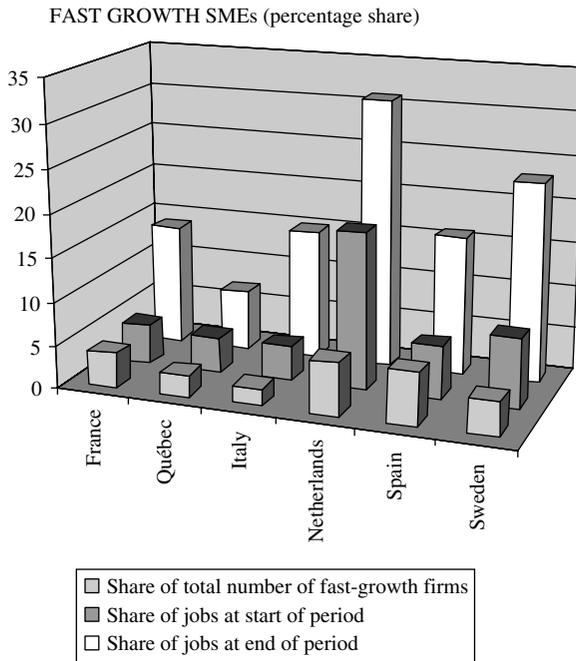
Certain other variables can be used to distinguish firms that last for several years. As we saw earlier, many new firms are grocery stores, garages, hairdressing salons, hardware stores, clothing stores, notary offices,

psychologists, day-care centres, residential building firms and the like, created to respond to demographic growth and the needs of local populations. A second layer of firms then emerges to serve this first layer, and also offers its services to other firms producing goods for or exporting goods from the region. Examples would be trucking firms, equipment repair firms, banks, accountants, computer specialists, and so on. The more a firm exports its goods outside the region, the greater its need for specialized transportation services, customs brokers and other similar support. An innovative, high-technology firm will require access to research centres, venture capital firms and so on. The government also supports all this economic and social activity by providing schools, health services, infrastructures to facilitate trade and institutions to provide healthy, educated personnel.

The complementary nature of these players is therefore an important factor in enterprise development. When a population declines radically, the question arises as to schooling: should the local school remain open, or would it be better to bus the children to a neighbouring community? And what about the local restaurant: will it be able to stay in business, or will it have to close down? Complementarity is also achieved through subcontracting of services and the production of by-products or parts, and is a factor in attracting investments from outside the region. A large population will attract branches of large commercial groups such as major department stores, franchises and other banner or cooperative outlets. Such investments are often not neutral, in that they may be based on considerations or strategies unrelated to the local situation. For example, a profitable local branch of a retail chain may be closed to channel more customers to a mall in a neighbouring city, with a view to diversifying the product range and customer base. A locality that is too dependent on outside resources will make less use of its local resources, thus limiting the opportunities for business development (see Chapter 10).

On the other hand, some variables may slow down development, among them the strategies of the firms themselves. Most firms have reactive strategies, in that they adjust to changes in demand and respond as well as they can, although usually late in the day, to competition and technological developments. Few firms have truly entrepreneurial proactive strategies, based on ongoing product and process innovation. Those that do exist create new opportunities, and not only do they convert their own environment by anchoring dynamic services in the locality or demanding the creation of new services, but they also help eliminate firms that cannot follow or do not encourage change within the marketplace and the area (Wennekers and Thurik, 1999).

Many of these innovative firms grow very quickly. They are known as *gazelles*,⁵ as opposed to the hoards of *mice* that survive in a state of



Source: Julien et al. (2001).

Figure 2.3 Share of fast-growth firms in jobs at the beginning and end of the period studied, six OECD countries or regions

stagnation or slight growth, and a handful of *elephants*, large firms created with outside investments and strategies based on considerations that are irrelevant to the region. Although there are very few *gazelles*, those that exist play a major role in restructuring or developing regions and hence in job creation, as shown by Figure 2.3. Although *gazelles* account for less than 10 per cent of the total number of firms, they are responsible for between 40 per cent and 80 per cent of the new jobs created by surviving firms (Birch et al., 1997).

The *gazelles* play other roles too, for example by providing a model for future entrepreneurs and other firms. They also help generate dynamics in the region by demanding all kinds of advanced local services, and these services themselves become catalysts for other firms (Garnsey, 1998). And although fast-growth SMEs account for only a small percentage of firms in most regions, their impact, once they exceed 10 per cent, can be a major element in the creation of a 'snowball effect' on knowledge-based development.

Table 2.3 Percentage of fast-growth firms (gazelles) in certain American states between 1993 and 1996

States considered the most dynamic	Percentage of gazelles	States considered the least dynamic	Percentage of gazelles
Nevada	19.3	New York	12.5
Oregon	17.8	Maryland	12.4
Arizona	17.7	North Dakota	12.3
Utah	16.7	South Carolina	12.3
New Hampshire	16.2	Michigan	12.2
California	16.1	Iowa	12.1
Florida	15.8	Wyoming	11.9
Missouri	15.5	West Virginia	11.6
Massachusetts	15.5	Alaska	11.3
Wisconsin	15.4	Hawaii	9.2

Source: Atkinson et al. (1999).

There therefore appears to be a relationship between regional dynamics and the presence of gazelles. At the very least, the gazelles are a good indicator of regional dynamics. Table 2.3 shows that, in the USA between 1993 and 1996, more than 15 per cent of all manufacturing firms were gazelles in the states of Nevada, Oregon, Arizona, Utah, New Hampshire, California, Florida and Massachusetts – in other words, in some of the 21 states (out of 50) considered at the time to be the most dynamic based on 18 criteria related to the new economy (Atkinson et al., 1999). On the other hand, the states of Hawaii, Alaska, Michigan, West Virginia, Wyoming and Iowa had the lowest percentage of fast-growth SMEs and were ranked forty-first, forty-second and forty-eighth respectively in terms of regional dynamics. We also checked this same relationship between the importance of gazelles and different indicators of dynamism in 96 very small regions of Québec (Canada) (Julien and Lachance, 2000).

These differences in regional dynamism are by no means random. Once a firm has passed the survival stage, its development depends on a variety of factors. Endogenous development depends on the will of the entrepreneur, and on the entrepreneur's relationship with the most dynamic services in the community, the community's requirement for development and the overall entrepreneurial culture. This raises a number of questions concerning the reasons (other than the existence of natural resources) proposed over the past 40 years to explain regional differences in entrepreneurship – for example, agglomeration economies and high demand.

2.4 SOME FORMER EXPLANATIONS

The presence of gazelles needs to be explained, since it is never spontaneous. Of course, the same can be said of all local development. In some cases, development can be explained historically by issues relating to location and defence (for example, Paris on the Île de la Cité, New York on Manhattan Island and Montreal on the island of the same name). The original population gradually moves outside the primary area of development to form new centres and, ultimately, large cities. However, other reasons must also exist, since some populous territories decline while others attract new populations, stimulating and benefiting from venture creation.

2.4.1 Some More Macroeconomic Answers

In recent decades a number of reasons have been proposed to explain differences in local development. Although many are unsatisfactory because they are derived from single disciplines, they are nevertheless worth considering because they will help us to identify a more complex response, in the manner proposed by William of Baskerville.

The oldest explanation is that proposed by the traditional economists, who emphasized the impacts of dynamic demand to create opportunities for firms, along with the presence of plentiful natural resources to attract investors. For these economists (for example, Arthur Lewis, 1951, and Paul Baran, 1957), entrepreneurs are never a problem because they necessarily emerge where business opportunities exist. Opportunities, if they are significant, will eventually be met by entrepreneurs who create large firms, which is the only truly efficient way of taking advantage of economies of scale (Martin, 1986). The arrival of these entrepreneurs generates revenue and leads to the creation of other firms, including a host of SMEs that graft themselves onto the large firms or work to meet the needs of a growing population attracted by the possibility of employment. The process snowballs to generate and, eventually, sustain development.

Rostow (1960), one of the first authors to propose the idea of cumulative development, spoke of occasional slowdowns, but also stated that development, once under way, was bound to consolidate and expand. However, it would still be possible for a flourishing region to decline – for example, if the supply of natural resources is exhausted or if demand is reduced by migration or strong competition. Similarly, the advantages of low wages may only last a short time, until new investments are needed, new areas with even lower wages are developed, or the population shifts to a more prosperous area. Finally, the balance between dynamic regions and lagging territories may gradually be restored. Gunnar Myrdal (1956),

however, pointed out that factor mobility did not necessarily lead to a restored balance, and that outside interventions were also required, first in terms of infrastructures (to reduce distance-related costs) and then in terms of help for investors, to create a critical mass and transform the vicious circle of underdevelopment into a virtuous circle of development.

A second explanation was proposed by geographers and regional economists, who concentrated on the role played by growth centres. Growth centres first take advantage of their *hinterland* to grow before circulating wealth from place to place until it eventually reaches underprivileged regions. This analysis is derived from the optimal business location theory (von Thunen, Weber, Christaller, Lösch) and the theory of economies of agglomeration from central locations (Bairoch, 1999; Delmar and Davidsson, 2000). According to Marshall (1890 [1961]), economies of agglomeration include: (1) economies deriving from the division of work between numerous firms in the city, (2) those relating to exchanges of information that increase as the number of actors grows, (3) those relating to the training of a more educated workforce and hence the accumulation of knowledge, and (4) those deriving from the multiplication of innovation and technology through direct and indirect contacts between firms. Thus, large urban centres generate centripetal institutional, social, cultural and economic forces conducive to the development of new firms. They are able to implement a diversified set of complementary and substitutable resources over a large area, or to attract new resources and hence new entrepreneurial capacities that may or may not be supported by political and administrative decisions (Bailly and Huriot, 1999). Clearly, there may also be some centrifugal forces in large cities, such as higher land prices, traffic congestion, pollution and violence, as many detective novels have shown for many large cities, and this may counterbalance the benefits and gradually drive firms and private citizens away.

In addition to the theory of economies of agglomeration, there are also numerous other concepts such as that of *employment pools*, which attract firms, or *technocities* that bring together scientific and technological resources to stimulate the creation of high-technology firms.

Other economists felt this approach did not consider the initial regional conditions or the endogenous forces supporting development, such as the quality of the human capital. These were the so-called 'top down' economists, who advocated the use of local energy (Stöhr and Taylor, 1981). They did, however, accept that insufficiency of demand would force small regions to export in order to complete domestic demand or the activities required by the local market. Outside markets, including foreign tourism, should be major outlets for local firms, which in return would multiply the spin-offs in the area, thus creating a cumulative and gradually accelerating process.

Finally, the behaviourists and rational managerialists, including Drucker (1985), emphasized the behaviour of the entrepreneurs themselves, who generate opportunities through innovation. Their firms, once they have achieved a certain size and developed a critical mass, would trigger a form of dynamic that could be perpetuated.

These various explanations have been summarized in two different economic theories, namely, the *theory of convergence* and the *theory of divergence*, which not only explain existing regional disparities but can also be used as predictors. The theory of convergence states that regional differences will ultimately be weakened because resource costs in prosperous regions will necessarily increase (wages, rents and money, due to the growing demand); thus, when prosperity occurs, lagging regions become more attractive to entrepreneurs owing to their lower costs (Afxentiou and Serletis, 1998). In contrast, the theory of divergence states that the benefits of dynamic regions accumulate in a sustainable way, attracting even more resources and creating even more economies of agglomeration and synergic effects that are sufficient to compensate for the external diseconomies.

However, none of these theories has truly been proved, and reasons are still being found to support them all (Veggeland, 1994), suggesting that the situation is much more complex than originally thought. For example, at national level, lagging economies such as Greece, Portugal and Ireland in the European Union have developed much more quickly, helped by special subsidies, but have not yet caught up with France, Belgium and Germany. At regional level, some areas continue to be extremely dynamic in spite of slow growth elsewhere; examples include the Terza Italia region, even though it missed out on the huge subsidies granted under the Marshall Plan after the Second World War (Maillat and Lecoq, 1992). If either of the major trends were irreversible, the regions would be condemned to success or failure, with no chance of changing the course of history.

This shows that all theories have their limitations, including the theory we defend in this book. For example, the prior demand explanation is derived from a somewhat tautological positivist approach. Demand attracts investment; but what exactly is it that triggers the demand in a given area? There are no absolute opportunities, and opportunities are not necessarily reserved for a given territory. As Ronstadt (1988) wrote, the opportunity may be discovered on the way to creating and developing the business. Demand must be recognized and developed, and the opportunity must be desired. There is no rationale between a business opportunity and a commitment.

We know of many entrepreneurs who have turned down opportunities for a variety of personal reasons (no time, fear of losing control, maintaining jobs for family members, and so on) and collective reasons (the organization

is not ready, the opportunity is too challenging, and so on). In contrast, we also know of others who have gone ahead with an opportunity even though they had no information, very little information or biased information, and gradually became aware of the problems, overcoming them with hard work, courage and a little bit of good luck. Maigret explained that many crimes are committed with no chance of success, simply because the criminal wants to commit them and overcome any obstacles afterwards. In addition, opportunities can be created from scratch, especially since the effects of demand should apply to most if not all regions, because distance is less of an obstacle nowadays, except for local services.

In the case of large firms, they tend to seek absolute advantages without associated risks – for example, plentiful natural resources – and once those advantages have been exhausted, the firms move away unless they are able to obtain significant government assistance, which they sometimes solicit by means of blackmail based on the threat of massive job losses in the event of closure. At the same time, these large, regionally indifferent investments often have little or no spillover impact and few regional spin-offs except for mundane subcontracting. This situation is seen frequently in developing countries. At the same time, some large firms, especially the primary producers, actually constitute barriers to development in developing countries, since they rely exclusively on exports and foster conspicuous consumption, generally via imports, on the part of a few well-paid managers supported among other things by pay-offs. Even in industrialized countries, these firms can stand in the way of small firms by offering overly high wages that small firms cannot match, for shop-floor staff and junior management alike (Parker, 2004). This enables them to attract the best resources, leaving the crumbs for smaller firms. Above all, large firms create a culture of dependency and hinder the development of a dynamic entrepreneurial culture in the regions.

In demand theory, market needs and the goals and capacities of entrepreneurs are harmonized more or less instantaneously or develop in harmony. This presupposes that: (1) the entrepreneurs are the only actors to have an influence over the firm's policies, with the other stakeholders being executants only and the environment being passive; (2) entrepreneurs have only one goal, namely profit; and (3) the process is clear, stable and consistent, based on inexpensive, easily accessible information (Bruyat, 2001). In reality, however, entrepreneurship goes beyond these forms of economic regulation and cannot be reduced to the market–hierarchy relationship proposed by economists using the neoclassical theory or the institutionalist approach (see Chapter 11).

As far as the geographers' approach is concerned, the goal is to explain why major cities fall into decline or experience serious problems – or why,

if we push the logic to its ultimate conclusion, we would be able to predict the decline of medium-sized cities and arrive at a situation with only one major city in each region, regardless of the cost. Regional development depends on a network of highly complex forces that allow medium-sized cities and regional centres to continue to develop within a changing hierarchy, based on the complementary nature and interdependency of cultural and political factors (Bailly and Huriot, 1999).

Proponents of the top-down development theory consider the need for a minimum or critical mass and the impacts of deconstruction, creating a vicious circle with youth migration, gradual population ageing and the development of a dependent mindset. This holds true even if responsibility is territorial. A change of trend is probably impossible without special, sustained assistance from the state – especially since many activities extend beyond territorial boundaries. At the very least, the region cannot cut itself off; it must be connected to national or even international networks if it is to develop.

As far as the behaviourists and managerialists are concerned, we show in this book, first, that entrepreneurs are not alone. To understand what they do, the actions of other stakeholders and actors must also be taken into account. Second, there are many different kinds of entrepreneurs and firms, as we said earlier and as we see later. The linear analysis of the managerialists does not take into account the fact that an entrepreneur's search for opportunities does not follow a clear logic. For example, many venture creations begin with a personal need that, when met by a new product, triggers small-scale production for friends and neighbours, and eventually leads to the creation of a formal company. Only rarely is the process organized, systematic and rational. Moreover, entrepreneurs do not necessarily anticipate the change, but they may themselves be the change or, at the very least, they may affect it. What Drucker and Casson describe are managers, not entrepreneurs, and business management, not entrepreneurship (Spinosa et al., 1997).

In short, all these causes and analyses hold some truth, but are too limited in scope. They identify certain elements that we come back to later, looking at them from a different perspective and in much more detail, taking into account not only the market (the demand) and the area (density and available resources), but also the behaviour, organization and environment of the entrepreneurs. If these elements were not relevant, entrepreneurial mechanisms would not differ according to location and time.

2.4.2 New, More Regional Approaches

We look here at some more meso-economic approaches, such as that proposed by Kangasharju (2000). Using two methods designed to measure the

*Table 2.4 Regional factors and impacts on venture creation in certain European countries**

	Endogenous variables: venture creation per 1000 inhabitants		
	Results of Reynolds et al.	Five cross-section variable regressions by Kangasharju	Model applied to a panel of firms by Kangasharju
<i>Growth of demand</i>			
Per-capita GDP growth	+/-	-1	0
Immigration/population growth	+5	+3	0
<i>Urbanization/ agglomeration</i>			
Population density	+3	+1	0
<i>SMEs</i>			
Share of small firms	+5	+5	+5
<i>Government expenditure</i>			
Expenditure by local government	-1	-1	-5
<i>Government behaviours</i>			
Presence of an interventionist government	+/-	+/-	+1
<i>Unemployment</i>			
Unemployment rate	+/-	+2	+/-
Change in unemployment rate	+/-	+2	0
<i>Home-owning population</i>			
% share of homeowners	-2	0	0

Note: * France, Germany, Italy, Ireland and UK.

Sources: Reynolds et al. (1994); Kangasharju (2000).

importance of different regional variables, Kangasharju compared the results obtained by Reynolds et al. (1994) with those for regions in certain European countries (Germany, France, Italy, Ireland and the UK). Table 2.4 shows that the most important variables are the share of existing small firms in the region (and thus the self-training mechanisms and models for new entrepreneurs), followed by market growth, measured in terms of population growth, immigration and population density. Unemployment is

either neutral or positive, as is the presence of an interventionist government in the region. The other variables are either negative or neutral. For example, per capita income growth does not appear to have an impact because outside markets probably compensate for domestic markets. Similarly, high local government expenditure can lead to high taxation (Hubbard, 1998). The inhabitants' saving capacity, and hence investments in new firms,⁶ measured as the share of home-owning households, also has no impact. In addition, Kangasharju tested the impact of the presence of available labour and public education levels, and once again found that they had no impact. It needs to be said, however, that some of the methods he used are not particularly refined.

In an older study of venture creation and loss in 382 small American regions, Reynolds et al. (1995) obtained somewhat different results and added new explanatory variables. Like previous authors, they found that population growth had a strong impact on venture creation (and on firm mortality/volatility). However, they also found that high personal income levels had a significant impact, whereas high unemployment and significant social diversity did not. In their study, sector diversity, good career opportunities (measured by level of education and the percentage of managers and professionals in the region), modernization of industry towards new sectors, and a flexible workforce stimulated by venture creation, all generated significant effects. In contrast, low production costs, a range of well-developed public institutions and infrastructures, strong population and service density and R&D capacity did not appear to have an impact on venture creation.

Some more recent studies contribute other results without more definitive conclusions. The results of the study by Bosma et al. (2001), carried out in Holland, show that changes in per capita income, unequal income levels, the diversity of the industrial structure, venture profitability and venture-creation support policies all had a significant impact. In another study, by Acs et al. (2005), of entrepreneurship in 17 developed countries, the main significant variables are the stock of knowledge (to seize opportunity) measured by the weighted (to GDP) flow of expenditures for R&D, followed by the importance of young people (30 to 44 years) in the population and economic growth, but limited by the level of personal income taxes (but not corporate income taxes!) and the level of wages (giving a smaller relative reward for starting a new firm).⁷ Finally, Rotefoss and Kolvereid (2005), distinguishing aspiring, nascent and fledging Norwegian entrepreneurs, found that the most important variable is the former experience of the entrepreneur. The impact of other variables (population growth, unemployment change, industrial specialization, importance of the socialist policies, and so on) differs according to the type of new entrepreneur (aspiring, nascent or

fledging). However, some variables have no influence at all, including the level of education of the future entrepreneur, the level of urbanization and the availability of financial resources.

All these analyses have their limitations, including the fact that most of the variables are measured over a short period, even though the entrepreneur's intention to create the firm may have developed over a period of many years⁸ and despite differences in the economic environment (Tödtling and Wanzenböck, 2003). Similarly, the reasons for venture creation derive from a mix of variables that often differ for individual entrepreneurs, and may be affected by the dynamism of the industrial fabric, or the fact that opportunity and resources may be facilitated and even stimulated by the milieu and its entrepreneurial culture (see Chapter 5).

In short, there is something missing from all these analyses, in that, for example, they are unable to explain why so many small firms are created, for example, in localities whose economies previously depended on farming or natural resources. Similarly, they do not explain the restructuring of areas previously in decline. There is therefore a need to add more entrepreneurial reasons based on the desire of certain people to create companies in spite of the absence of some of the required conditions.

Ashcroft et al. (1991) examined the impact of anticipated profit from venture creation, the economic probability of achieving that profit, the presence of start-up capital, the entrepreneur's abilities and experience at start-up, the size of the firm at start-up, the possibility of spinning off, and the presence of model firms. The first three variables stood out as being the most likely to promote venture creation.

The third variable (the presence of start-up capital) was also retained by Baldwin and Gellatly (2003), who found that insufficient capital at start-up created a handicap that endured throughout the growth of the firm, increasing the possibility of closure or bankruptcy. Similarly, some researchers observed that start-up in an expanding *filière* as opposed to a shrinking or stagnating *filière*, considerably increased the chances of subsequent development.

It is possible to go even further by considering the characteristics of the entrepreneur. For example, Abdesselam et al. (2004), in a complex study, examined the impacts of 29 variables on the four-year survival rate of 23 013 firms in 22 French regions and four overseas *départements*. The variables included the entrepreneur's age and prior employment, level of university education, main sources of funding, past experience, and knowledge and practical experience of entrepreneurship (for example, partner or manager of a previous firm). The results showed that the survival of a young firm is indirectly conditioned by the existence of prior habits, and hence by the entrepreneur's level of skill and entrepreneurial know-how,

and especially by past experience in the same sector, as was also shown by Rotefoss and Kolvereid's (2005) analysis. They also confirmed the prior observations of Dunkelberg and Cooper (1982).

Other researchers have noted the importance of innovation in creating a firm able to stand apart from the competition (North and Smalbone, 2000). For example, a firm that is launched with a quality-based strategy as opposed to a price-based strategy (Storey et al., 1989), a product-oriented strategy (STRATOS, 1990) or a niche-oriented strategy (Woo et al., 1989) is more likely to survive. However, there are many different kinds of innovation and organization. The impact of a rural as opposed to an urban location appears to be declining, despite the presence of innovation support services in cities (Audretsch and Fritsch, 1994; Julien et al., 1999a). Ashcroft et al. (1991) even showed that SMEs in small rural areas of the UK performed better in terms of innovation than their counterparts in urban areas. An additional factor is the role of new technology dissemination within localities to support the competitive abilities of firms (Thomas, 1969; Thwaites, 1988). Finally, Siegel et al. (1993) found that firms created by teams were more likely to survive than those created by a single entrepreneur.

The wide-ranging GEM study summarized a number of macroeconomic and microeconomic variables, including a favourable national environment with good educational institutions or extensive road infrastructures, vigorous financial markets, tried-and-tested support policies and complex R&D support services. These variables were measured using national data or via surveys of experts, as we said.

Once again, however, the measurement of these results is somewhat limited. First, the study does not consider local or regional differences, which is the subject of our research here. Second, further work is required to obtain more valid results that reflect different structures, behaviours and cultures. For example, the study does not consider what ultimately happens with respect to the venture-creation intentions expressed. Third, it is very difficult to compare national data that are different in nature or are applied differently, as we mentioned previously, for example, concerning the importance of the informal sector in developing countries. Another example would be the quality of fiscal data, which do not take into account inter-country differences in fiscal structures and their differing impacts on entrepreneurs, firms and consumers. Nor does the study examine eviction behaviours (exemptions and fraud).⁹ The same applies to the quality of information on angel investing by region (O'Halloran et al., 2005). Fourth, and the more importantly, the study fails to distinguish between different kinds of firms, treating them all in the same way, when in fact venture creation and venture recovery tend to be concentrated in more mobile sectors or those that are more conducive to development. Is it not the purpose of

any study on entrepreneurship to know how to develop new firms that are able to sustain local or regional economic dynamism in the long term?

The variables highlighted in many previous studies certainly have their uses. The importance of demand, economies of agglomeration, the beneficial impacts of growth centres, the presence of other firms serving as models for new entrepreneurs and the previous experience of entrepreneurs are by no means negligible. However, these elements are not, of themselves, sufficient. To understand territorial entrepreneurship (and, to go back to our metaphor, certain criminal activities), we need to go even further, examining the roles of individual actors (for example, entrepreneurial or personal behaviour) and collective actors (local and regional organizations and communities, or the culture and conventions that may or may not sustain or facilitate these two possibilities) and their impacts on entrepreneurship and hence on the way in which knowledge and opportunities are developed and applied. Sherlock Holmes accurately described the different environment in London and its suburbs, and the impact of these differences on crime levels. Behind knowledge stand individuals who act in different ways and have different forms of contact (including virtual contact) with entrepreneurs, firms (organizations) and communities.

NOTES

1. For example, Michael Connelly, in his recent novel, *The Lincoln Lawyer* (2005), explains that just in the Los Angeles County (10 million inhabitants), there are 100 000 violent crimes a year with 140 000 arrests for these crimes, etc.
2. In some countries, however, some of the investigation was direct, but with many problems on the representation of this part of the inquiry. For example, when travelling in developing countries, one need simply stop at traffic lights to see people, often children, selling newspapers, trinkets or junk food, and travelling entertainers offering their services to drivers. It is impossible to know if they are employees of an enterprise or freelancers (de Soto, 1989).
3. For example, a French study performed in February 1998 produced results that were significantly different from the results of the 1999 GEM survey. The French study showed that while 27 per cent of adults aged 20 to 57 were interested in venture creation, only 8 per cent were company managers at the time of the survey, 7 per cent had created or taken over a firm in the past, 7 per cent intended to launch a business in the short or medium term, and 5 per cent had abandoned their venture creation plans (Letowski, 2001).
4. Although the lesson may take time. For example, the chief executive officer (CEO) of Amway, a producer and door-to-door distributor of household products in North America, went bankrupt 17 times before finally becoming a multimillionaire.
5. According to the OECD study which had begun in 1999 (OECD, 2002b), SMEs in which the number of jobs more than doubles in five years.
6. Storey (1994) noted this variable, since a certain number of small entrepreneurs mortgage their homes to obtain start-up funds.
7. Without explanations, the results vary significantly between the more recent years (1990–98) and the overall period studied (1981–98), with the most significant variable being expenditure on education and with the impact of higher wages being positive.

8. Furthermore, as John Maynard Keynes would say, it is not the real purpose (the profit, in his theory) which explains venture creation (the investment) but its expected or anticipated purpose in the future.
9. In some countries, direct and indirect tax rates are very high precisely to compensate for the high levels of fraud that would be difficult to avoid for historical and behavioural reasons. These differences can generate diverse kinds of behaviour in favour of rent-seeking or illegal activities (Lu, 1994).

PART II

The Main Actors: Entrepreneurs,
Organizations and Milieux – Their Capacity
to Develop Knowledge

The knowledge economy is of necessity a human affair. Information and communication technology can facilitate information transmission and processing, but information alone is not knowledge. As Nooteboom (1994: 342) points out, knowledge has three dimensions: width, depth and tacitness. Technology cannot take these dimensions into account, particularly the last one, which is the base of intuition or insight. Only the human mind can combine prior knowledge with new explicit and tacit information, often in unexpected ways, to produce strategies, innovations and, finally, decisions. In the case of entrepreneurship and the knowledge economy, the human beings in question – the actors – are primarily the entrepreneurs themselves, along with their organizations, which are made up of employees, and the other stakeholders, communities and actors surrounding the firm (the milieu). Clearly, all these people must take into account two constraints, namely, time and the socio-economic situation.

To continue the mystery novel metaphor as a means of understanding what is really happening in the field of entrepreneurship and knowledge development, we must consider not only the hired assassin but his or her accomplices, namely, the backer, the criminal organization, and the capacity of related people to imagine and prepare new jobs that will extend their criminal activities as well as the milieu that supports them or makes their task easier or more difficult. In the case of entrepreneurs, we must also look at the environment and the society in which they live, which provides information that facilitates or limits their behaviour (by multiplication of facilities or obstacles and constraints). Finally, we must consider the time factor, which either facilitates the task or makes it more difficult.

In the economy, the environment is composed of the market for goods and services sought by intermediary buyers (firms or institutions) or by private or institutional end consumers. The environment also provides firms with various resources, including labour and the information on which entrepreneurs rely when creating and managing their firms. The environment fluctuates to varying degrees. In an economic slump, buyers are more reticent and firms must therefore make a special effort to convince them to act. In a period of economic buoyancy, sales tend to be easier and most economic actors are optimistic. In a slump, however, firms are forced to make better use of their resources and develop new, more effective methods, and it is this that ultimately brings about the recovery (Schumpeter, 1939).

Central governments try to influence the environment by means of measures aimed at preventing or minimizing slowdowns or recessions, or more

structural measures aimed at modernizing the economy – for example, by training human resources.

The second constraint – time – is of fundamental importance to local development, since development and decline occur over time. For example, government measures to support development are often ineffective, not in and of themselves, but because they are replaced after every general election. Some major changes within firms also require time – for example, new market development or a change of sector. Time is a factor in the creation of many new firms, and in their disappearance; most new firms will fail in the first 10 years owing to a bad idea at start-up, a poor organization that is not able to answer market needs, a delayed reaction to innovations introduced by competitors or changes in consumer tastes and then failure to modernize quickly enough, or problems relating to managerial succession.

In the case of endogenous entrepreneurship, local decision-makers have very little control over these constraints, especially the time factor, which is virtually uncontrollable except for deciding the timing of investments to press home an advantage or gain ground on competitors. With regard to the environment, the best any small entrepreneur can do is to try to free up a limited market space by putting out as many information antennae as possible, so as to have prior warning of changes in the general economy. Multinational firms have more power over the environment because they are actually able to slow down change or direct it to their advantage, for example via inter-corporation agreements or other coalition's forms.

The environment and the time factor are both constraints that can generate business opportunities in a territory. To explain differences in local entrepreneurship, however, we need to look at the three actors in the pyramid, namely, the entrepreneur, the organization and the milieu. We start by discussing the role of entrepreneurs and their organizations in the creation of new knowledge, and go on to look at the environment or milieu in which the entrepreneurs work, composed of various socio-economic actors. These actors in the milieu are the source of the new information that is circulated and developed, and they themselves end up being transformed by the changes that take place in the firms simply because they are embedded with them. In other words, what we have here is a circular relationship composed of a myriad of complex human contacts, supported by technology, that ultimately shape the dynamism of their locality's economy.

These three actors – entrepreneur, organization and milieu – are complementary. The entrepreneur is the starting point or key figure in the firm's creation and subsequent transformation through innovation. The organization complements the entrepreneur, in particular in the search for and adaptation of information, and explains the production that generates revenues (profits and salaries) to support growth. Finally, the milieu – of which

the entrepreneur is often a product – provides resources to ensure the success of the firm. In our mystery novel metaphor, this can be compared to criminal drug activities involving small dealers, organizations and black market systems, as described in many of the Sherlock Holmes stories. These three actors (entrepreneur, organization and milieu) are dependent on one another, showing that entrepreneurship is primarily a social phenomenon. However, the influence of society in no way hinders the freedom of the entrepreneur, and the role played by society does not mean that society dictates entrepreneurship to the detriment of the other actors. We find ourselves in a kind of ‘no man’s land’ between action that permits and facilitates, and structure that limits, as explained by Giddens (1984).

Of these three actors, the most crucial is certainly the milieu. Entrepreneurs and firms (organizations) can be found everywhere. However, the milieu has the ability to convert potential or reactive entrepreneurs into proactive or high-growth entrepreneurs. In other words, although the entrepreneur and the organization are essential to the process, especially entrepreneurs in proactive firms, they are not, of themselves, sufficient. The milieu’s vigour is absolutely necessary in explaining local development supported by new knowledge.

So, the fact of treating the entrepreneur as the central (if not the only) element of entrepreneurship and as an individual with primarily personal characteristics, as too much research tends to do, is tantamount to misunderstanding entrepreneurship, and the reasons it functions better in certain areas rather than in others, and at certain times rather than at others, as explained by Bygrave (1989). It is rather like trying to resolve an epidemic or pandemic simply by treating individual patients, even though their collective behaviour is clearly an element in the spread of the disease. As many authors have pointed out, however, entrepreneurs are the most visible actors in the entrepreneurship process (Boutillier and Uzunidis, 1999), and we therefore begin by examining their role.

3. Entrepreneurs

We believe a man who does not possess the qualities of a general at thirty years of age will never possess them; that a man who is not able to take in, at a glance, a site of many leagues, with all its different situations, who does not have the presence of mind to know that in victory you must use your advantages, and in defeat your resources, will never develop such talents.

(Montesquieu, 48th *Persian Letter*)

Entrepreneurs are somewhat paradoxical, in that they seek independence by taking charge of their own destiny, yet systematically need their milieu for start-up ideas, organizational development resources and new information. There are, of course, different types of entrepreneurs and different venture-creation and development processes, but they are difficult to define precisely and research often produces contradictory results. In addition, the scientific literature often has trouble separating entrepreneurs from their firms, and entrepreneurship in general from small business.

This chapter starts by examining the social origins of entrepreneurs in order to establish the differences between them and their firms. It then goes on to consider the reasons why they become entrepreneurs, including the strong influence of parents, relatives and the milieu. The milieu is particularly important when it contains visionary and proactive entrepreneurs, and it is this aspect that allows us to separate the different types of entrepreneurs.

The chapter goes on to discuss the venture-creation process most often selected by entrepreneurs, and the business paths they follow. Often, the business path generates an aversion to risk over time. We therefore examine the conditions required to preserve the entrepreneurial mindset, based for the most part within the organization and the milieu. In short, if we are to understand the different types of entrepreneurs, we must take their history, organization and environment into consideration.

3.1 INNATE, ACQUIRED OR BUILT

As Boutillier (Boutillier and Uzunidis, 1995) points out, entrepreneurs (like criminals, as said Maigret) are made, not born. Entrepreneurs, venture

creation and subsequent changes to the enterprise, like all human activities, are an inherent part of the general history of the person concerned and of the environment that allows for and supports that person's entrepreneurial behaviour (Bourdieu, 1987). An individual entrepreneur's history lays down some general guidelines and provides for a given level of dynamism, but the person's success depends on the support received from the milieu, and especially from other entrepreneurs. Entrepreneurs are usually embedded in a given area, and benefit from the roots this provides. Their stories are therefore not random, nor are they a product of the reductive rationality of classical economic theory based on individual selfishness and profit-seeking. Instead, they are derived from the roots and paths taken by individuals, either alone or as part of a group, who decide to launch or develop businesses. This is equally true for entrepreneurs who launch fully fledged businesses, the self-employed who keep organizational structures to a strict minimum, businesspeople who take over existing firms and entrepreneurs who change their firms.

Each entrepreneurial story starts with the innate characteristics of the individual person, and by the social formation of certain dispositions in the early periods of his or her life, as stipulated by child psychologists. In childhood, the person develops certain elements of humanity (Pinçon and Pinçon-Charlot, 1999). It is at this stage of their lives that they acquire self-confidence and independence instead of self-doubt, initiative instead of guilt and identity instead of role confusion (Erikson, 1959). Some children, regardless of age, naturally seem to take charge when playing with their friends. They become leaders at school and in youth associations, but this is in no way predictive of their ability to maintain that leadership later in life, or the likelihood that they will become business leaders in the future.

These initial dispositions also include the person's health, since good health will be required later to provide the level of energy required by certain activities.¹ They are strongly influenced by the person's immediate circle and family. It is within the family that individuals learn to socialize, acquire shared conventions and references, and develop habits and behaviours. The family is also the place where values and viewpoints are conveyed and primary habits (those that last the longest, even if the person is not aware of them) are developed (Bourdieu, 1980). This includes deviance, which, if properly channelled, can lead to innovation in business. Thus, the family is where a would-be entrepreneur develops the ability to internalize social and cultural elements from the environment and hence to build his or her entrepreneurial capacities by combining what is innate, what is learned and what is acquired (Berger and Luckman, 1967).

A young entrepreneur remembers having socialized with the wrong people during his youth, stealing cars and committing other petty crimes. This lasted until a friend of his father stepped in and took charge, gradually helping him to channel his energy towards legal activities. When he was 21 years old, the entrepreneur's own car was stolen and, along with his partners, he created a concept that used mobile phones as anti-theft devices in cars. He eventually withdrew from the partnership and went into business on his own. The business is now flourishing.

Schools, friends and, later, the workplace all play a role in acquisition and building by providing additional learning and experience. School and work both affect behaviours and offer better preparation for certain types of activities. Today, people acquire a broad range of this type of experience in the post-teenage years, since they are less likely to take a linear path as their parents and grandparents tended to do. For example, they may change fields, interrupt their schooling, travel and do a myriad of things that may or may not be useful later in life (Dubar, 2000). Everything they do will have an impact and help them to identify the models that will allow them to break free of their families. In some cases these models will be business based, acquired from dinner-time discussions at home or with uncles, aunts, grandparents and friends, or from vacation jobs and part-time employment (Cooper et al., 1990). If the person concerned wants to become an entrepreneur, it is these models that will provide keys to help start up and manage a business.² They may also be a source of contacts with business networks and a valuable source of referrals.

Although a disposition may be innate, acquired or built, it should not be seen as something that is given in advance, or as something that can be used to separate potential entrepreneurs from the pack. If this were the case, all the children from business families would themselves go into business. In reality, however, such things rarely happen, as witnessed by the many different types of entrepreneurs and firms, and the constant and rapid addition of new services in the knowledge economy. However, a person's early experiences do help to develop certain capacities and orientations that will allow the person to face up to uncertainty and possibly to launch a business, provided of course that the right circumstances arise.

Would-be entrepreneurs are therefore subject to three types of influence, which may in turn be positive or negative,³ as shown in Table 3.1. *Emotional* influences normally come from the family, whereas *symbolic* influences are derived from model transfers and *sociological* influences from gradual

Table 3.1 Types of influence on would-be or actual entrepreneurs

Influences	Origin	Effects	Positive	Negative
Emotional	Family, friends . . .	Strong, reassuring contacts	Encouragement	Dissuasion
Symbolic	Education, work	Standards, beliefs	Assurance	Conservatism
Sociological	Work, experience, networks	Roots or embedding in a given milieu	Available resources	Potential obstacles

involvement, leading to settling or embedding, in a given environment. All these influences transform the entrepreneur into a plural, collective being, and are applied gradually, in no specific order. They form the basis of the reasons or triggers that lead individuals to choose entrepreneurship. As Maigret said, *a man without a past is not really a man*.⁴

3.2 ENTREPRENEURIAL TRIGGERS OR SOCIAL AND PERSONAL REASONS FOR ENTREPRENEURSHIP

As we said earlier, the international GEM project examines only two groups of reasons for venture creation, namely, the availability of opportunities and the need to create a job for oneself or someone else. However, reality is much more complex than this would suggest. For example, the need arising from a lay-off could very well be fulfilled by the employment insurance system that exists in many industrialized countries. Where a business is launched following a lay-off, the idea has usually been around for a while, and action was simply precipitated by circumstances. Entrepreneurship triggered by market opportunities can often be promoted or triggered by a sudden event, described by Shapero (1975) as a *displacement*. Research into entrepreneurship often neglects the time factor, which is the second external player in the entrepreneurial pyramid (Figure I.2) and can be a major element at every stage of a project. Thus, the general reasons for entrepreneurship can be divided into three groups, namely, personal motivation, competencies and opportunities.

Personal motivation is not always clear-cut. For example, an entrepreneur seeking greater freedom by launching or buying a business might speak of self-assertion, self-identification and self-distinction (Filion, 1997). Clearly, many entrepreneurs also have a need for achievement or independence

(Gibb and Scott, 1986), a need to control their own futures. They may also be achievers, power-seekers or ambitious (McClelland, 1971). All these reasons have, however, been criticized (Durand, 1975; Gasse, 1978).

Walker and Brown (2004) have shown that personal factors and lifestyle usually come before these other reasons. However, for some entrepreneurs, the attraction of venture creation is the challenge it presents, or the possibility of adventure offered by the prospect of creating a new business or buying and transforming an existing one. In addition to personal and family needs, there are also social needs, such as the need to create or maintain employment in a community. Social reasons may be political in nature, in the broad sense of the term, in that the entrepreneur has something to prove to his or her fellow citizens. Not least, money and profit are the main motivating factors for certain entrepreneurs. In many cases, at least initially, money is the least important motivator, contrary to the precepts of neo-classical economic theory,⁵ although it is also one of the major measures of success and a condition for continued entrepreneurship (Le Cornu et al., 1996). Similarly, motivating factors are never exclusive or confined to a given period, but consist in a complex interaction of desires, interests, emerging needs and opportunities. Not only do they develop gradually, but they also overlap, and their relative importance changes as the individual evolves and is subjected to different influences.

Education and work experience develop *competencies* that will impact upon the type of business created or purchased by the entrepreneur, and will play a significant role in its subsequent success. Competencies may also be derived from a favourite hobby, activities requiring responsibility and imagination, and experiences at school and beyond. They are obtained from ongoing conversations with family and friends. Over time, certain types of experience will help develop organizational and leadership capacities that can be improved with practice, and will also stimulate ideas to be applied in the future.

There are two main types of *opportunities*, those that arise at a given time or are enacted⁶ at the same time the opportunity appears (Gartner et al., 2003) and those that are created or discovered and developed over time. The former may appear suddenly, and may not always be clear-cut (Venkataraman, 1997). They require attention and vigilance, alertness, as pointed out by Kirzner (1973), as well as the ability to associate ideas (Kaish and Gilab, 1991) or combine known elements with additional information (Shepherd and DeTienne, 2001). Usually, they emerge out of the imagination and need to be matured by experimentation or action (Rondstad, 1988). Vesper (1980) gives the example of K.C. Gillette, who found shaving difficult and disliked his shaver. After meeting the inventor of the disposable bottle cap, he went on to invent a disposable razor.

Jameson (1961) explained that Thomas Cook, who liked to travel, noticed that most people find it difficult to organize their trips. When he was just 33 years old, he took advantage of a Temperance League conference in Loughborough, in the British Midlands, to negotiate a special rail fare for conference participants. He subsequently did the same for the 1851 World Fair in London, and the travel agency system was born. George Pullman had a similar problem with railway carriage quality when he travelled, and ultimately designed a more luxurious sleeper/dining carriage. In 1867 he and a friend launched the Pullman Palace Company in Chicago, revolutionizing rail travel for the rich.

There are also the extreme observers, like the fashion designers who are able to spot in a crowd what Marris (1964) refers to as *pioneers*, people who try their hardest to stand out and do not care what others think.⁷ New ideas can also emerge from readings, meetings and social networks, or they can be noticed and developed by business people seeking ways of meeting the needs of new markets somewhat removed from their current production.⁸

A vehicle torsion bar manufacturer used a small subcontractor to insert rubber washers under pressure into the ends of the bars. This often caused delays in delivery. The manufacturer eventually found a solution to his problem when he was watching a television programme on wines from the Bordeaux region of France, which showed how the wine bottles were corked. He came up with the idea of a similar, easy-to-use mechanism for the rubber washers and built it into the production process immediately after finishing.

The owner of a small aluminium casting and machining firm, having tried and failed to find the kind of cast he needed for a major contract, made some sketches one evening at home, while listening to classical music. He sent his designs to his cast subcontractor for additions and corrections, and between them they came up with the ideal shape. 'It was like a complicated jigsaw; on some days we were able to add three or four pieces, while on others we did nothing at all or took pieces away. Then, one day, we sat back and said, that's it!'

Often, an idea that enables a firm to do something better or in a new way, or to do something new, comes gradually, as part of a complex to-and-for exercise between the old and the new (Hills et al., 1997). An example would be an idea devised by an employee and refused by the employer. If the employee is determined enough, he or she will develop the idea with the aim of eventually exploiting it. This can lead to a spin-off, sometimes encouraged by the employer firm but sometimes not, resulting in a rupture with the employer. In many cases the idea is consolidated throughout the venture-creation and implementation process, and can even change significantly before reaching the market.

One of the cases discussed in the OECD study of gazelles originated from the reaction of two senior managers who were tired of criticizing the way their employer treated his employees. Not only did they end up launching their own business, but they also became a huge success, forcing their former employer into bankruptcy.

Motivations, skills and opportunities can be closely tied together, as shown in Figure 3.1, even though one of the three may predominate at certain periods.⁹ We can therefore criticize the socio-psychological approaches touching on planned behaviour (for example, Krueger et al., 2000) that are not so far removed from the behaviourist school of traits and economic positivism.

Where an idea is developed gradually, venture creation may be carefully thought out even if the idea develops slowly, in the course of the action (rearranged, constructed, transformed) or emerges from unorganized

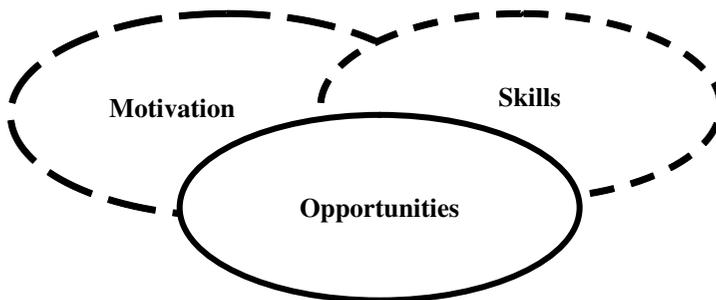


Figure 3.1 Additional sources of venture creation or buyouts

research. Some new entrepreneurs believe they can ‘change the world’. However, their ideas are not necessarily new, but may arise in different locations within the same time frame. As pointed out by Alfred Marshall (1890 [1961]: 261), the industry’s secret or new ideas are often ‘in the air’, and are captured by the person who is quickest off the mark to add the elements required for market acceptance.¹⁰

For example, when Thomas Edison was trying to develop a long-lasting light bulb, hundreds of other researchers and companies were trying to do exactly the same thing. In the end, it was a combination of lots of different elements that allowed him to win the race and create his own firm to market the product. Similarly, the true inventor of the telephone would be an Italian engineer, Antonio Meucci. He discovered that the human voice could be transmitted electrically as early as 1849, when Alexander Graham Bell was only 2 years old. He eventually emigrated to the USA in 1850, hoping to develop and market his discovery, and actually connected his workshop and home using his new electromagnetic communication system. He finally applied for a patent covering all his inventions in 1871, but his application expired in 1874 for lack of financial means. Bell did not obtain his patent until 1876.

The Schumpeterian entrepreneur is an inventor who creates new value. Spinosa et al. (1997) described Schumpeterian entrepreneurs as people who create things from scratch, revealing reality and devising new spaces by converting what already exists – for example, by taking advantage of disharmonies and devising different arrangements or reconfigurations of existing elements. Landa (1993) described these entrepreneurs as *fillers of emptiness*. Not only do they grasp opportunities from ideas in the air, but they also convert them via a set of complementary ideas in order to create something of value that a market will buy and pay for, in accordance with a dialectic or dialogic between a potential market and an entrepreneur.

A good example of a Schumpeterian entrepreneur would be the creators of Cirque du Soleil in Québec (Canada) some 30 years ago, at a time when the province had absolutely no tradition in the world of the circus, which was controlled by the Russians, French and Americans. The two young Cirque du Soleil founders went beyond the traditional circus school, presenting a set of animal and

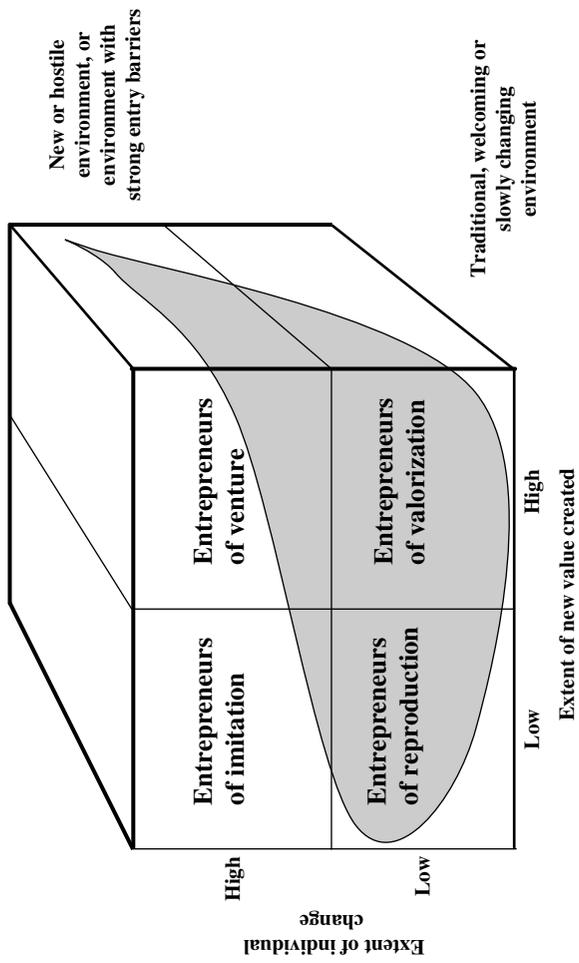
human tableaux interspersed with clowns. They eventually eliminated the animal component, began to create an integrated show composed entirely of trapeze and dance acts, and introduced specially composed music or musical anthologies (such as the Beatles show in Las Vegas), developing an entirely new market and an enterprise with a turnover of \$600 million, as well as permanent shows in Las Vegas.¹¹ The same can be said of innovative singers such as Elvis Presley, the Beatles or Bob Dylan, who not only created new music, but gradually attracted an audience that snowballed into international stardom. In their early years, nobody could have predicted the chances of success of what was essentially a brand new type of music for which no audience existed.

3.3 ENTREPRENEURIAL TYPES

We therefore need to go further in the process of separating the different types of entrepreneurs. Entrepreneurs do not just create new value – they are themselves changed by what they create. This is what Giddens (1984) refers to as reflexivity or learning in and through action, and what many researchers now call coaction or co-evolution – in other words, an action that transforms the actor's personality (Guth et al., 1991; Sarason et al., 2005). Spinosa et al. (1997: 50) give the example of the fashion designer whom we discussed earlier and who not only thinks about aesthetics, but must also become aesthetic by dressing in the latest fashions in order to be accepted by the fashion community and potential customers.

A young female entrepreneur who used to work for a large human resources company said she had often thought of going into business for herself but had not done so because she was afraid of the unknown. Nevertheless, the idea took root in her mind, although it often gave her nightmares. As soon as she took the plunge, however, the nightmares suddenly stopped; she had become someone else, concerned only with the success of her new venture.

The change to the person varies in scope, as does the value created and its resulting impact on the market. Figure 3.2 reflects these two aspects and adds a third, the type of environment or market in which the firm works and the level of acceptance of different types of entrepreneurs.



Source: Adapted from Bruyat and Julien (2001).

Figure 3.2 The four main types of entrepreneurs

The south-west quadrant of the figure contains the entrepreneurs of *reproduction*, entrepreneurs who change little and create little new value. They copy what they know, or what they used to do for their former employers. Their management type is traditional, and they usually have very few employees. They may, however, be forced to change by their new responsibilities and changes in their environment, but the change will be reactive only. Examples would be a restaurant chef who opens his own restaurant but uses the same recipes, or a metal technician who works in the same machine shop for 10 years and then launches his own shop, buying used equipment and taking one or two dissatisfied customers from his old employer to keep him going through the difficult early years.

The entrepreneurs of *imitation* in the north-west quadrant is an entrepreneur who does not create much new value, but is strongly influenced by the creation. The female entrepreneur given as an example earlier in this section is an imitator. Her psychological approach changed completely, even though what she was doing was virtually identical to what she had always done. The change was triggered by the fact that she was now responsible for her own fate and that of her firm – in other words, by uncertainty. It forced her to set up networks, develop her knowledge and strategies, and gradually improve the value she offered.

Over time, this particular entrepreneur could have shifted to the south-east quadrant to become an entrepreneur of *valorization*. In other words, she would be less affected by the development of management routines and a client base, but would make significant changes to the services she offers and adopt a more proactive strategy. Examples of improver entrepreneurs include engineers who have few opportunities to develop new methods and products for their employers, and who ultimately decide to go into business for themselves in order to market their inventions and processes, often taking with them the people they feel will best be able to help them start up their companies.

The final quadrant represents the rarest type of entrepreneur, but also the most cited. These are the entrepreneurs of *venture* who launch new ventures based on risky new inventions or innovations. The value created may become crucial, and in some cases will lead to the development of a new industrial sector – for example hydrogen-based fuels and nanotechnologies for different types of new materials. Bygrave (1989) described these entrepreneurs as creators of chaos. The impact of the creation on the entrepreneurs themselves is often significant, if the venture survives and develops because or in spite of this novelty. It is therefore hardly surprising that they are often cited in the newspapers, especially if their firms are highly profitable. They become public personalities not only because of their success, but also because of the impact of their creation on society as a whole.

Only five or six such entrepreneurs emerge in a country in any given decade. Their numbers may, of course, be artificially boosted by an industrial boom such as that which took place in the information and communication technology sector in the late twentieth century, until reality struck in the form of a stock market crash in 2000. Entrepreneurs of valorization are more common, accounting for between 5 per cent and 20 per cent of entrepreneurs, depending on the region. Many valorizing firms become fast-growth SMEs or gazelles with a strong impact on regional economies. Imitators can account for up to 30 per cent of a region's entrepreneurs in dynamic regions. They include butchers and fishmongers who regularly expand their product range, developing special products or catering services, and machine shops that specialize in repairing equipment breakages for the region's factories, for example by joining forces with small computer firms. Reproducers account for the remaining 50 per cent or more. They merely imitate what has already been done by others, reacting to change rather than triggering it. The OECD (2003) also calculates that there are very few adventurer entrepreneurs. Based on the level of risk and uncertainty, and distributing the different types of entrepreneurs through the population in general, the OECD estimates rough that just 0.25 per cent of the population are what it calls heroic entrepreneurs with Schumpeter, while 1.25 per cent are growth-seekers, 3.75 per cent are entrepreneurs who feel it is their job to stimulate constant change, and 25 per cent are would-be entrepreneurs or new entrepreneurs. This is fairly similar to our own data concerning distribution by quadrant.

Obviously, some of the new, innovation-based sectors do not allow for reproducers or imitators, and other sectors are closed to these two types because of their entry barriers. For example, the biotechnology and environmental science sectors exclude reproducers and imitators because they are relatively new sectors that undergo regular shifts in their scientific basis. It is also very difficult for entrepreneurs to enter the automobile sector, unless they have a revolutionary product and an exceptional entrepreneurial ability to overcome the major obstacles of distribution and maintenance. On the other hand, the sawmill industry in the manufacturing sector and the accounting industry in the service sector are easily available to reproducers and imitators who are able to build or find their own niches – provided, in the former case, that they are able to obtain secure timber supplies and, in the latter case, that they can generate a client base from among their friends and acquaintances. This is what the third element of Figure 3.2 shows; sectors that undergo constant transformations, shown in the background of the north-eastern quadrant, are open only to entrepreneur of valorization or adventurers.

This is similar to Kirchoff's (1994) typology of SMEs and their managers, which also comprises four types. The first are SMEs working in

slow-growth sectors requiring little innovation, corresponding to our reproducers. The second are firms limited by lack of resources or entrepreneurial skills that generally imitate what others have done. These two types are what Marchesnay (1993) referred to as SIGs, favouring survival (S) and independence (I) or control over growth (G). The third type comprises the more ambitious entrepreneurs with more resources and skills, able to generate growth and regular innovation. Fourth and last are the so-called glamorous firms, exhibiting fast growth. Many are gazelles, and base their activities on sustained innovation. These latter two types are what Marchesnay referred to as GAS firms, favouring growth (G) even if it means loss of control or autonomy (A) and threatens survival (S). Many such firms are led by entrepreneurs with a taste for adventure and risk-taking, who regularly develop new value and themselves undergo continuous change. They are often what Cotta (1980) described as players, for whom the game becomes more important than the result, who sometimes overstep the boundary of legality and adopt an 'anything goes' attitude because they are always inventing something, even their own rules and standards.

Kirchhoff's typology and our own should, however, be regarded as archetypes. Although entrepreneurs can be classified at a given point in time into a given quadrant, they will change and could well move to a different quadrant as the firms they create transform them in turn, and as they themselves influence the path and destiny of their firms.

The connection between value creation and individual change clearly shows the lack of influence of the school of entrepreneurial traits. According to Kets de Vries (1977), Gartner (1988) and Stevenson and Sahlman (1989), for example, there are too many traits and they are too vague and contradictory, to such an extent that they could apply to virtually anyone or no one at all.¹² And entrepreneurial traits, even if they were valid and if there was general agreement on them (which is not the case, as Chell, 2001, points out), are in any case changed by the act of value creation. Obviously it is possible to identify certain dispositions deriving mainly from the construct and gains, as we previously noted, but no more than that, and clearly those dispositions will themselves evolve as the market reacts and the rate of innovation increases or becomes more complex owing to the impact of information, which triggers change and continues to transform both the entrepreneur and the organization. Presley, Dylan and the Beatles all grew as musicians as their music was accepted and structured by their growing audience.¹³ At the same time, the organization, the musicians, the lighting technicians and the sound technicians all acquired on-the-job learning and were themselves involved in the change, influenced and transformed by contact with the public.

Criticism of the school of entrepreneurial traits is based on at least seven elements:

1. Defenders of the theory hope to find the mystical element that generates the entrepreneur's income, whatever it is, as pointed out by Alvarez and Barney (2000). This means looking for the average entrepreneur, the one who has the best chance of succeeding, according to Hill (1952). Can the same traits really be ascribed to Richard Branson, the creator of the Virgin music corporation and the airline of the same name, and his hair-dresser? And are these traits the same for men and women, for entrepreneurs whose families are also involved in the business, and entrepreneurs working alone, and for entrepreneurs from different cultures?
2. The traits are instantaneous, while the characteristics or qualities of individuals evolve according to age and the stage in the firm's life cycle, to such a point that some entrepreneurs will become less 'entrepreneurial' and more 'managerial' over time.
3. Traits are a combination of qualities, and it is not clear if entrepreneurs need them all, or what happens when some are missing. Moreover, the combination does not take counterparts or faults into account, and many traits are present among other citizens who are not entrepreneurs (Saulniers, 1986).¹⁴
4. Certain traits may not be present in certain environments – for example, in some industrial sectors, as the third dimension of Figure 3.2 shows.¹⁵
5. The theory of traits contains the seeds of its own destruction, in that most traits are geared towards success, when the vast majority of entrepreneurs will actually close down their firms in the first 10 years of existence. Some will, of course, start up again after their first negative experience, but in such a case their traits will obviously have been changed by experience.
6. What happens to the second type of entrepreneurs from the GEM project, those who were 'coerced' into entrepreneurship? Do they suddenly develop entrepreneurial traits just because they have been fired from their jobs or have been unable to find jobs after emigrating to a new country?
7. As we have just said, and as we see throughout this book, the theory of entrepreneurial traits considers entrepreneurs to be the key elements of their firms, or 'special' people, when in fact entrepreneurship is a collective phenomenon in which the entrepreneur's own qualities are just one of many elements – an important one, it is true – explaining the success or failure of the firm and the multiplication of firms in a regional economy.

An ecological pioneer in Québec (Canada) and an outstanding youth leader joined forces with other enthusiastic teachers to create a network of Production and Salvage Centres in high schools. He had two main aims: first, to help potential school dropouts by enrolling them in a business venture where they would have to take responsibility, and second, to salvage all kinds of waste materials (paper, cardboard, loading pallets, and so on) and convert them into saleable products (recycled paper, picnic tables, firewood for barbecues, and so on). Start-ups received support from business owners and volunteer teachers. There are currently 18 such projects under way, most of them profitable, with a very high success rate in the 'salvage' of potential school dropouts.

Despite all this, the school of entrepreneurial traits continues to persist, and its adepts continue to search for a universal model or key elements that will help predict or understand successful entrepreneurs, especially the adventurers, so as to be able to invest in their firms, as lenders, or speculate on their performance on the stock market. These keys are much sought after by investors and financiers of all kinds, who would like to be able to identify 'dead certs' in order to wager on their success, and by civil servants who would like to help the people with the greatest chance of success. This does not change the fact that the approach is tautological and flawed, since it tends to show that individuals are entrepreneurs because they have certain traits considered specific to entrepreneurs, when the traits in question have in fact developed gradually, over time. As we said earlier, the entrepreneurial mindset and the cognitive processes involved are bound to change, and the mindset is bound to be different depending on the host culture and the venture creation and development processes applied. It may very well change according to the stage in the firm's life cycle and the quality of the environment, and of course, over time.

3.4 THE VENTURE CREATION PROCESS

Venture creation and certain restructuring exercises requiring a reorientation of the firm go through at least five stages, namely, initiation, maturity, commitment, finalization or actual start-up, and cruising speed.

Initiation varies in length.¹⁶ It can be forged within or by the entrepreneur's family and develops at varying speeds depending on the

representations (values, training and experience, filters and biases) acquired by the entrepreneur. It is enriched by information obtained from the milieu (Bird, 1988).

Maturity develops consciously or unconsciously at the same time as the entrepreneur's aspirations and goals. The goals evolve as the project takes concrete form or the firm is built in the entrepreneur's mind. It is stimulated by anticipated market needs, dissatisfaction at work or ruptures such as unemployment and emigration, and is completed by the transformation skills derived from the entrepreneur's path, supported by initial networks and the environment (especially potential customers). Or it may be structured by the environment, especially one that is active and offers a range of rich networks to which entrepreneurs can refer for the information they need. It may also be derived from a business plan on different aspects of venture development (enterprise functions). A business plan may be required by financial institutions and venture creation support agencies, but will often become irrelevant by the time the firm is actually launched, since the situation will have evolved continuously since the plan was written. Nevertheless, a business plan can be useful in assessing the differences and reminding the entrepreneur to take various aspects into account when one of the functions needs to be adjusted.¹⁷

The decision can be gradual or sudden, depending on circumstances – for example, availability of premises, key human resources and equipment, the granting of subsidies or loans, and so on. Actual start-up can also be gradual, with the entrepreneur working part-time from a garage or temporary premises, or sudden, when the other conditions have been fulfilled. It may become irreversible if too many resources have been committed. In such cases, entrepreneurs find themselves in a no man's land between proceeding and not proceeding.

Finalization occurs when the firm begins its first trials, produces its first goods or dispenses its first services, and it is here that the entrepreneur takes his or her first steps in managing the firm. All these steps have the potential to be complex, depending on the size of the firm being created, the sector or market concerned and the support available from the environment. They are disturbed by real life, the economic context, family problems, and so on. However, they do not guarantee survival; many firms never really get off the ground, either dying in the months following start-up or developing very slowly.

The final stage is *consolidation*, at which point the firm reaches its cruising speed as it develops links with its market and the resources it needs to meet market needs. Cruising speed can speed up or slow down, depending on the entrepreneur's behaviour and organization.

3.5 THE ENTREPRENEUR'S ITINERARY, OR THE CONDITIONS FOR MAINTAINING AN ENTREPRENEURIAL MINDSET

Development depends first and foremost on the entrepreneur's ability and the ability of certain elements of the organization to face up to the ups and downs of the real world in the early years of the firm's life. Even if the firm is able to overcome the obstacles that present themselves during the early stages of the process, its struggles are not over. Less than half of all firms survive for more than five years, and less than 30 per cent for more than 10 years after creation as we discussed in Chapter 2. Obviously, the entrepreneur's own activities may continue beyond the firm's life, through a resumption of activities following temporary closure, a buyout of a struggling firm, or a new venture creation.

Development continues even as the entrepreneur changes. For many small firms that remain basically the entrepreneur's business, to the point where they assume the entrepreneur's personality (Angles d'Auriac, 1979), the entrepreneur's development and survival strategy become his or her itinerary, applicable even to contacts with the environment. The itinerary will differ from one entrepreneur to another and from one firm to another, depending on the social structure and the milieu. It may or may not help to maintain the entrepreneur's early disposition and motivation to lead an organization, improve habits and spot new opportunities. It often happens, however, that aversion to risk ends up overcoming the entrepreneurial mindset, for example if the entrepreneur becomes tired of change, is unable to renew his or her energies, or simply because the original challenge has been met and no new challenge has emerged (Sørensen and Stuart, 2000). In such cases the entrepreneur shifts from an entrepreneurial situation to a managerial situation. This happens to many reproducers and imitators, and to many large firms too, where it triggers monopolistic behaviours and agreements between competitors to limit risk (Julien and Marchesnay, 1990).

For the entrepreneurial mindset to be maintained, a combination of eight conditions is required: ongoing flair, passion, developing experience, family support, milieu support or stimulation, continuing spirit of leadership, a renewed sense of initiative and, finally, humility and a certain amount of luck.

1. *Ongoing flair*, or the intuition to recognize business opportunities given by the milieu, is required for change to continue. This is especially true when a new, apparently eccentric, idea actually succeeds. In economic terms, this quality is not always properly understood, especially by financial institutions. This is especially true because the entrepreneurs

themselves are often unable to explain the reasons for, the details of and the likely outcome of their ideas, or because they refuse to reveal key elements for fear that their ideas will be stolen. This is often referred to as the information paradox.¹⁸

An entrepreneur showed me a new piece of equipment costing \$250 000 that was still in its wrapper in his factory. He said he had bought it on a whim at the Frankfurt equipment fair. He did not really know what he was going to do with it, only that he had a 'feeling' about its market potential. For tax reasons, he could only declare a loss of \$50 000. A few months later, however, after explaining things to his staff and employees and being stimulated by their questions, he proudly told me that not only had his 'feeling' proved correct, but also that the machine in question had already produced enough goods to pay for itself.

2. *Passion*, or at least confidence in the fact that the market will always end up accepting the proposed changes,¹⁹ allows entrepreneurs to convince resource owners to loan or sell the resources they need, especially if the market responds above expectations.
3. As they gain *experience*, entrepreneurs are able to remain effective, maintain their judgement and identify their path more clearly, while keeping an eye open for new opportunities.
4. *Active support* from family, close friends and staff allows entrepreneurs to test, mature, complete, restructure and consolidate emerging intuitions and ideas, and to come up with new ideas.
5. *Milieu support or stimulation* through ideas and opportunities or entrepreneurial culture, the availability of essential resources, social capital (see Chapter 5), rich networking and direct aid from government programmes.
6. If entrepreneurs continue to enjoy *leadership*, they are able, in the early days of the firm, to overcome unexpected obstacles and then, supported by the experience and trust of their employees, to continue to develop in the desired direction. Their enjoyment may decline over time for a variety of reasons.

The successor of a small business founder, having recognized the leadership qualities of the husband of one of his daughters, chose him to take over the firm against the will of the other sisters,

brothers and nephews. The decision was a good one; in just two decades, the entrepreneur grew the firm from 50 employees to over 300, and developed export markets in a dozen countries. However, the endless quarrels and jealousy of the other family shareholders after the founder's death eventually destroyed his enthusiasm. He retired, leaving the firm in the hands of his right-hand man and brother-in-law. Some years later he was called back urgently to try to save the firm, but it was too late.

This *leadership* may be shared, as in the case of venture creation by a team, where one team member takes care of innovation and the other of management.

7. It is also important to maintain a *sense of initiative* or a proactive approach, and hence a strong commitment and persistence.
8. Finally, *humility* and *luck*. H el ene V erin (1982) points out that luck (*la fortuna*)²⁰ is always present in the history of entrepreneurs who are able to take advantage of it. Luck obviously differs according to the type of project, the period, the entrepreneurial culture of the society concerned and the efficiency of the milieu to sustain entrepreneurship. It is part of the game or the challenge, and is one of the elements that maintain enthusiasm, especially among adventurers. The possibility of a 'lucky break' often explains the intensity with which many entrepreneurs approach their work. However, luck can turn, leading to failure and sometimes to a new start with a better intuitional structure. Gilder (1985) adds humility and doubt to luck. Success is not a product of hard work alone, and is not automatic. It depends on contributions from many other actors and on the industrial atmosphere. Entrepreneurs are a bit like actors with stage fright; the great Sarah Bernhardt, talking to a student who boasted of never having suffered from stage fright, said, 'it will come as your talent develops'.

Once again, however, the entrepreneurial itinerary and the entrepreneur's history, the origin of his or her project or his or her goals at each stage of the firm's creation and development cannot be discussed in a vacuum. Entrepreneurs are social beings, and venture creation is a collective act. The process is necessarily circular and open. The venture creation act affects the entrepreneur, who changes as a result. To return to our metaphor, the same applies to drug criminals, who must take into account the chances of success as well as the likelihood that the population will turn a blind eye to their behaviour, leaving them free to develop sales.

The development and maintenance of an entrepreneurial mindset also requires a dynamic organization, especially if the organization plays a role in the process of change by generating ideas via the firm's networks. If the organization is a player in the process, it removes some of the weight from the entrepreneur's shoulders and can be an important factor in maintaining the entrepreneur's enthusiasm and tolerance for risk. Similarly, the milieu plays a key role by creating a stimulating atmosphere that encourages entrepreneurs and organizations to accept change as a means of coping with globalization. In short, entrepreneurs only exist in relationship to other people, within a given environment, and it is this that explains why some territories tend to produce more improvers and adventurers than other, apparently similar regions.

NOTES

1. Generally speaking, new entrepreneurs devote more than 50 hours a week to their firms in the years following start-up.
2. For example, Basu (1998) shows that a close or large family in Asian ethnic entrepreneurship in Great Britain not only plays an important role in providing informal sources of cheap finance and market information, but also impacts on the nature of the strategy used to develop the enterprise. Greene (1997) adds learning, advice, moral support and other social capital, including patient financial capital.
3. Although a negative influence can be overcome or may actually foster start-up; examples would be a low level of social acceptance, often seen among new immigrants, or social disqualification, both of which might trigger venture creation as a means of proving worth.
4. And he continued: 'during certain investigations I have actually spent more time on a suspect's family and entourage than on the suspect himself or herself, and it was often by doing this that I was able to discover the key to what would otherwise have remained a mystery' (Simenon, 1989, pp. 14 and 21).
5. Mark Casson (1982 [1991]) presents only one reason for creating or purchasing a business, namely a personal desire to make profit. He regards entrepreneurs from the same standpoint as Cantillon, that is, as *agents* of the capitalist fund-provider. The capitalist is a calculator whose choices are based solely on comparisons of investment revenues and business revenues. In Casson's view, it is not up to economists to introduce or consider the entrepreneur's psychological or social reasons for going into business. Thus, although his work is of interest because it summarizes the neoclassical economic theory that may be applicable to entrepreneurship, it is often extremely unrealistic. Similarly, his work is based on research into firms, not entrepreneurs, and virtually all the firms studied are large corporations.
6. 'Walking the walk', say the researchers.
7. Rogers (1995: 324) takes up this idea that originated with the pioneers or deviants who continually invent new fashion practices.
8. It is often said that most businesspeople keep business ideas in their pockets simply because they do not have the time to do anything with them!
9. In the inquiry by Gartner et al. (2003), motivations come first in 44.5 per cent of cases, while opportunities come first in 35.3 per cent of cases and both arise at the same time in 20.1 per cent of cases. Skill is not measured in this study.
10. Marshall explained that industrial secrets always end up not being secrets any more; they were *in the air*, so to speak, and people unconsciously recognized many of them. Good

work was immediately acknowledged, and people began to talk about the merits of inventions and improvements to machines, processes and the industry's general structure.

11. The Cirque du Soleil was also 'in the air', as pointed out by Pascal Jacob, a French circus history expert, who explains that the first attempts at giving new meaning to circus skill by taking the emphasis away from possible death and placing it on the human body as the central element of the show were made in the 1970s in Russia. Guy Caron, one of Cirque du Soleil's instigators, was trained in Budapest, then under Soviet authority. The French, too, introduced new elements, and all this ultimately led to Québec's 'reinvented circus', which went on to become a huge international corporation with several troupes of 200 people each, travelling the world and presenting long-running theatre-based shows in specific locations.
12. In other words, can apply to all sorts of entrepreneurs, including corner grocers, garage owners, machine tool shop owners and local printers: drive, commitment, problem-solving, goal orientation, need for status and power, integrity, reliability?
13. Some songs were less popular while others generated new songs.
14. Some examples in the art market would be Leonardo da Vinci who hired dozens of people to paint his works or Rembrandt who used a large number of students paying to learn 'the Rembrandt's method' to develop his production including some self-portraits, or closer to home in social entrepreneurship, Bernard Kirchner, the founder of Doctors Without Borders.
15. For example, it finally became clear that, apart from the adventurers, most entrepreneurs have the same level of tolerance for risk as the population in general.
16. Reynolds et al. (1995) estimate the average gestation period at about three years.
17. See Zinger (2003) for further information on the limited utility of business plans.
18. The information paradox refers to the fact that information is valuable only if it is controlled by one or a small number of people, but its value can be realized only if it is shared by many people. The difficulty entrepreneurs often encounter in conveying information may also be explained by what Sahlman and Stevenson (1985) referred to as myopia among financiers.
19. To continue our critique of the school of entrepreneurial traits, where tolerance of risk is important, this level of trust means that risk does not have the same meaning for an entrepreneur as for a financier or any other outsider. An entrepreneur will often perceive the risk as being low, believing rightly or wrongly that the market needs the new product or service; this is similar to the criminal's attitude to being caught, as we discussed in the introduction.
20. The Latin word *fortuna* can be translated as wealth as well as luck (and as fortune), clearly illustrating the connection between the two concepts.

4. The learning organization: information-gathering strategies used by small businesses

There is no word that has been given more meanings, and that has had such a striking effect on so many minds, as liberty . . . Liberty only means being able to do what is permitted by law, and not being forced to do what is not permitted.

(Montesquieu, *The Spirit of Laws*, book XI, chapter 3)

Entrepreneurs need help to obtain and process information about markets and technologies, in order to continue to develop along with their business after it is launched in a knowledge-based economy. This dual development takes various forms, depending on the strategies pursued by management, the level of turbulence in the industry and marketplace, and the ability of the staff to understand, adapt and take action. The business, or rather the organization, is a living, organic entity, as we point out in the Introduction, but undergoing change at a pace that depends on market turbulence and business strategy, and able to process constantly changing information. It is also a separate structure, a social reality that instills equipment, people and norms with routines and practices to deal more easily with chaos and change (Morin, 1977), different from the entrepreneur and from other organizations. It includes a set of relationships based on internal and external information that play a crucial role in the delivery of products, goods or services. It has competitive advantages, and a distinct identity, which require flexibility, proximity and an ongoing ability to learn. These elements are clearly present in learning organizations, especially high-growth small businesses or gazelles, which play a special role in local entrepreneurship, as discussed previously. The same elements also exist in flexible criminal organizations which are able to understand changes in population and police behaviour, thereby adjusting their own behaviour.

We prefer the term 'learning organization' to 'learning business', even though the better-known generic term 'small business' includes the word 'business' and it is, indeed, business that creates jobs and economic development in the territories. First, the word

'organization' reflects the living nature and, above all, the fundamental ability of these entities to learn in a knowledge-based economy, linking them to human beings rather than to machines and structures. Second, a reference to the concept of 'business' tends to place too much emphasis on the entrepreneur, Schumpeter's hero, while a business in fact involves many other people, from managers to employees. In addition, its boundaries are flexible, since its development also depends on the dynamics of a large number of other players in the field, as well as on the economy in general and on the level of cooperation it is able to develop, a characteristic of an open, living system.

In Chapter 4, we deal with four points: the role played by the organization as opposed to the entrepreneur, the source of an organization's competitive advantage, the key elements needed to maintain competitiveness and a distinct identity, and the example of the gazelles in terms of competitiveness.

4.1 THE ROLE OF THE ORGANIZATION

The existence of an organization, in other words the set of resources (equipment and, above all, employees) that are brought together to produce goods or services, is the first concrete sign that a business has effectively started up. At the beginning, the organization is often only a complement to the entrepreneur, but it becomes a distinct entity over time. It develops habits and, often, resistance to change. Its operation is supported by a range of material and non-material technologies. Its coherence comes from a vision and the implicit or explicit strategies generated by its medium- and long-term orientations. It has several internal and external players. As a living organism, it maintains more or less closely organized relations with the outside world. Fundamentally, it becomes an instrument that gathers information to develop experience and skill, in other words the routines¹ that will allow it to meet production targets and market needs, and also to evolve in response to change.

At first, an organization is a complement to the entrepreneur, the concrete result of the entrepreneur's effort to create and control a market space and a reflection of his or her ability to mobilize human and material resources and offer products (Kirzner, 1982). The organization gradually develops as it gains new resources or improves existing resources, and over time becomes a distinct entity, separate from the entrepreneur. In other words, in the

beginning the organization or business is completely integrated with and dependent on the entrepreneur, who supervises both the operational and managerial aspects. The entrepreneur is a genuine one-man band, playing most if not all of the instruments. Other than the separation between the entrepreneur and the employees, there is often little or no hierarchic structure, and such a structure is obviously absent if the entrepreneur is a self-employed worker, tradesperson or craftsperson.² The business is also a reflection of the structures of the social world that moulded the entrepreneur, although over time it also reflects the worlds of other key staff members.

Gradually, the business separates from the entrepreneur, developing its own personality while remaining influenced by the entrepreneur's decisions, depending on whether they tend more towards independence than growth or, gradually, vice versa. In the latter case, the entrepreneur increasingly tends to become a manager, even though many entrepreneurs retain their entrepreneurial vision, as discussed below in connection with gazelles. In the other cases, they do not become managers, and may even hand over this role to professional managers. Instead, they become pure capitalists who supervise the management of their portfolio – this is the case for large corporations, mainly but not always after the second or third generation takes the helm.

Despite this evolution, the organization, unless it becomes bogged down by bureaucracy, remains a living entity characterized by varying degrees of dynamism, depending on whether or not it has retained its entrepreneurial spirit. It is structured in a system of adhocratic proximities, permanent contacts and mutual adjustments, informal communications and direct supervision. It is a place where social structure produces identity, a more or less integrated field of socialization (Sainsaulieu, 1990). It is also a system of economic relations, in particular through the wages and other monetary benefits it provides. The organization is a specific and changing combination of human and economic resources, made up of permanent staff members (managers and key personnel) and employees completed by material resources that can only produce effectively if the whole is of high quality. In short, it is a portfolio of skills arranged in a specific, and more or less dynamic, array.

The organization is also a force field (Marchesnay, 2002): each individual develops his or her own field of influence, autonomy, power and interests, shared to varying degrees within the organization (Crozier and Friedberg, 1977) and even in small groups, micro-organizations within the main organizations, with similar values (Brunet and Savoie, 2003). It can become a place of resistance and bureaucracy, as we said earlier and as seen in many large corporations with rigid and omnipotent rules, opening the way for individual manipulations (Kelly and Amburgey, 1991).

Resistance could lead to sclerosis, in the absence of a dynamic integrating culture, were it not for customs and routines based on central and peripheral skills, in other words know-how or experience. These routines are linked to and made more permanent by various types of equipment and machinery. Routines can change quickly or slowly in response to the introduction of new equipment and skills upgrading inside and outside the organization, the ability to internalize new developments and to react quickly (for example, when individual and group specialization is not too advanced, as in small businesses), and the rapid sharing of knowledge based on proximity. Adaptations can be facilitated by various techniques, such as cell-based organization in which production units are self-initiated and self-governed or self-coordinated (Drolet et al., 2003b), but also by certain management approaches.

The general and long-term coherency of the organization, however, depends on the vision of the entrepreneur (Filion, 1991) applied in a more or less explicit way. The vision and strategy, if they are shared and therefore decentralized, create the *identitarian dimension* of the organization and counteract the centripetal forces that tend to neutralize its efficiency. Coherency also comes from the business culture, a shared way of working towards objectives that have been discussed and assimilated by the staff (Drakoupoulou Dodd and Anderson, 2001). It therefore depends on the quality of the relations within the organization and the prevalent working atmosphere.

A business had grown quickly, from 60 employees to almost 300, in four years. However, the entrepreneur, faced with all the problems of rapid growth and under pressure from order givers, continued to centralize management. Dissatisfaction grew to such a point that a long and costly strike was a distinct possibility. We managed to convince the administration to hire a production manager and to establish a clearer separation between strategy and day-to-day operations. The results were not only beneficial for the employees, but also allowed the entrepreneur to return to the type of work he enjoyed most, prospecting for new markets and developing a clear strategy.

This coherency must also extend outside the organization. Several types of players are involved in the management and development of the business. The organization or business is part of a plurality of players, all with their own interests (multiple, changing motivations and satisfactions:

Martinet and Thiétard, 1997), whose influence evolves periodically depending on the surrounding society. This means that, beyond the interests of management and the aspirations of the employees, the entrepreneur's current family, and even his or her original family, especially if they are officially shareholders, are all outside factors. The family often provides key assistance when the business is launched, whether psychological, in terms of trust and enthusiasm, or financial, directly or indirectly by a decrease in household spending or unpaid work by family members. It can even contribute ideas for strategy distinction (Habbershon and Williams, 1999). Its influence is therefore generally positive, but can also be restrictive, and it is ongoing, since a start-up objective of many businesses is to provide employment for the entrepreneur and, later, for members of his or her immediate or extended family (Callock and Ward, 2001). Financiers and venture capitalists can also impose their right to oversee (and charge agency costs for) the development of the business, to varying degrees. There are also other types of creditors, such as suppliers at the start-up stage, who impose specific types of payment, or the state, which provides conditional support. Maurice (1992) explains that from this point of view, the opposition between external and internal factors disappears over time, but also points out the necessary differences in business management approaches at various times in various countries, just as different types of entrepreneurship exist in different countries and different regions.

The roles, whether restrictive or positive, played by the people affected by a succession are often crucial. Tidåsen (2001) gives the example of a succession-related conflict between a mother who sided with her son, while the father preferred the daughter, who was obliged to acquire the shares of other family members very quickly, placing the business in peril for a period of time. This type of behaviour is not unusual. In another case, a direct discussion between two sisters allowed them to reconcile the diverging objectives of the father and the mother concerning the succession. In some matriarchal societies in West Africa, the influence of the family is such that a nephew or niece, the eldest child of the entrepreneur's eldest sister, succeeds in place of the entrepreneur's own child.

A union federation is also involved when the employees are unionized, and the interests it takes into account are broader than those connected with the immediate needs of the employees. It also provides resources, such

as a strike fund, where necessary. Even when there is no union in the workplace, it may be in a position to intervene. Other, less visible, players can also have an influence, such as professional corporations in connection with some classes of employees, accountants or engineers for example. There are also voluntary players such as a board or quasi-board of directors, who can improve the business's ability to adapt if they adopt a dynamic attitude. All these players can impose constraints, but they can also act effectively to provide various kinds of information or relationship capital, as discussed in the next chapter. In any case, the administration cannot ignore them, and must take them into account to ensure that they do not become a hindrance, by integrating them into the business's development (Miles et al., 2000).

It is hard to understand the behaviour of a large transportation products firm towards its suppliers without also understanding its declared strategy of preventing unionization. For example, during a sales slump, the firm brought various productions back in-house from subcontractors, even though this increased costs, in order to maintain employment for its employees. On the other hand, other entrepreneurs of our acquaintance consider the unions to be partners in the daily management of their workforce, and in employee recruitment, training and retention.

Obviously, the market is also a key player, in addition to being the business's operational objective. The market is sometimes a specific clientele in the case of a small business. Its behaviour systematically influences the business, which must adjust in response to changes in the market and even anticipate or trigger change through innovation, in order to distinguish itself from its competitors. Clients may be few in number, or even a single client, as would be the case for firms supplying major order-givers or distribution chains. This gives them considerable power over the small businesses, and enables them to influence its development and investment choices. Examples are participation in a network of subcontractors who must continually adopt new material technologies, such as computer-aided design (CAD) to exchange drawings of parts, or new immaterial technologies, such as advanced total quality systems (Julien et al., 2003a).

One of the important roles of the organization is to internalize and coordinate the impulses coming from all these players, in order to reinforce its position and improve its situation in the outside environment, the market, without falling behind. The organization, as an open, living system,

cannot survive unless it adapts to change by integrating and transforming information from the outside, in other words, by reducing its entropy, like a living being that must obtain energy from the air, water and food in the environment (Georgescu-Roegen, 1971). Finally, the organization is a processor of knowledge (Cohendet and Llerena, 1999) for internal and external change. Internal changes in response to, or caused by, external change form the foundation for the business's competitive capacity.

4.2 THE SOURCE OF COMPETITIVE ADVANTAGES

Voluntary changes result from the transformation, by the organization, of internal and external information into knowledge and know-how. The business is fundamentally a recipient of knowledge and know-how, as wrote Chandler (1988).³ The transformation generates what is known as the experience of the business, in other words the technical, intellectual and relational abilities it needs specifically to meet the variable and individual needs of its clients for goods and services, and to distinguish itself from other businesses.

Experience and *complexity* are the foundations for the competitive advantages of the business, as stated in Chapter 1, and must be systematically renewed and be based on a learning system that, when first established, is in the hands of the entrepreneur, and then is quickly shared within the organization. Competitive advantages, despite Porterian theory (Porter, 1981),⁴ are not based solely on the ability of the organization to respond to the market by using the best possible strategy and bringing the best possible array of resources into action. Rather, they result from the *quality* of the resources and the *coherency* of the actions taken in response to market needs, providing a general specific competency that is greater than the sum of its parts.

This resource-based approach was first developed by Wernerfelt (1984) and Rumelt (1984), as a reaction to the thesis put forward by Porter. It was taken up by others, including Prahalad and Hamel (1990). However, as explained by Marchesnay (2002), it can be traced back to Tilton-Penrose (1959), since the specific advantages result in particular from a combination of technological resources (modern, but also adapted and not necessarily cutting-edge) that are mainly immaterial and, above all, collective, based on internal and external relations and the particular way of managing this combination. The resources in question include competency, and therefore the knowledge and know-how mentioned by French researchers such as Koenig (1999) and Durand (2000). They consist in human resources, and organizational capacities linked to the culture and structure of the business

that create knowledge and know-how, a specific balance between them, and links with the market and other partners. The resources and competencies represent assets that are rare, inimitable, unique, idiosyncratic, non-commercial, intangible and non-substitutable (Barney, 1991). They also include institutional resources, in the meaning given by institutionalists such as Commons or Veblen in the period 1910–30, in other words, the specific, and even unique, form of each organization, constituting its ability to support, manage, develop and update its resources in response to the market, while taking the competition into account (Olivier, 1997). This ability also allows the business to understand change, transform the meaning of information to support its strategy, and last to create a distinct identity to meet or develop market needs. All this is supported by a flexible, emergent strategy according to Mintzberg (1990).

In addition to its leading-edge computerized equipment, a small fabric-dyeing business with 30 employees still uses a large wooden vat from the nineteenth century, an example of which can be seen in the Lyon textile museum. The vat still serves its purpose for small, one-off productions. The competitive advantage comes from the firm's flexibility, and from its ability to find and stabilize precise colours according to the needs of its customers.

However, as explained by Marchesnay (2002: 12), the theory, by emphasizing particular resources without properly identifying and defining them, without explaining their qualities and, most importantly, without taking into account the fact that the resources continue to evolve and that some are replaced regularly, is either tautological or mechanistic, or else contains nothing new compared with the theories that emphasize experience. The theory thus *verges on complete banality*. In addition, resources have no value in themselves if they are badly or improperly used, or if they fail to evolve (Miller, 1992; Tarondeau, 1999). If we go back to our metaphor, most criminals finally give themselves up because they are incapable of changing their winning tricks. The proof, as already mentioned, is that the resources explaining the success of many businesses are often the same as those of businesses that disappear.

The competitive advantage is derived not from the resources and competencies as such, but from a particular combination, in other words, equally from their specific nature,⁵ their influence on production and their interaction. The firm is essentially a place where competencies are assembled, constructed, selected and maintained (Cohendet, 2003). This

combination results from a specific allocation leading to medium-term effectiveness and innovation, and hence to constant readjustment. It creates specific abilities when it involves routines and processes that are transformed into fundamental competencies that allow the firm to build a distinct identity (to *personalize* the business, and to create an *organizational intelligence* compared to its competitors), in order to better meet the needs of its clients. These competencies generate a synergy that creates added value for the market (Torkkeli and Tuominen, 2002). This combination or portfolio of competencies, a *collective skill*, also extends to personal ties and loyalty to suppliers and distributors, and to clients and other businesses upstream and downstream, a combination that becomes even harder to imitate because it includes several types of production and complex exchanges of knowledge and know-how (Dyer and Singh, 1998).⁶ These ties lead to a type of production or distribution that, in turn, emphasizes difference.

The combination is not therefore optimal in general; there is no single or best way to be efficient in the medium term, and every business must find its own way to achieve this, depending on its market and industry, while borrowing a shared basis from other businesses (Barth, 2003). The particular combination will depend, for example, on specific technology for each firm, and will create specific routines (the distinct know-how or experience)⁷ that allow the firm to create a distinct identity using non-static, and therefore evolutionary, routines. The combination and routines will be directed and made coherent by vision and strategy (Eisenhardt and Martin, 2000). The combination must also be flexible, despite the routines, and innovative, while conserving its entrepreneurial profile despite the use of formal management and production techniques (Pralahad and Bettis, 1986).

It is this winning entrepreneurial combination that is rare, inimitable and non-substitutable because it is often too complex. However, it will only be effective and competitive if it meets or creates a market need, if it changes to match that need and if it stays ahead of the competition, or at least creates certain entry barriers. To remain effective, it must be updated regularly. This recombination allows mirroring of specific market (or client) needs, and sometimes allows needs to be anticipated or created by reconfiguring the rules of its advantage or by imposing new rules based on internal determinants. It must be systematically broadened by contributions from other partners and renewed, since it can depreciate rapidly. It must be based on an efficient learning system (training and information) in order to form part of the knowledge-based economy. Knowledge and know-how, in particular, allow the combination to remain flexible, and support the creativity and innovation that make for dynamic entrepreneurship.

The case of one of the gazelles that is discussed in section 4.4 illustrates the idea that a particular combination allows a small business with a turnover of less than \$20 million to become a market leader in the development of equipment for the furniture industry, despite the enormous size of its American competitors (with turnovers of over \$1 billion). Its advantage depends, among other things, on a highly participatory and learning organization, and also on the close ties it maintains with certain clients systematically to update conventional equipment and experiment with new equipment. This complex organization and market proximity, established and developed over a period of years, is impossible to imitate and replicate. In other words, even if a competitor were to purchase the cutting-edge equipment produced by the firm in order to dismantle it and learn its secrets, this knowledge of its components would not necessarily allow the competitor to understand how it is produced, assembled and, especially, developed.

The combination of resources also includes external relational resources, and participation in networks (Barringer, 2000; Foss, 1999), as discussed in Chapter 7, compensating for the limits of competitiveness. The association of two or three businesses to offer a product can result in a clear differentiation from the competition because all the businesses are highly complementary and are selling something exceptional, despite the productivity limits of each business separately.

It is therefore the internal and external combination of factors that is different and specific, and hard to imitate, at least in the short and medium terms. Just as the competitors think they have begun to understand the process, it has already changed. In the case of small businesses, as pointed out by Marchesnay (2002), the combination of factors includes the idea of flexibility, and allows rapid adaptation to the specific needs of each client, to compensate the weakness in terms of economy of scale. This flexibility improves the ability to adapt to change, and supports innovation.

The best example of differentiation is that provided by small, neighbourhood bookshops that are able to compete with large retail outlets by providing special information to undecided readers. When helping choose a children's book, for example, experienced bookshop staff will not only taken into account the

child's age and previous reading experience, but also the child's pace of learning over the medium term, something that mega-stores are unable to do.

4.3 KEY ELEMENTS FOR MAINTAINING COMPETITIVENESS

Three concepts can be used to explain how small businesses maintain and adapt their competitive capacity or competitiveness: flexibility based on proximity and ongoing learning, which in turn generate variety or innovation.

Flexibility is one of the main points distinguishing a small business from a large corporation (Evaraere, 1997; Kickert, 1985). The *Merriam-Webster Online Dictionary* gives the following definition of 'flexible': 'characterized by a ready capability to adapt to new, different, or changing requirements'. Flexibility explains why the combination of resources found in small organizations can be reconfigured quickly to respond to a changing market. It is based on proximity within the business and proximity with the market, to obtain information, on a lower degree of specialization of production factors, and therefore on the ability to react quicker and a generally supple strategy. There are two types of flexibility: operational and strategic. Operational flexibility breaks down into internal and external flexibility.

Internal operational flexibility depends on the ability of the organization to react quickly to change. It is generated by the smaller number of employees and the ability of the administration to easily oversee everything that is going on in the business. Often, the entrepreneur's office is located close to the production line and the entrepreneur is directly involved in production, at least in the early stages. Flexibility is also created by discussions about everyday work with key employees and frequently about the long-term vision, in order to prepare for changes. If a problem arises in the short term (for example, a change in the quality of raw materials) or the long term (for example, a negative reaction among employees to false rumours), the problem quickly becomes known and is often solved before it becomes critical.

External operational flexibility involves the ability to see, or foresee the change. It depends on direct contacts with customers, and the entrepreneur's own personal and business networks. Even when a small business begins to grow, the entrepreneur often remains in contact with a few older, or principal, customers and retains a personal and highly sensitive understanding of the market. In large corporations, the lack of proximity can be

reduced by market surveys, but these remain of limited effect.⁸ Networks are a particularly efficient way of perceiving changes in the environment, as we will see in Chapter 7. All the above contribute to a focused ability to search quickly for information, and to make adaptations for each customer. Finally, the partial centralization of information allows the various aspects of each change to be understood quickly, unlike big corporations where decisions are made by a large number of senior and middle managers, all of whom must be informed and won over.

Information is a crucial ingredient in operational flexibility. But not all information is true. For example, a large food-processing company experienced a drop in sales, and its sales staff (paid on commission) talked the shipping department into entering the same sales figures as before, in order to preserve their commission, believing that the drop in sales could be made up if they worked harder in the following weeks. Since the situation did not improve and in order to avoid discovery, the shipping department made an arrangement with production to falsify the figures, based on the promise of the sales staff to regularize the situation as soon as possible. Next, the raw materials buyers had to be involved. In the end, but too late, management became aware of the scheme, and discovered unsold products stocked in various locations. The managers had to go all the way back along the chain of events to understand what had happened. This type of situation would have been impossible to keep secret in a small business, where almost everything is seen and known.

It is important to distinguish between flexibility of reaction and flexibility of action or proaction based on anticipation, in other words the ability to respond quickly to forced or voluntary changes in competition or technology, and to anticipate market needs by reorganizing resources. Both are based on a lower degree of specialization of production factors, human resources and equipment in small businesses than in large corporations. Although this constitutes a short-term weakness, it becomes a strength in times of change. For example, employees can carry out a range of tasks, including those required to meet a new need, either at the same time as or following their regular tasks. Similarly, the equipment can be adjusted to perform the new tasks, and even converted by the employees to be more effective. In short, the production process in a small business is often more flexible, explaining why large corporations do business with them by

subcontracting, for example, even though they cannot generate the same economies of scale.

One day, I visited a small metal products business, and was surprised to see some heavy equipment marked with the firm's name. I asked if some overseas equipment producer shared the same name, and the employees explained with pride that they had produced the equipment with the specific features needed for a particular production run, after failing to find it on the market.

In another factory producing furniture for children's rooms, a digitally controlled machine tool for moulding components has been extended by a homemade bench that sands the components as they emerge, considerably increasing the efficiency of this cutting-edge piece of equipment.

Mintzberg (1990) explains the flexible organic behaviour of small businesses by the degree of centralization in final decision-making, and an often implicit strategy to adapt or respond quickly to new opportunities. Miles et al. (2000) point out that this strategy derives from a broad, holistic, intuitive and flexible vision covering the content, in other words, the efforts the business must make to succeed, the process or actions undertaken by the organization on the basis of broad guidelines in order to meet its objectives, and the parameters used to measure the progress made. Whereas in large corporations, even if management wishes to act quickly, the size and the number of divergent interests in the organization means that time is needed not only to change, but also to accept change. By definition, large corporations have the inertia inherent in their size. In addition, to direct and manage a large number of employees, large corporations must establish a clear, explicit strategy to ensure that all the members of the workforce have the same approach. Once the strategy has been understood and accepted, it is hard to change it quickly.

The CEO of a subsidiary of a very large corporation explained to me that even he was unable to introduce new behaviour patterns that contradicted habits formed over a period of years and that reflected a need for legitimacy and power.

It is true that large corporations have an advantage in terms of *strategic flexibility* because of the extent of their resources and the latitude they have to target investment to adapt to expected new needs and to introduce new technology. However, if the pace of change in the environment is too rapid, investments can be made too late. The operational flexibility of small businesses can compensate, in a changing economy, for the enormous resources available to large corporations.

For this reason, many researchers believe it is not appropriate to transfer the managerial notions developed for large corporations directly to small businesses, which has been the approach for far too long. Watson (1995) and Johannisson (2003) point out that even if the small business grows and must introduce formal or managerial practices as it develops, it must not abandon the entrepreneurial patterns of spontaneity and flexibility that allow it to change direction quickly. Formalization and an entrepreneurial spirit are not opposites; but too many managerial patterns, based on supposedly purely rational analysis, end up creating a silo-like operation within individual departments, as seen in many large corporations, leading to some sclerosis and inefficiency over the long term, as demonstrated by Pitcher (1994). Small businesses must always maintain a balance, according to circumstances, between formal and informal, and between a heuristic approach to analysing a situation and preparing strategies and the algorithms needed for the task (Csikszentmihalyi and Sawyer, 1995); in other words, between entrepreneurial and managerial approaches to management, as illustrated in Figure 4.1. This is the only way to retain the flexibility of a small business to compensate for the lack of economies of scale and maintain a key element of competitive advantage.⁹

However, a constantly shifting combination of resources and competencies is only fully effective if it continues to progress and leads to innovation, allowing the company to develop a distinct identity. This is explained by Senge (1990) with regard to learning, innovative organizations that undergo self-transformation thanks to learning and subtle, but continuous, innovation; they move forward in a triple-loop process, as shown in Figure 4.2, since the need to adapt to change creates new abilities to adapt to, if not anticipate, change through innovation.

To remain entrepreneurial, the organization must be based on decentralization, participation, training and information, leading to full mastery by employees over their work, and eventually to a form of self-governance for routines and minor changes, and then to diffuse, systematic innovation (Woodman et al., 1993).

This move towards greater flexibility can, of course, vary depending on the type of entrepreneurial culture involved. It goes beyond many different approaches, both long-standing, such as quality circles, and newer, such as

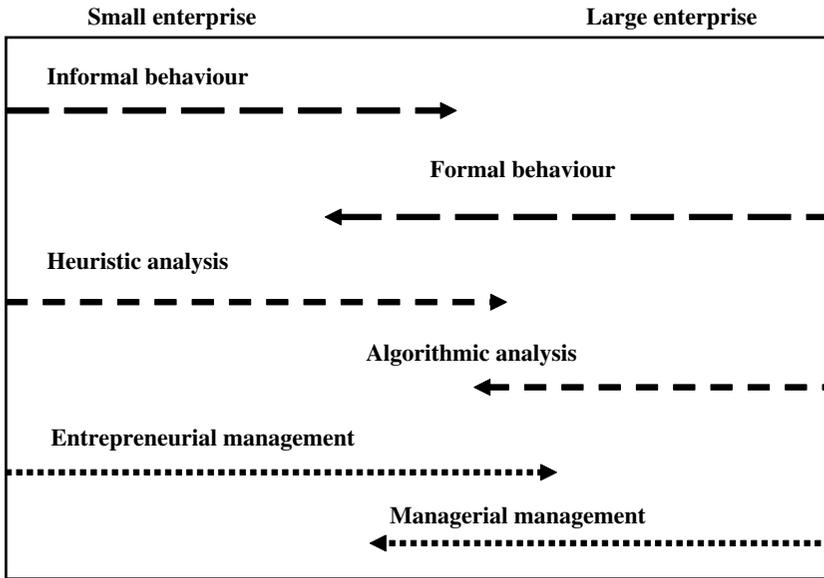


Figure 4.1 Optimal small business behaviour

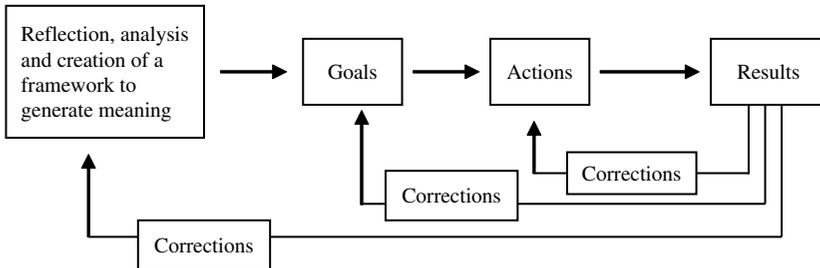


Figure 4.2 Triple-loop learning

simultaneous engineering and lean production. It can be found in high-growth firms, known as gazelles, which develop a specific ability to process information and transform it into knowledge, playing a specific role in entrepreneurship.

Several studies have shown that the failure rate of fashionable practices, such as the introduction of simultaneous engineering techniques (rate measured in terms of the percentage of businesses

satisfied by the introduction) was over 70 per cent. See Kotter (1995), Strebel (1996) and Senge et al. (1999). The same applies to the old quality circles movement. More recently, the same failure rate can be found in connection with e-commerce. Islam (2002) has shown that 70 per cent of the work begun to introduce e-commerce is never completed.

4.4 THE EXAMPLE OF GAZELLES OR HIGH-GROWTH SMALL FIRMS

Gazelles, as an international study has shown (Julien et al., 2001), owe their particular form of flexibility to four entrepreneurial characteristics: dynamic and team-building leadership, systematic innovation and close market proximity, decentralized and self-organizing organization, and ongoing exchanges with the outside environment.

First, these businesses are directed by an experienced and strategically minded leadership team, which is able to give meaning to the work undertaken by instilling a dynamic culture, and shares challenges with the staff. The managerial team is generally better educated than in the average small business and also more experienced, with an average of 23.6 years in the industry. It continually upgrades its competencies, taking between 31 and 70 hours per year of advanced training.¹⁰ It targets profit, but also personal satisfaction (well-being) and the challenge of surmounting obstacles. Five factors explain the success of these entrepreneurs. In order, they are:

1. Staff motivation
2. Quality of customer service
3. Quality of general leadership
4. Quality of financial management
5. Presence of a strong organizational culture.

The quality of the leadership provided is also dependent on frequent communications with managers and employees, and is based on the new management approach discussed, for example, by Kotter (1999) that pits old and new management styles against each other, as shown in Table 4.1.

This can be viewed from another angle:

1. The management style must remain flexible, entrepreneurial and proactive.

Table 4.1 *Old and new leadership styles*

Old leadership	New leadership
Based on planning	Based on vision and mission
Allocates and specifies responsibilities	Shares a vision
Controls and provides solutions	Motivates and inspires
Creates stable routines	Creates change and innovation
Retains power	Allows employees to master and control their tasks
Based on conformity	Based on commitment
Emphasizes contractual obligations	Stimulates additional effort
Illustrates the distance between management and end employees	Intuitive leadership that listens to end employees
Reacts to the environment	Proactive with the environment

Source: Adapted from Kotter (1999), cited by Chell (2001).

2. The approach must be able, on occasion, to generate emotion and challenges.
3. Most importantly, the management team must always maintain a close relationship with the staff, even to the point of becoming involved in key projects and working as a team member if needed.
4. The management team must seize all possible opportunities for change to increase efficiency.

Second, the businesses use a differentiation strategy based on close proximity to customers. Proximity involves frequent direct contact, training clinics, technical assistance, and meetings at least annually with overseas customers at trade fairs, and a quick and personalized system to deal with customer complaints. Proximity means that market trends are identified rapidly, both to make adjustments and innovate, and to maintain a distinct resource/competency combination (Sivada and Dwyer, 2000). It has been shown that gazelles spend at least four times more than the average small business on formal R&D, and carry out systematic technology-watch activities.

Third, the most important characteristic linked to an open management style is the presence of a strongly participatory organization oriented towards the development of knowledge and regular use of complementary outside resources. In the first case, the organization is complex, and the managers have a range of backgrounds. Over 90 per cent of these firms have two or more specialists with different university training, in engineering, human resources, marketing, and so on, while 36 per cent have four or more.

The business is organized in a decentralized, responsible way, based on semi-independent teams and with high managerial and employee input in strategy decisions, routine management and planning of change. Most decisions are made by consensus: the managers are involved in 8.4 major decisions out of 13, the entrepreneur reserves responsibility for less than two types of decision, and the teams have power over their immediate environment.¹¹ Planning is flexible, committee-designed and regularly revised. Profits are shared in various ways: regular bonuses, annual premiums and share distributions. Regular communications with employees, on a weekly or monthly basis, are centralized; cooperation between employees leads to the development of knowledge and the integration of new employees into the team (Bakstram and Cross, 2001); and skills upgrading is supported by a budget of between 5 per cent and 7 per cent of the payroll.¹² The firms use management technologies, in particular to manage information, that is slightly more sophisticated than that of their competitors, but their production technologies are no more modern, confirming that their competitiveness is derived from a combination of human resources and competencies that give the firms a distinct profile compared to their competitors. In short, their operations are non-linear (Darf and Lewin, 1990), and the organizations are learning, innovative organizations that meet the criteria listed in Table 4.2.

Table 4.2 Characteristics of a learning, innovative business

-
1. Strategy based on systematic learning
 2. High level of participation by employees and certain other players
 3. Skills upgrading at all levels
 4. Use of information technologies to share knowledge
 5. Feedback to develop understanding of the effects of actions and make better decisions
 6. Internal relations that facilitate mutual adjustment and adaptation
 7. Rewards system that encourages staff to learn and participate
 8. Flexible organizational structures to facilitate change as a result of learning
 9. Employees working at the boundaries of the organization to gather outside information and improve internal processes
 10. Willingness and ability to learn from outside organizations and consultants
 11. Culture that encourages responsible experimentation and sharing of the knowledge leading to past success or failure
 12. Mechanisms and relations that encourage and support self-development
 13. Systematic encouragement of innovation at all levels and for all elements in the value chain, supported by the use of creativity techniques
 14. Multidisciplinary, multi-departmental organization and concurrent engineering.
-

Fourth, the businesses systematically rely on complementary resources in the community to supplement their own resources and, especially, to remain abreast of new business practices or to develop new markets and innovate. Over 80 per cent of the gazelles surveyed regularly do business with more than one consultant or government adviser. In addition, 41 per cent regularly rely on an outside scientific adviser, and almost 40 per cent have formal cooperation agreements with clients, suppliers and, even, competitors.

4.5 TOWARDS A NEW TYPE OF SMALL BUSINESS

Gazelles, like the other businesses most likely to stimulate the economy in outlying small regions, must apply the principle of *requisite variety*. Since they must develop quickly in response to changes in their market, both in terms of quantity (rapid increase in orders and, often, in the number of customers) and in terms of quality (driven by changing needs and innovation), they must systematically reconfigure in what has been called a world of controlled chaos (Bygrave, 1989; Gulick, 1992; Morin, 1977), while varying and improving the quality and amount of resources available, among other things by using ad hoc external resources. Internal resources, since they are decentralized and participatory, can respond to requests without going through the administration, which in any case cannot see to everything, given the number of adjustments required. External resources, in any case essential, are not involved in the heat of the action and can provide a stable viewpoint from which to consider how to adapt the organization to new needs and help it explore new directions. The responsibility of the management is primarily to ensure overall coherence and to protect harmony without blocking changes, including changes to the pace of development. The organization is therefore able quickly to absorb market shifts (information provided implicitly by purchasers) by systematically varying its approach to meet needs as quickly and as well as possible.¹³ Finally, gazelles are businesses in which change is already part of the short- and medium-term routines and of the processes used to deal with information and develop strategy; if this were not the case, they would develop more slowly, as many do when they are unable to keep up at the same speed (Garnsey and Hefferman, 2003).

High-growth small firms are organizations in the strict sense, living organisms or open systems steeped in a culture of necessary change, as pointed out by the Nobel physical and chemical prize winner Prigogine (Prigogine and Stengers, 1984). They are organizations that are able to adapt themselves through systematic adjustments to mirror changes in

their market, a process known as *operational closure*, in other words, the ability of an organization to intervene in change by undergoing change itself through a triple-loop or spiral movement, supported by systematic training and information-gathering. As a result, they have a special ability to manage improvisation, as required by a process of systematic change, to meet the changing needs of their customers. They can only evolve¹⁴ if their actual structure evolves continuously, perhaps by changing its scope (moving from a small, to a medium and even to a large business), like a jazz improvisation that evolves continuously depending on the mood of the musicians and audience.¹⁵

High-growth small firms play a special role in the local economy, not only because of their dynamic approach to job creation and their especially efficient growth, but also because they use outside resources and, at the same time, stimulate them by asking them to meet new needs that contain the seed of change and by setting an example. They create behaviour patterns that seek out new knowledge to help other firms to change and better respond to the new economy. It is therefore not surprising that there is a relationship between very dynamic regions and the presence of gazelles.

However, these firms are not the only ones to stimulate local economies. Other proactive businesses, especially in the service sector, are necessary to increase the range of resources available and support development. For example, if gazelles systematically use outside resources, then those resources must develop in order to match the dynamic approach of the gazelles. Similarly, a dynamic approach is not limited to medium-sized businesses. As discussed in Chapter 8, dynamism is based on innovation, and innovation is possible in very small as well as very large, firms. It must, however, be supported. To return to our crime metaphor, we could say that innovation must touch small dealers as well as the distribution chain, including the gang's management if the system is to survive and develop. In other words, a dynamic approach is only possible if the community, the milieu, respects, accepts and participates in the process. If this is not the case, the milieu becomes a brake that forces the handful of high-growth organizations that succeed despite this obstacle to seek the complementary resources they need outside the locality, and sometimes to move to a more hospitable territory.

NOTES

1. A routine is a programme of systematic action including rules learned or developed gradually through practice. An understanding of the relationship between experience and routine can also be gained from the example of a child learning to ride a bicycle, as

cited by Lorino and Tarondeau (1998); the only way of learning to ride a bicycle is through practice.

2. Many of these very small entrepreneurs do not want their organizations to grow because they like to have full control and because that control is often the base of their competitive advantage (Pacitto et al., 2006; Rosa and Halle, 1990). Simonon, along with Maigret, writes about thieves who prefer to act alone rather than having to explain what to do, survival being a matter of skill in assessing the changing situation and reacting rapidly to change.
3. Veblen, in his *Theory of Business Enterprise*, said in 1904 that the sources of the firm's competition were its immaterial assets, or finally this knowledge and know-how.
4. Taking into account, however, all the nuances in Porter's theses, which evolved constantly. Essentially, Porter was writing for large corporations, especially multinational corporations. This is far removed from the world of small business.
5. This means that they are not transferable from one process to another because of their specific complementary nature, especially in the case of human resources, but also in terms of equipment interdependency.
6. Rouse and Daellenbach (1999) give the example of a firm's delivery truck drivers who had developed close, personalized ties with the customers, giving the firm a competitive edge over its rivals.
7. This collective skill is the basis for the distinct identity of many very small businesses, as we have shown (Pacitto and Julien, 2004).
8. Even the ongoing surveys carried out by major retailers using identity cards that allow them to track connections between purchases and customer profiles require interpretation, do not take into account changes in customer status and, more importantly, cannot detect the advance signs of customer dissatisfaction revealed through direct personal contact.
9. This is why enterprise resource planning (ERP) systems are relatively effective in large corporations but less so in small businesses, since they formalize most aspects of management and considerably reduce flexibility.
10. For comparison, in the USA, the heads of companies with fewer than 500 employees devote an average of 9 hours annually to their own training (compared to almost 50 hours in companies with over 500 employees and less than 4 hours in companies with fewer than 10 employees) (OECD, 2002a).
11. These semi-autonomous teams, generally with no more than 10 members, are especially efficient, as shown in a study by Masclet (2003).
12. Decentralization, participation, information sharing and training are the best way to develop competencies and ensure competency-based development.
13. These characteristics are summarized anew in a study by the United States Small Business Administration (USSBA, 1998) at three levels: (1) the ability to find and understand a particular market and organize a service in a specific way; (2) the ability to improve productivity and innovation in an ongoing way; and (3) the ability to reorganize constantly.
14. High growth is not always continuous over a long period, as seen in the firms in the sample for our study of high-growth small firms, where growth was sporadic and occurred at different rates (Julien et al., 2002). Baldwin et al. (1994) have shown that almost 50 per cent of high-growth small firms do not survive past the 10-year mark, mainly because of cash-flow problems, since they have to invest continuously even though the return on their investment will only be realized in the medium term. One way to deal with this problem is to find a regular source of outside financing.
15. Even the rhythm of an improvised jazz piece can vary, moving from a New Orleans style to bebop or even post-bebop, allowing total flexibility during a performance (Barret, 1998; Zack, 2000).

5. The entrepreneurial milieu: the key to creating a distinct local identity

We know more about the needs of our own city, than of the needs of other cities; and we are better able to judge the abilities of our neighbours, than the abilities of our other compatriots.

(Montesquieu, *The Spirit of Laws*, book XI, chapter VI)

If entrepreneurs and organizations are both necessary conditions for local economic development, then the existence of an entrepreneurial, innovative milieu is the sufficient condition for them to flourish. The milieu is both a place and the collective mechanism that explains and facilitates various social ties, allowing a collective entrepreneurial spirit to blossom and providing the basic resources, including information and tools needed to transform it into knowledge, to meet the challenges of the new economy. In crime novels, the milieu or the underworld¹ and its values determine whether or not a situation will lead to criminal behaviour. The milieu is therefore a key element in entrepreneurship in outlying territories, especially those remote from urban centres, provided the areas are large enough to offer a range of resources. However, the milieu can also impose conformity and inertia, and act as a brake to entrepreneurship. It is therefore the source of an entrepreneurial culture that, if it is weak, may slow the multiplication and development of local businesses or, if it is strong, promote their growth. The milieu is the factor that best explains why some territories lag behind others, and why some decline.

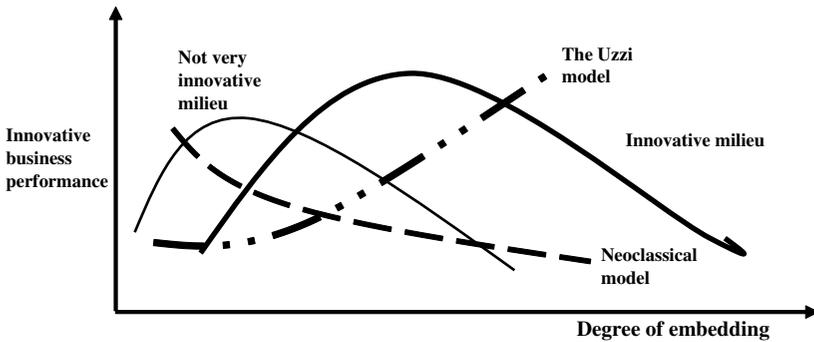
For many years, the milieu was ignored as a component in development. It was considered to be a neutral, formless background to the actions of entrepreneurs and businesses. This limited vision was derived from traditional economic theory, in which entrepreneurship was a purely individualistic, voluntary phenomenon, like individual consumerism. For classical and neoclassical economists, potential entrepreneurs emerge in response to an increase in demand; they act in a purely selfish way, guided by their personal interest, and adopt rational and mainly predictable patterns of behaviour in response to the information provided by prices. Sen (1977) even considers that, for the economists, entrepreneurs are ‘social idiots’. This simplistic approach also extends to each organization, which is considered to be merely an optimum combination of factors, whose

form and strategy can be calculated to generate maximum profits for the entrepreneur.

In *The Place of Science in Modern Civilisation* (1915), Thorstein Veblen speaks of economic ambience, in other words the entrepreneurial culture that facilitates the formation of ideas and the sharing of information, and ensures that good ideas in the air are able to multiply, ready to be seized by entrepreneurs who are well-established in the milieu (we would now say 'embedded'). In a later passage, the little-loved University of Chicago professor (his colleagues avoided him because of his overly iconoclastic ideas on economic theory) speaks about the intangible assets that are present in the milieu. In *Industrial Good Will* (1919), John R. Commons completes this analysis when he describes institutional assets as the rules by which the game is played in a given region. It should be added, however, that both men probably knew the work of Alfred Marshall (1890 [1961]), the father of neoclassical theory, on the importance of an industrial atmosphere in a region. Unfortunately, the following generation completely forgot the teachings of these great economists and created a strongly reductionist rationale.

The idea of economic fabric was, of course, used to explain the type of dynamism that promoted economic development, but only in terms of the exchange links managed by the invisible hand, with only a few interventions accepted to help Rostow-type business creation. Traditional economists relied on the theory of economies of scale to state that the larger a business was, the more willing it was to relocate regularly to temporarily add optimum location to its innovative capacity, and the more efficient it became. In other words, innovative performance decreased with territorial embedding, as shown in Figure 5.1 by the dotted line dropping from left to right. Only large multinational corporations established for purely rational (economic) reasons, with no regard for the business or natural environment, were capable of reacting effectively to economic laws and market trends (Martin, 1986).

This explains why, with the slightest decrease in the advantages offered by a given location, outside investment is diverted to a more lucrative site. Development based solely on outside investment is therefore often a mirage, because of the mobility of large corporations, unless it is based on the long-term availability of natural resources or a critical mass of knowledge stored in dozens of separate businesses and institutions of higher learning that cannot relocate.



Source: Adapted from Boschma et al. (2002).

Figure 5.1 Relationship between the degree of embedding and innovative business performance

We now know that among the elements that can make a difference between a dynamic region and another that lags behind are the quality of the local resources and the presence of particularly enterprising entrepreneurs aware of outside markets, but also the range of internal and external links between them and with various local institutions that provide resources, standards or conventions, skills and knowledge (Aldrich and Zimmer, 1986) that add up to a dynamic entrepreneurial culture. These links promote the exchange of information that allows businesses to escape from the constraints of uncertainty and ambiguity and invest in an increasingly effective way, developing a dynamic entrepreneurial culture that stimulates initiative and innovation.

Obviously, for an entrepreneurial milieu to exist, there must be a minimum provision of population and resources, along with a medium-sized city. The city must offer a range of resources and quality service able to meet all kinds of needs and generate a large number of externalities (Torre, 1998) and a mass of information (Rallet, 1998) concerning its hinterland. The city offers four important resources that are necessary to the development of both the centre and the surrounding rural areas, as discussed below. It makes available to its economic players:

- a system of public organizations such as schools and colleges, professional associations and public administration offices, as well as rules and operating codes;
- a set of buildings of all kinds needed for leisure activities and sustenance, but also meetings and varied and complementary productions, such as sociocultural events, that encourage relaxation and promote creativity;

- a good profile based on some of its buildings, that can become the symbol needed to develop an entrepreneurial culture and a rich exchange of information;
- various typically urban organizations offering a range of services to businesses, such as chambers of commerce, design and advertising firms, research laboratories, financial agencies, and so on. These services can use their links with other cities and the main urban centre to meet more sporadic or specialized needs (Maillat, 1996).

To attain the critical size needed to offer a full array of resources and services for development, several smaller territories can decide to group together to ensure a complementary offer of services by the small cities they contain.

An examination of the question of development, with a focus on the role played by the entrepreneurial milieu, reveals why the theories on optimum location proposed by regional economists hardly apply to most businesses. Few entrepreneurs launch a business outside their home areas. In most cases, entrepreneurs set up their business close to home, often after a trial run in their basement or garage. The theories were primarily intended to help large corporations site their subsidiaries or branch offices, especially to have better control over sources of supply, to find the optimum location for franchises, and to help businesses that have to move because of a lack of space. They only retain a few variables, especially material and passive variables, such as infrastructures, proximity to natural resources, and market density. The milieu, however, is broader and made up of a set of factors that facilitate access to various resources to support business creation, stimulate business development through complex links with various players, and supply assets over and above material assets, as shown by Philippe Aydalot in the late 1970s (Aydalot, 1976). If the theory of optimum location really worked, there would be almost no medium-sized corporations in small towns or villages, except in regions with major reserves of natural resources.

In this chapter, we begin by defining the entrepreneurial milieu. Next, we examine how it can generate an entrepreneurial culture, and either stimulate or hinder entrepreneurship. Finally, we show how it creates social capital, and how this capital, once invested, must generate a return.

5.1 DEFINITION OF THE ENTREPRENEURIAL MILIEU

The entrepreneurial milieu is the social market construction that can facilitate multiple links between resources, on one hand, and purchasers, on the

other (Bagnasco, 1999). It is a context of territorial production measured by know-how, technical culture and learning capacity, placing more or less value on the proximity of key players to create synergy with the environment (Ratti et al., 1997). In other words, it is the socio-economic environment surrounding the entrepreneur and the small business, that facilitates, or fails to facilitate, the commercial and non-commercial links and that distinguishes one territory from another. Local entrepreneurs are members of this environment through their family, friendship and business ties; they draw their models, ideas, resources and information of all kinds from it, sometimes outside the marketplace and therefore free of charge apart from the time devoted to obtaining the information, in order to create and develop their businesses. Endogenous entrepreneurs and their organizations do not exist outside this close environment and the networks of which it is composed. As a grouping of players embedded in the locality and sharing a culture, standards and social conventions, the milieu may, if it is broad enough, facilitate exchange, especially of information and opportunities to stimulate business creation and development. It is therefore at the heart of the local dynamism when it systematically provides rich relationships that bring ideas and change.

The milieu covers far more than classical location factors (infrastructures, workforce, and so on), since it promotes active relationships between players that make certain locations profitable even if they are not optimal from an economic standpoint. Each territory becomes the consequence of a development process, the result of the organizational strategies deployed between the players, and a place of learning and training in knowledge and skills that benefit both established and new entrepreneurs. It brings together a more or less homogeneous production system (this is the case for industrial districts), or several complementary systems, a technical culture (a combination of know-how), and players of all kinds embedded in their locality.

A medium-sized corporation (800 employees) producing plastic products for the American automotive industry has chosen to retain its location in a remote region, even though it is over 300 km from the nearest large city and thousands of kilometres from its main markets. Its location constitutes an advantage because of the natural environment of lakes and rivers that encourage employees to participate in all kinds of social and sports activities. All staff members have access to facilities that the company has set up on nearby lakes for fishing, hunting and other family activities. The management team meets there regularly to establish strategy and prepare delicate operations. The village, too, is involved, since the

company provides support for sports and social activities. Some years ago, a new senior manager was hired from a multinational company, and said at a conference in the city how he was going to change this culture using so-called modern management methods. The following Monday, he was fired. Of course, the natural environment alone cannot explain the company's competitiveness. The company follows outside developments closely using a sophisticated watch system, and its managers travel overseas regularly to weigh up the challenges posed by international competitors.

The milieu has vague boundaries, a little like friendship, and is rarely confined to a local area. The boundaries can, however, be coherent and based on the dynamism, or lack of dynamism, of a territory, on the technical culture, on the skills of the workforce, and on social rules and norms. The boundaries are thus very wide in an area with few human resources (or a group of such areas), but more restricted in localities where there is a large population and a strong industrial tradition. The technical culture and standards forge the attitudes and behaviour patterns that support the regulation of the milieu and its degree of embedding (Maillat and Perrin, 1992), which can match either of the two reversed U-curves in Figure 5.1.

Therefore, the milieu is an open system that must systematically take into account the pace of change in the environment, and at the same time limit evolution to ensure that things are not done too hastily. The more open it becomes, while remaining coherent, the more it is based on effective technology watch systems, especially weak-signal networks that stimulate innovation, the more dynamic it is, and the higher it is situated on the right-hand curve in Figure 5.1, then the more it will be an enterprising, innovative milieu, rather than a more conservative milieu (the left-hand curve). The curves start on a rising angle: a lack of embedding and solidarity (every person for himself or herself) leads to ineffectiveness. The opposite possibility, an excess of complicity and a closed attitude to the exterior, can also be restrictive, as shown in the second, falling, half of each curve. The milieu is an organic, living process that develops at varying speeds depending on its links with the exterior and the learning that takes place within it, transforming behaviour and players, and generating the dynamism needed to meet the challenges of the knowledge economy.

Every milieu has at least five groups of players:

1. Local public or parapublic institutions providing governance, education, R&D and industrial support.

2. An industrial structure of varying degrees of diversification, integration and hierarchization between firms and the milieu, that has positive or negative links between suppliers, distributors, clients, consultants, unions and competitors. The size of the companies is an important element: the more large corporations there are in a given territory, the more likely they are to monopolize the best resources, a factor that slows the development of smaller businesses.
3. A trained or untrained workforce that participates in and supports development to varying degrees.
4. Organized cooperation, in other words, the degree of hierarchical or horizontal coordination, centralization or decentralization, and the allocation of responsibilities and task specialization between firms.
5. An entrepreneurial culture shared by the socio-economic players, in other words, a shared understanding of how to undertake and conduct business, or *positive (or negative) shared rules* for entrepreneurship, as explained by Commons 75 years ago.

In other words, the milieu can generate conventions and practices that unite it and define both worker behaviour patterns and the attitudes of entrepreneurs towards risk, change and the availability of resources. The five groups are presented in Table 5.1, with the respective roles they play in development.

Milieus with a strong entrepreneurial culture make it easier for entrepreneurs to take risks, since they are supported by the general ambiance and the relative ease with which they can obtain resources to create or develop their businesses (Palich and Bagby, 1995). In other words, an entrepreneurial culture is, fundamentally, the attitude or aptitude of a society in a given territory for recognizing and stimulating the personal values and management skills of entrepreneurs, allowing them to benefit in various ways from their initiative, sense of risk and ability to innovate and manage their relations with the milieu in an effective way.

A few years ago, the entrepreneurs in a small region got together and decided to stop saying that 'things were going badly', whether in general or with regard to a specific situation in their firm. At their meetings, the rule was always to state or imply that things were going well, or that action had been taken to correct specific problems. This way of sharing a positive, favourable vision had a major impact on the way businesspeople behaved, and on the dynamic approach of the region as a whole.

In his doctoral thesis on the economy in the Beauce region of Québec (Canada), Mario Carrier (1992) showed the existence, at the time of his analysis, of various rules or conventions that partly explained the miracle of the Beauce (an isolated rural area that has become one of the most entrepreneurial regions of Québec). One was that no entrepreneur could steal employees from another firm by offering better conditions. This allowed businesses in the region to base their development on lower costs than in other regions, compensating for their distance from their markets. However, to ensure that the employees, and in some cases their unions, also agreed to this rule, a corollary stated that, if a business went through a difficult period, the other firms would do everything they could to hire the laid-off employees, giving them increased job security.

Table 5.1 Groups of players defining the dynamism of the entrepreneurial milieu

Player	Examples	Key individuals	Main contribution
1. Public and parapublic institutions	Local government, schools, organizations providing assistance, standard and convention facilitation	Industrial commissioner, mayor, leaders of opinion	Training and support for innovation
2. Industrial structure	A large number of businesses in many industries, including some gazelles	Business leaders	A range of jobs, raw materials, services to businesses
3. Workforce	Engineers and technicians	Union leaders	Participation in diversification
4. Cooperation organizations	Rich informational networks	Dynamic business club leaders	Knowledge- and skill-rich exchanges
5. Entrepreneurial culture	Positive attitudes and aptitudes for creation and innovation	Well-known small business models	Facilitation of ability to face uncertainty

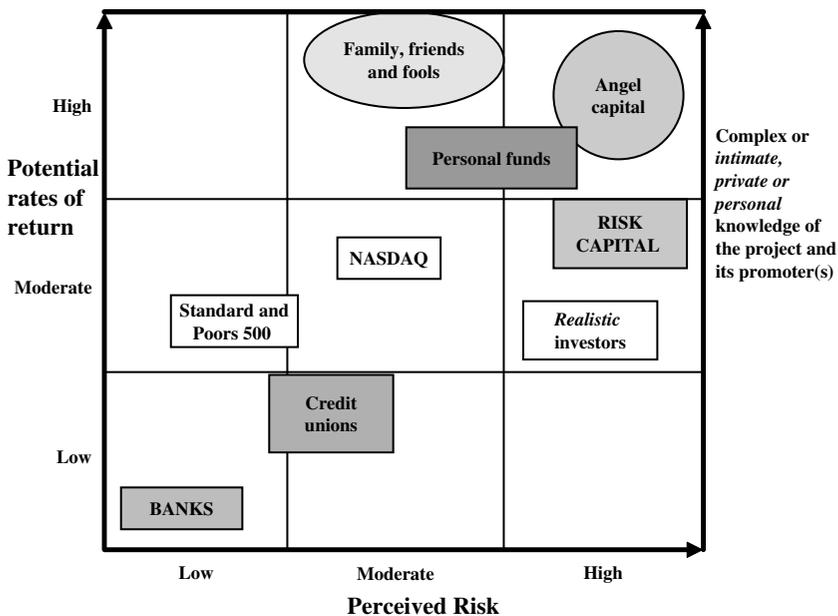
5.2 THE ROLE PLAYED BY THE ENTREPRENEURIAL MILIEU

A milieu, when it is sufficiently large or broad, has the primary role of providing basic resources, especially workforce and infrastructures such as low-cost buildings and second-hand equipment for new small firms. It also offers business resources, either upstream, such as suppliers and maintenance services, or downstream, such as transporters and distributors. Some of these resources depend on personal ties of proximity and fidelity that minimize transaction costs and facilitate the coordination of a new firm's activities. The milieu is the source of *instructuring*, a term coined by Friedberg (1993), since it helps new businesses to join business networks formed by players in the locality that can help them surmount the obstacles encountered at start-up, and reduce uncertainty.

First, the milieu offers the important, and even indispensable, resource of entrepreneurial culture, that can either support business initiatives or not. The culture can be measured by a rate and a stock (Minguzzi and Passaro, 2000). The rate measures the degree of openness shown by economic players to new business creation, the extent of innovation in existing businesses, and their positive attitude to change. The cultural stock refers to the personal qualities of present or future entrepreneurs, and more specifically to their educational attainment and business experience, whether it is direct or limited to contacts with family members and their environment, and therefore to the dynamic or less dynamic business models and management styles that they have observed and intend to use in their own business. When these two variables, the entrepreneurial culture rate and stock, are high, the creation and development of innovative businesses is faster. When they are low, or when there is a level of indifference or distrust towards the creators of new businesses or businesspeople in general, or towards change and innovation, future entrepreneurs become discouraged and seek positions as managers in large corporations, or move elsewhere to start a business.²

Second, the milieu can also offer another very important resource that often provides a measurement of the level of entrepreneurial culture: *angel capital*. This source of funding is in addition to the money personally invested by the entrepreneur, family and friends, or of course by fools,³ to launch the business or make important changes. Angel capital comes from people in the entrepreneurial milieu with money at their disposal (such as retired professionals or entrepreneurs), who want to invest some of their savings in businesses they know well, or in young entrepreneurs in whom they have faith. This type of friendly investor tends to be more patient than institutional investors in terms of return on investment. They use a

completely different method to assess risk, in place of the rational methods used by official sources of financing (Shane and Cable, 2002; St-Pierre, 2004), based not only on the project, but also on the direct or indirect (through recommendations) reputation of the people in charge, and on the ability of the milieu to help them overcome the obstacles that all businesses encounter because of uncertainty and ambiguity, and therefore succeed. All of this can generally only be assessed by reputation, or by asking experienced people about their feelings and opinions concerning the borrowers, and the support on which they can rely if they run into difficulty. Although potential returns are generally high, the risks are also high, at least from the standpoint of outside observers who do not take the reputation, or the personal, organizational and networking ability of the prospective entrepreneurs into account. As shown in Figure 5.2, angel capital provides an appreciable level of support for business start-ups and for high-risk projects that are important for the region. Other sources of financing can be more reticent and therefore less generous, since they are not based on an in-depth or complex assessment of the project and the



Source: Adapted from Adam and Farber (1994).

Figure 5.2 Type of financing and ability to assess potential return and risk in outlying regions

resources available to support it and bring it to fruition. Figure 5.2 also shows that banks are the most reticent and rarely lend money for new businesses, followed by the stock exchange and, finally, by so-called realistic investors and venture capitalists that generally favour high-tech firms where the potential return is greatest. Savings and loan cooperatives are a little different from banks, since their proximity to the members of the local milieu means that they have more extensive information about borrowers and their immediate resources.⁴

A businessman explained to me that a neighbouring municipality had approached him to purchase a firm that had just closed down. Its sector of activity was related to the activities of his own firm. After thinking it over, the lack of capital and high debt load of the closed business led him to refuse, even though he thought it was an interesting opportunity and would have given him the space he needed to continue to expand. A few weeks later, at suppertime, there was a knock on the door. The caller introduced himself, and said that he lived in the same neighbourhood and wanted to talk about the purchase since he had heard about it from various sources. After briefly discussing the advantages and disadvantages of the project, the neighbour asked the businessman, who only knew him from having seen him once or twice at the local grocery store, how much the transaction would cost, and then made out a cheque for 1 million dollars, the required amount, without asking for any kind of security. The businessman could hardly believe his eyes, and over the next few days made inquiries about this providential investor before cashing the cheque and, a little later, finalizing the transaction.

During an advanced training session with about 10 entrepreneurs in a particularly dynamic locality, I watched angel capital being assembled before my eyes. The businesspeople needed specific components to be made in the region so they would not need to import them. After agreeing on the project and locating a building, equipment and a mentor, they needed an entrepreneur to direct the project. Someone called during the session, explaining that such an entrepreneur had been found, and after less than half an hour of phone calls, the people present had managed to put together a start-up capital of \$350 000, enough to launch the business.

As well as providing angel capital, the milieu can also facilitate institutional financing, once again because its members have a more in-depth understanding of the projects and their promoters (Deakins and Philpott, 1995).

Third, a milieu that is large enough can offer immaterial resources such as training and information, which allow entrepreneurs to develop the ability to understand change and overcome obstacles. Some of this is made available, especially in the case of information, through a non-commercial system (if one overlooks the loss of earnings resulting from the time spent supporting interrelations rather than pursuing lucrative activities). The most important non-commercial resource is information that is less ambiguous, more concrete, dealing in particular with models for entrepreneurs or ways to launch and manage a business, since future entrepreneurs learn by example from people that they know and trust.⁵

The entrepreneurial milieu is a reducer of uncertainty and ambiguity for entrepreneurs, since it identifies, forwards, sorts and adapts outside information and facilitates transactions (by reducing transaction costs) through proximity. In a complex survey carried out in France, Abdessalam et al. (2002) calculated that the more closely a business is linked to the milieu, or the stronger and more varied its relations with the milieu are, the more chance it has of surviving and developing.

Finally, the milieu is a social mirror that stimulates, moderates or restrains business behaviour. It must be considered as a whole, since it also includes sociocultural elements that allow economic players both to be soothed and stimulated by all kinds of ideas and a general atmosphere conducive to renewal. This is why, to be dynamic, an entrepreneurship milieu must be able to offer a range of elements, including a sociocultural environment that, although considered by some people to be non-economic, can attract people to work in a given area and produce new ways of thinking in the locality.

The presence of universities and colleges is more important for a territory than the simple ability to train and inform entrepreneurs and staff or to reduce costs for students who no longer have to move to a large city. The universities and colleges allow the locality to retain a large number of educated, and therefore knowledge-bearing, workers who would otherwise be likely to settle in the city where they complete their post-secondary education, form lifelong friendships and discover job opportunities. And, of course, they also support research (Pappas, 1997), but its impact nevertheless depends on the type of local industry and whether or not it uses the learning and innovating capacities (Shane, 2003).

The milieu offers five kinds of societal proximity:

1. *Cognitive proximity*, in other words the sharing of basic knowledge, expertise and common reference points, such as regional trades that are sometimes inherited from history, as is the case for industrial districts. The milieu facilitates the exchange of employees, the absorption of ideas and new technologies, and learning.
2. *Organizational proximity*, a common spatial reference that promotes the intensity and quality of internal relations (and transactions) between enterprises, or external relations via networks.
3. *Sociocultural proximity*, or *embedding* in a structured fabric of personal relations. This embedding is generally based on a shared history and a sharing of values, standards and conventions that generate and reinforce relations. This is why entrepreneurs from other countries (ethnic entrepreneurship) tend to work with people from their own culture, and why economic and cultural networks are so important, at least during the first years of a firm's existence.
4. *Institutional proximity* refers to institutional laws and norms, the rules imposed by the government. This proximity can include social links, in other words the customary ways of doing things.
5. *Geographic proximity* is probably the least important for supporting innovation, but facilitates non-official meetings for obtaining other basic resources through face-to-face encounters. It can add weight to other types of proximity and improve the tacit exchanges (Rallet and Torre, 1999) that stimulate innovation by multiplying ideas, as shown by the rising dotted curve (or the simple embedding model of Uzzi, 1996) in Figure 5.1. In general, the social distance of the milieu is linked to geographical distance: it is difficult to interact with remote agents, unless the interaction is repeated. On the other hand, shorter geographic distances facilitate the social exchanges sealed by short sociocultural distances.

However, proximity, of whatever type, can become an obstacle to change if it leads to conformity or an institutional blockage, as in the case of bourgeois communities that attempt in various ways to protect their privileges. For example, cognitive proximity can act as a brake on new technology, as illustrated by the guilds in the Middle Ages,⁶ since it limits the ability to absorb new techniques and reduces their potential. This proximity can lead to a focus on profit at any cost and to collusion or corruption, frequently found in developing countries,⁷ sometimes in the form of underworld banditry, as pointed out by Baumol (1990). Organizational proximity, especially if it is hierarchic, obscures new ideas by informational asymmetry

Table 5.2 The five types of proximity in an entrepreneurial milieu and their positive or negative effects

Type of proximity	Method	Short-term effect	Long-term effect	Potential negative effect
Cognitive	Exchange of employees	Sharing of knowledge and know-how	Technological change	Conformity and collusion
Organizational	Networking	Facilitation of transactions	Development of standards and conventions	Attraction for the status quo
Sociocultural	Leisure and cultural activities	Embedding	Sharing of values or entrepreneurial culture	Self-satisfaction
Institutional	Laws and regulations	Reputation	Rules	Corruption
Geographical	Infrastructures and media	Interpersonal relations	Knowledge of available resources	Lack of openness to the outside

and creates some rigidity. Sociocultural proximity slows change if it is too emotional, or is restricted to self-satisfaction or mediocrity. Institutional proximity creates blockages and inertia that limit entrepreneurship or require entrepreneurs to use subterfuge to get around them, as in the former socialist countries or any system in which corruption has become established. Even laws, or an overly rigid patents system, can block innovation and technological change. Geographic proximity and excessive specialization can also restrict innovation. Specialization, like proximity, must be at the optimum level, neither too strong nor too weak. This is represented by the rising and falling curve that shows an increase, and then a decrease, in innovative performance (see Figure 5.1). Table 5.2 shows the five types of proximity, ways to facilitate them, their positive effects over the short and long terms, and their potential negative effects.

Maskell and Malmberg (1999) explain that a dense local milieu, although it supports innovative behaviour and industrial dynamism, can also create states of closure, in other words situations in which the local structures become so closely oriented towards a specific

economic activity (a type of technology, a specific market) that they stifle their development possibilities and reduce the chances of dealing successfully with certain situations that have a strong impact on an industrial sector.

In fact, the various types of proximity may (or may not) reinforce each other to be even more effective in supporting development in the territory. To return to our metaphor, the same can be said of the crimes committed by immigrants from eastern countries in some Parisian suburbs, as described in Maigret's novels. The social distance of the milieu is often linked to geographic distance. Cognitive proximity and organizational proximity are facilitated by social interaction and small sociocultural distances (Akerlof, 1997), and supported by social capital. The market cannot escape the constraints of these types of proximity, and even takes advantage of them by creating niches (White, 2001) or securing clients through a network of relations that is part of its social capital.

5.3 SOCIAL CAPITAL

One of the roles of the milieu is to provide social capital, which is added to or included in other resources, such as financial capital and informational links, to sustain shared learning and to support (or slow down⁸) the multiplication and dynamism of certain businesses in some areas (Audretsch, 2002; Tsai and Ghoshal, 1998). Some researchers consider social capital as forming the basis for entrepreneurial culture and the understanding of relations between players in territorial development, but as being separate from it since it comprises specific resources rather than the general ambience of entrepreneurial culture. Apart from human resources, social capital gives entrepreneurs the moral support they need, first by offering models (representations) that allow them to improve their chances of a successful start-up, and second by helping them face the difficulties encountered when consolidating a business (Adler and Kwon, 2002). This is because entrepreneurs (and therefore entrepreneurship) are nourished by their ties, relations and interactions with the industrial fabric that supports them.

Bourdieu (1980: 2) was one of the first theorists to speak explicitly about social capital,⁹ which he defined as

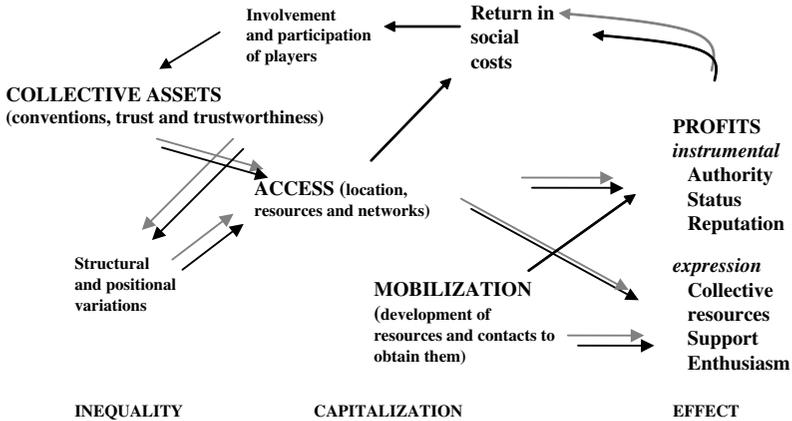
the set of resources that are connected to the possession of a durable network of more or less institutionalized relations, intercommunications and interknowledge; or, in other words, that are linked to membership in a group, as a set of agents that do not share common properties . . . , but are united by permanent, useful ties.

Social capital is at the intersection of the behaviour of businesses and of society in general. It enhances access to various material and immaterial resources, including information, values (institutional and symbolic) and current or potential conventions. It allows entrepreneurs to mobilize various resources to succeed in their projects. Social capital is intrinsic to the mutual recognition networks available to entrepreneurs (Burt, 1982). These social recognition networks can be limiting, as stated above, but can also be stimulating. The milieu can either include or exclude.

Social capital consists of a stock of relations that is different for each individual. It generates trust, trustworthiness and shared norms between the actors involved in development and even enthusiasm for certain planned actions, increasing the dynamism of individual entrepreneurs and, ultimately, even the entrepreneurial culture, or the industrial atmosphere conducive to entrepreneurship. Social capital is a set of available resources (Coleman, 1990), but it is also the flow of social exchange underlying the formation of networks and their interactions (Cooke and Wills, 1999). By its structural aspect, it can also act as a glue that reinforces the relations within a social group (Anderson and Jack, 2002), and as a lubricant that accelerates interrelations by establishing a climate of trust, trustworthiness or honesty, as well as rules that help the group to increase the pace of discussions to block or promote change. When the interrelations provide rich, explicit but especially implicit information to the members of the weak signal network¹⁰ this facilitates the creation of meaning, because knowledge is shared in a more or less diffuse way. In this case, the milieu becomes an extremely effective mechanism for interpretation and learning (Vaggagini, 1991).

Social capital, if extensive, allows socio-economic players to keep up to date, to know what is not available in written form, even in the local press, to know customary conventions, and to feel a level of confidence, for example by finding out in advance about the reputations of suppliers and clients. For an entrepreneur, this ability to judge can be used to distinguish more quickly between positive and negative, and to weigh risks, and can be crucial (Yli-Renko et al., 2001). However, it can be infinitely more difficult for an isolated entrepreneur, who is a beginner and socially limited, to achieve the same quality of judgement (Velts, 2002).

Social capital also gives entrepreneurs access to hidden knowledge and know-how based on trades, traditions or events in the past, that allows them to avoid making the mistakes that others, who are not part of the group, will unfliningly make because of their ignorance of or failure to understand hidden obstacles. It makes possible easier negotiations and controlled cooperation and competition, based on relations of trust, but also on imagination in commercial and non-commercial transactions (Baron and Markman, 2000). Social capital is therefore especially important for



Source: Adapted from Lin (1999).

Figure 5.3 Flow of social capital

new high-tech firms that run more risks than other firms (Caryannopoulos, 2005; Liao and Welsch, 2001).

Figure 5.3 illustrates the operation of a type of social capital made up of group assets that include trust, trustworthiness and norms or conventions. These assets facilitate access by entrepreneurs to various material and immaterial resources. Social capital generates benefits, such as prices that are generally lower than on the free market for certain resources and assistance, but also social status, relations of authority or subordination, and reputation, as well as the climate of trust and sometimes enthusiasm created by the mobilization of key forces in the region, especially in the case of a particularly dynamic region.

Figure 5.3 shows, in addition, that assets are not evenly spread over the localities. This unequal social capitalization explains why some small regions are far more dynamic than others. Areas that are too small must join together to constitute the critical mass needed to augment their assets and meet the needs of various entrepreneurs and current, or future, firms.

Like any invested capital, social capital must generate a return, a sort of *social interest*. Entrepreneurs and businesses that benefit from a non-commercial contribution by the milieu are bound to responsibly remit part to the region, by establishing a reciprocal relationship with the milieu. In other words, the entrepreneurs must gradually repay some of the resources obtained outside the commercial system, or at a lower price, as they do for financial capital.

For example, unlike large corporations that are rarely embedded in the milieu and that can close at any time provided they respect legal requirements and have obtained the profit they expected, small entrepreneurs must maintain their reputation in the municipality. They will keep on a lazy or alcoholic employee because it is the only way to support a family that is well known in the locality and that is already dealing with the problem, because the employee's son or daughter is friendly with one of the entrepreneur's children, or because the two spouses are members of the same sports club.

This is why the strong criticism directed at neo-liberalism and globalization because of the negative effects on the population must distinguish between small businesses and large corporations, even if some small businesses unfortunately act like multinationals by forgetting the need for solidarity. For example, the name often applied to small businesses in Germany, *mittelstand*, literally translates as middle class,¹¹ reflecting the idea that small businesses are linked to their surrounding environment. Small business owners are a class of citizen between the working classes and the bourgeoisie, rich enough to be independent of large property-owners, but not enough to cut off contact with their environment or their workers. Often, these small business owners live in suburban bungalows and maintain contacts with their neighbours, some of whom may be employed by their firms, and regularly use the services of other small entrepreneurs such as hairdressers, butchers and garage owners. Clearly, then, they cannot be compared to large, delocalized corporation owners, or even to the senior managers of local subsidiaries, both of whom must overcome significant difficulties to meet the needs of the local milieu, or who live in distant suburbs in large, isolated homes, while their employees live in public housing units or apartment buildings. Finally, several political scientists, including Raymond Aron (1964) and Michel Foucault (1970), considered that a strong middle-class presence in a society is a necessary condition to the development of democracy.

The reciprocal relationship between social capital and the businesses it supports is illustrated in the following example. A metal product finishing plant, the only factory in a small municipality with a population of less than 1000, was purchased by a large city group two decades ago. In the end, the group decided to close down the plant to consolidate its own production. The workers, who risked losing their jobs, persuaded the plant manager to purchase it as a semi-cooperative undertaking. Each employee had a financial stake, and the manager made the largest contribution, after giving his house as security in order to raise a loan. Unfortunately, a few weeks later, a fire destroyed the factory, before the insurance policy

was signed. The workers were completely discouraged, until the manager's brother-in-law, who was born in the village, offered to lend enough money to rebuild the plant. It now has over 300 employees, and recently had to expand for the third time since being rebuilt.

Another example is the Tontine system¹² in existence in several African countries, that not only allows micro-financing to be built up for use in launching small businesses, but also leads to the development of information-sharing and solidarity networks that help ensure the success of the new businesses.

Businesses that are closely linked to their environment consider that, although some costs are involved, proximity generates all kinds of non-marketable advantages for the businesses, and lower prices for merchandise and other resources in the milieu. In return, the milieu as a whole benefits because the local businesses create jobs and support the industrial fabric in the locality.

Few multinationals maintain close ties with the regional workforce. For example, following a drop in annual sales, a large corporation in a small village had to lay off 10 middle managers, who were suddenly told one morning that they had lost their jobs. To make things worse, because the corporation was afraid they would take secret expertise with them even though they carried this information in their heads, they were not allowed to go to their offices to fetch their belongings, which had already been boxed. One of the managers had to insist at some length before he was allowed to meet his workers to thank them for their past efforts.

The story could have been different. For example, a business launched following the purchase of the only company in the village, thanks to support from within the milieu, went on to become a multinational. However, it has maintained a participatory spirit in each factory, and this today is part of its reputation. The owner explains, for example, that he has no choice but to lend his personal luxury car for each wedding in the village, whether or not he needs it himself. This is one way in which he gives the milieu the same kind of constant, active support that it provided during the company's years of difficulty.

Social capital is a crucial factor in the success of prospective entrepreneurs: it opens doors, reduces the cost of information and resources, and provides varied forms of insurance against setbacks (Cruickshank and Rolland, 2006; Tsai and Ghoshal, 1998). It acts as a slow-dissolving trigger for competitiveness in the locality, by providing the missing resources that are needed for businesses to start up and develop. It is the catalyst that creates synergy and stimulates exchange (Cohen and Fields, 1999). It becomes a *moderator* that prevents excitement from building up too quickly and then dying away, while waiting for results that take a long time to emerge. It is a reservoir of knowledge, supporting the creation of business opportunities and helping established firms produce competitively. Finally, it is a *collective operator* and a place where joint inventions emerge from the circulation of ideas and exchanges of all kinds. In short, it is a basic element of local entrepreneurship, a living industrial fabric (a territorial organic material), the element that, through *intercommunication*, activates and transforms players, as explained by Habermas (1981 [1987]), and the element that supports entrepreneurial culture.

The more positive social capital exists in the milieu, supported by an entrepreneurial culture that makes the connection between the milieu and needs, and the more the milieu is dynamic rather than conformist, the more it is able to help the locality to create a distinct identity through innovation, and thereby increase dynamism in particular with high-growth SMEs (Florin et al., 2003). In addition to creative entrepreneurs and their organizational abilities, the milieu creates a distinct identity for each area. Entrepreneurs can often work wonders with limited resources, but their perseverance and ability to adapt quickly must be supported by social capital and an efficient entrepreneurial culture. No organization can be fully effective unless it systematically receives information to adapt to both the local and the international market, even if it does not itself export. If we return to our metaphor, the same can be said of any small or large criminal organization in the American western states, as pointed out by Michael Connelly in his detective novels. Entrepreneurs, organizations and the entrepreneurial milieu cannot match up to international competition unless they bring together the various types of proximity, operational and strategic flexibility and collective learning to supply systematically the range of resources and information needed to distinguish themselves through ongoing innovation.

NOTES

1. In the French language, when Maigret talks about the 'milieu marseillais', readers know he is referring to criminal organizations and different levels of criminality ranging from the lonely pickpocket to the drug and white slave traffic.

2. The milieu can stimulate entrepreneurship for some groups in a territory but not necessarily for everyone, depending the scope of the entrepreneurial culture, the territory's recent history and the capacity of firms to adapt, as Laretta Conklin Frederking (2004) showed for two immigrant groups from India in London and in Chicago.
3. The three Fs: Family, Friends and Fools. The fools may appear foolish, but they hold inside information that allows them to make a better assessment of risk than financial analysts. This is also known as *love money*.
4. In particular, this is because the managers of small savings and loan cooperatives generally come from the locality, stay in their jobs longer than bank managers and have a better idea of the borrower's history and environment.
5. Trust is double: technical trust (the entrepreneur is, by reputation, able to produce) and moral trust (the entrepreneur will do as planned).
6. Even today, physicians in North America have a corporatist attitude to other health-care professionals, such as alternative medicine practitioners, while alternative medicine is commonly applied in Europe by large numbers of health-care professionals.
7. Often facilitated, it must be remembered, by the active support of investors and sales personnel from industrialized countries.
8. Putnam et al. (2003) give the example of the Ku Klux Klan which, by its proximity system of corruption and collusion, slowed down the development of the American Deep South. Other examples of proximities being very negative include the localities or neighbourhoods where criminal gangs prevent economic development, such as the Rio de Janeiro *favelas* with their *Jogo do bicho* or *comandos de narco-trafico*.
9. But some people give credit for this to Jane Jacobs, who used it in the early 1960s in a masterful study of the important role played by cities in economic development. Others trace its origin to the work of Lyda Judson Hanifan in the 1920s.
10. See the following chapters.
11. In Belgium, one of the oldest associations of small business owners is called The Middle Class Association.
12. The word *tontine* comes from the name of Lorenzo Tonti (1635–90), a Neapolitan banker who settled in France and invented a form of life insurance based on regular saving by a group of individuals, with the accumulated capital and interest being divided among the survivors. It is used in developing countries to describe an accumulated amount of regular savings that is lent to a member of the association who has a good business idea, and then passed on to another member, and so on, obviously with a strong moral obligation to repay the amount by lending it in turn to another prospective entrepreneur.

PART III

The Factors: Information, Networks and Innovation – Necessary and Sufficient Conditions for Entrepreneurship

In the preceding chapters on the actors in the development process, we presented a number of paradoxes that must be overcome in order to move forward with research into the dynamics of local entrepreneurship in the knowledge economy. The first paradox lies in the fact that entrepreneurs seek independence, and yet their information needs are met first and foremost through the relationships they form with other actors. These relationships develop primarily in the entrepreneurs' milieu and are stimulated by the social capital, or the set of collective mechanisms that play a central role in the multiplication of firms, even though entrepreneurship mainly seems to be driven by people acting alone. As for the second paradox, we showed in Chapter 5, on the entrepreneurial milieu, that the capitalistic model described by Anglo-Saxon authors is only one of several possibilities (Wallerstein, 1990). This is because venture creation is a product of the dynamism of the milieu, which develops within a specific entrepreneurial culture that differs by country and by locality. The third paradox, related to cultural difference, derives from the fact that, despite globalization, the vast majority of firms are first and foremost national or local in scope (Grosjean, 2002); even multinational firms are managed and directed using methods inherited from their founders or national management team. However, SMEs are even more embedded in their local milieu, whether or not they export to the rest of the world, unless bought by foreign entrepreneurs or groups.¹

If we return to the mystery novel metaphor, the same paradoxes are also apparent in criminal circles. For example, criminals are individual deviants who either reveal their deviancy suddenly, by committing a crime, or become more deviant through membership of a criminal group. They often do this to protest against social standards, but succeed only if they are supported in their criminal activity by the organization and even by the underworld in adhering to their often rigid rules. When supported by a milieu (an underworld), for example with the extension of corruption, criminal groups expand their collective resources in order to direct and facilitate individual deviancy, infiltrating society to such an extent that society becomes impregnated by petty theft or crime. But, despite globalization, criminal groups still tend to be national or ethnic in nature (Italian, Chinese, Russian, and so on), which allows them to forge and maintain very strong internal contacts, sometimes within families. Criminality is especially likely to develop in societies with wide class differences and weak social values. Thus, if we were to study criminals individually only, it would

be impossible to understand and combat crime effectively. In particular, it would be impossible to understand the constant development of different types of crime in response to social changes.²

Numerous sociologists have described group-based behaviours such as these, including the highly conservative behaviours of large industrialists, who tend to join the same clubs, live in the same types of protected neighbourhoods, use the same stores and restaurants, dress in the same way, and so on. These are behaviours that Ouchi (1980) described as clique or clan behaviours. The historian of firms, Chandler (1962), took a similar view, explaining that senior managers will only change their power-based positions and behaviours in the face of very strong pressure or emergency situations.

These entrepreneurship paradoxes are solved by the cultural response, through the conversion of information by special networks, a conversion that to some extent triggers innovation, laying the groundwork for the distinctive nature³ of firms and regions, and hence their different levels of dynamics. This leads us to the three key factors of entrepreneurship.

The first factor is information, which reduces uncertainty and which must be obtained in order to be converted into innovation. Information comes partly from the organization, its knowledge-related experience and its expertise trajectory, but is fuelled and converted mainly by the firm's external environment, since it depends on the beliefs and view of the world of the partners who exchange and adjust it within complex networks. Information, developed both by the networks and by the organization receiving it, is what permits innovation, which itself is the core element in the competitive capacity of a local or national economy. This was shown by Schumpeter at the beginning of the twentieth century, and is even truer today in the knowledge economy, of which it is the primary application. France's report on the knowledge economy (Viginier, 2002: 11) confirms that the structural changes observed in the past 20 years have led to a rise in the number of analyses highlighting the impact of innovation and knowledge on the competitive capacity of firms and nations, and hence on their distinctiveness. Although this type of innovation is almost never spectacular, it must be constant in order to maintain the distinctive nature of the firm or nation, and this, in turn, requires a lot of rich information. This rich information is then acquired and converted by the organization, helped by various external resources from different types of networks, in order to trigger innovation. Hence the loop formed by the three key factors, namely, information, networks and innovation. Information and networks form the necessary conditions, while innovation is the sufficient condition for dynamic entrepreneurship.

In this part of the book, we examine these three key factors that direct the actions of the three players in the entrepreneurial pyramid on which the

locality may have an impact, namely, the entrepreneur, the organization and the milieu. Rich information acts as a source of energy to activate and stimulate the economic players, and to foster or discourage entrepreneurship in the area. Networks bear and convert rich information to support learning and enrich the strategies and activities of the firms. Finally, innovation differentiates winning firms and localities from the rest, by supporting their distinctive nature and hence their competitive capacity.

NOTES

1. In this case, more often buyers who end up emptying the new subsidiary of its specific features, often those that were responsible for its competitive capacity or dynamism, or redirecting markets for the benefit of the head office. .
2. For example, the almost exclusively repressive war against drugs has clearly been lost. The more large drug shipments are seized (large shipments account for less than 2 per cent of total drug traffic and some people believe they were sacrificed so that the authorities would leave other shipments free), and the more dealers are arrested, then the higher the prices and the more likely new vendors are to enter the market, attracted by the prospect of significant profits (Grimal, 2000; Morel and Rychen, 1994).
3. Michel Marchesnay (2003) distinguishes quite rightly between *differentiation* (that is, advertising highlighting the differences of a brand or product, thus obtaining a market to the detriment of its competitors) and *distinction*, based on general innovation and the search for a niche in order to stand out from competitors.

6. Information: the first *necessary* condition for reducing uncertainty and ambiguity

Talking of these taciturn people reminds me that there are others who excel them in taciturnity, and who have a very remarkable gift. These are they who know how to talk without saying anything; and who carry on a conversation for two whole hours without its being possible to discover their meaning, to rehearse their talk, or to remember a word of what they have said.

(Montesquieu, 82nd *Persian Letter*)

Information is to the economy what oil and now electricity are to transportation. It forms the basis of every voluntary aspect of strategy and differentiation. It is the meta-resource that is used to coordinate and direct the resources of every normal, legal or criminal organization, and explains the competitive advantages of firms (Von Krogh et al., 2000; Teece et al., 1997). Generally speaking, it is used to counter the trend towards entropy that threatens all living systems, whether individual or social. All this is even more true in the knowledge economy, which can only be fuelled systematically by information, and in industrialized economies, which can only compete with low-wage economies through systematic innovation.

Yet, although the modern economy multiplies information, among other things through information and communication technologies, which in turn speed up the production and exchange of information, the result is often akin to cacophony, to such an extent that knowledge is unable to penetrate in certain places, because people ignore the media and take refuge in silence rather than submitting to the constant and often uninteresting noise of information overload and disinformation. Multiplied to this extent, information, rather than reducing uncertainty, actually increases it and can create systematic ambiguity. Information has value only if it is processed in such a way that it is relevant to the listener, and hence to knowledge and expertise, rather than being raw data. In other words, it needs to be converted by and for the benefit of the person receiving it.

The right information (Daft and Lengel, 1984), once converted, constitutes the foundation of the functioning of every individual and organization. It enables people to select and apply a specific behaviour or strategy

in response to an uncertain future. The question is therefore as follows: In developing information, how does one obtain the *right* information, and how does one find the keys to interpreting it, if possible before anyone else, so as to be able to adjust or innovate?

Finding the right information is crucial in the knowledge economy, and is basically a problem of content and hence quality, as opposed to one of container or quantity.¹ To explain this, we begin by defining the role of information in entrepreneurship, before going on to distinguish between the different types of information. Following this, we examine the elements or factors that explain the transmission and conversion of information, and end by looking at the mechanisms that facilitate the development of rich information in organizations and small regions.

The phenomenon that led to the brutal stock market correction of late 2000, namely, the failure of container-based information technologies produced in the vain hope that content would automatically follow, is a good example of mistaken perspective, and a good application of the productivity paradox within which promising material technologies (containers) often fail owing to a lack of new immaterial technologies (information quantity as opposed to utility). The consumers who were supposed to rush out and buy these technologies for all kinds of domestic applications, such as meal menus, remote grocery shopping and indoor temperature regulation, did not rally to the call, in the same way that the business community did not throw itself wholeheartedly into e-commerce. The somewhat mitigated success of Amazon.com (which only recently began to make profits) is explained partly by the fact that it simply replaced the mail-based book and music clubs, and partly by the fact that it was the first business of its kind on the market.

6.1 THE ROLE OF INFORMATION IN ENTREPRENEURSHIP

Information is a very specific commodity, as Arrow (1962) pointed out some decades ago. For example, it is difficult to control and *appropriate*² and is therefore not exclusive. The person using it cannot prevent others from doing the same, and it always ends up circulating even if it appears confused at first. It is a *non-rival* commodity, in the sense that circulation

does not cause it to deteriorate, no matter how many people use it. However, contrary to what Solow said, information is also a *hybrid* commodity (Cohendet, 2003): although as a public commodity it must be communicated, and thus requires the interaction of several people, it is also a private commodity and can be controlled at certain times by a handful of people. It is also *subjective*, in that it may be good for some people but not for others. This value or measure derives from the fact that information is *cumulative*, taking on meaning when combined with other information and knowledge. To extract its full value, the people who receive it must have a certain amount of training and experience. In an organization, this means a capacity to absorb, an informal trajectory and routines that enable the individuals in the organization to understand the *context* of the information they receive. This cumulative effect is a function of the *complexity* of information; good information has multiple layers. Its value is also derived from the recipient's direct or indirect confidence in the informer, and from complementary sources of information, some of which may be proposed by the original informer. Information often has value only if it is shared. In such a case, sharing does not cause it to lose its benefits, and it can be shared indefinitely.

The right information³ is always difficult to obtain, whatever the neo-classical economists may say. To be useful, information must have been sought out, sorted, assessed and shared within the organization (meaning that it comes at a certain cost), because most information is mundane and useless, or vague and redundant. The right information therefore requires both time and energy. This is one of the reasons why not all firms have the same amount of information, a situation referred to as informational asymmetry, because they do not have the same time or capacity to know, to develop informational networks or to innovate. Sometimes, even when it appears to have value, information may still be limited or biased; for example, it may have been issued by competitors as a way of confusing or misinforming others. Competitors may even adopt strategies that involve the release of signals intended to mislead their competitors.⁴

The science of economics finds it very difficult to explain this. First, the value of information is subjective and does not depend on exchange theory. It goes well beyond the indifference curves in microeconomic theory, since it depends on the ability of an organization to absorb and accumulate information – in other words, on the experience obtained through training, learning or action. Second, it is not just a question of the market, since to obtain information it is necessary to give information in return, as part of a dialogical relationship, in a process known as *communication*. Finally, there is an iterative process between implicit and explicit (codified) knowledge that goes beyond the idea that knowledge is

a stock, since conversion occurs, and with it the possibility of qualitative shifts.

The central role played by information in the process of entrepreneurship has been highlighted in particular by Kirzner (1979), who showed that entrepreneurs often have superior and more intuitive knowledge of market imperfections and use that knowledge to their advantage by launching and developing a business and innovating to the detriment of competitors who do not have access to it. Casson (1982 [1991]) points out that this superior judgement (from an economic standpoint) allows entrepreneurs to beat other agents and organize their resources to make a profit. More specifically, entrepreneurs convert knowledge into specific products or production methods. Entrepreneurs who do this tend to be improver or adventurer entrepreneurs rather than imitation or reproduction entrepreneurs.

One paradox of information in uncertainty is precisely the possibility of using uncertainty to convert the information into new information or innovation that becomes at least partly public. Information therefore conveys a certain power over uncertainty and over the competition and other stakeholders (for example, order-givers), thus helping even out the balance between large and small firms (Julien et al., 2003a). Entrepreneurs are basically converters of information into opportunity (Julien and Vaghely, 2002; Lang et al., 1997) or creators of new information through innovation (Schumpeter, 1942) – but not all information, and not at random. The knowledge economy is not easily accessible, and knowledge is not the same for everyone.

6.2 TYPES OF INFORMATION

There are several different types of information, and only a small part of the information available has value for entrepreneurship. It is known as *structural information*, as opposed to *mundane information* that comes and goes and is either retained or forgotten for non-economic reasons. Mundane information is of no interest to entrepreneurs or organizations, because it is not linked to the business world, it is too vague, parcellized or incoherent, or because they are not ready to seize it or do not have time to understand it, or even because they think it may be false or altered. In the case of structural information, too, a large percentage ends up being forgotten, becomes outdated or is set aside because it is no longer relevant or has been replaced by more up-to-date information better suited to the criteria used to select or clarify a strategy and take action (Davenport et al., 1998). Within structural information, Leska and Leska (1995) distinguish

between operational information (that is, technical information, used to support coordination), influential information (the kind that motivates action) and anticipatory information (allowing someone to see an opportunity before anyone else, or to see farther ahead or in a different way, and then to innovate).

Information may be *public* or *private*. As its name suggests, public information is available to everyone who is prepared to make the effort to obtain it. It is found in technical handbooks, scientific papers, association newsletters, equipment brochures, patent banks and so on, or is circulated by the media or at open conferences. Private information, for its part, is found in public and private research centres; in the former case it usually ends up being circulated generally, while in the latter case it is more likely to be held back for a while, until it appears in products or processes in the marketplace, in patents or in conversations between specialists. It may also circulate in subsidiaries or emerge from specific conversations within organizations of businesspeople or scientists.

Public information is necessarily *explicit* and hence *codified* so that it can be understood by people in general, or at least by specialists. It is particularly effective, because anyone who obtains it can adjust it and improve it (Strang and Meyer, 1993). However, because it takes time to appear and to be understood, and hence to circulate generally, it is already fairly old when it eventually emerges.

Information may also be *tacit* or *implicit*. It may need to be converted in order to be explained and publicized, and it may need special attention in order to be properly understood. Often informers do not know that they know something, or at least, they do not spontaneously circulate what they know⁵ unless encouraged to do so by a skilled interlocutor or by circumstances, such as a conference or course. Similarly, an interlocutor may not be aware that the other person knows something. The information is therefore expressed only as a result of trial and error or possibly even by chance, when a suitable environment occurs. However, tacit information, even if it is partial and expressed not only verbally but by means of other signs too, can be new and rich, and always has a place in communication. The richest information in terms of its ability to alter the understanding of reality, to direct a strategy, to trigger action, to innovate and hence to stand out from the competition, is usually structural, private, anticipatory or pre-competitive and tacit (Baumard, 1996; Daft and Lengel, 1986). For example, personnel at every level of an organization possess a host of tacit information that can only be expressed within a participatory organization. Examples include operators who are able to make suggestions concerning improvements to their machines, their location within the factory or the reduction of breakdowns, but only if what they say is recognized and valued. Interpersonal

contacts, whether for business, social or scientific purposes, also provide non-market information that can be of great interest to an organization (Morvan, 1991).

Independent stores can set themselves apart from large chains through their proximity to their customers, by offering a sympathetic approach and a specific and immediate (that is, without an intermediary) knowledge of their tastes and needs. One of the major advantages of independent stores, other than the goods they sell, is the psychological sensitivity of their staff towards customers. For example, in 1986, in a survey of the impact of new computer technologies on different professions, we showed that the quality that best distinguished bar staff and waiters, other than the technology they used, was their sympathy and their ability to remember what customers said or consumed last time they visited the bar (Julien and Thibodeau, 1991). In contrast, the large chains tend to standardize their approach to customers regardless of age, social class or behaviour style, and this puts many people off.

There is a further distinction that is expanded upon in Chapter 9, namely, the difference between *effective* information and *potential* information (Julien, 1996b). Effective information is information used to make a decision. It is never complete, since uncertainty always persists. For example, time plays an important role in decisions. Entrepreneurs know that if they wait too long in order to be certain, one of their competitors will go ahead first and beat them to the line. Entrepreneurs therefore act in full awareness of the fact that they do not know how their competitors will react, how far their competitors have engaged in technological change, or at what rate their customers' tastes and behaviours will change. But they go ahead anyway because they have access to potential information in particular through their social capital, if the unexpected occurs. For example, if new investments take longer than anticipated to become profitable because of unexpected obstacles during the running-in period, such as an employee becoming sick or being stolen by a competitor, or a competitor who purchases an even more recent technology, an entrepreneur should be able to call on potential information to find additional financing, borrow an appropriately trained employee from a friendly firm, obtain information from a research centre in order to adjust the technology, and so on. Figure 6.1 illustrates the typology of information used in decisions.

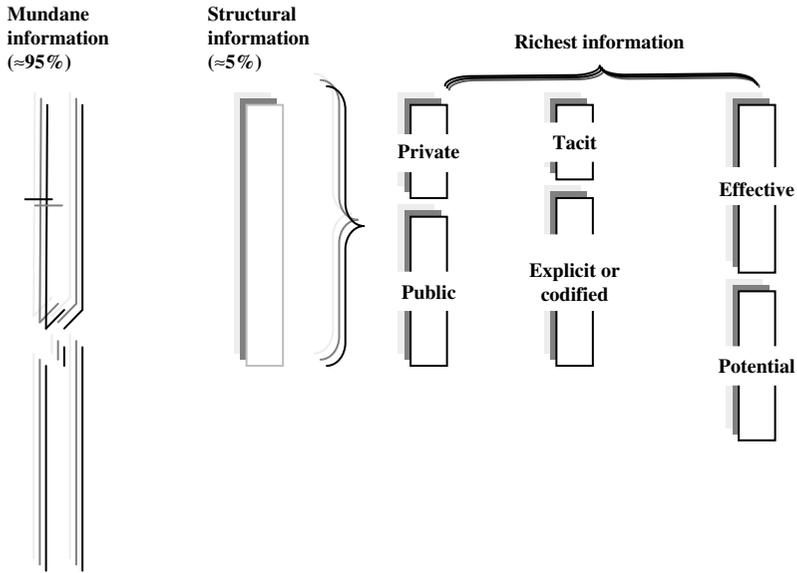


Figure 6.1 Typology of mundane or structural information to rich information

A small firm seeking lighter aluminium components instead of heavier steel ones was encouraged by a major client to buy plasma cutting equipment even though its specialty was laser cutting. So it contacted its usual large Japanese equipment supplier, which sent it the latest plasma machines. Unfortunately, the new machines broke down after only a week of use. The supplier, at its own expense, sent two technicians who stayed two weeks to solve the problem. Over the next month, difficulties continued to accumulate. The technicians came back, without success. Finally, after a six-month trial period, the firm abandoned the plasma technique in favour of a more traditional process, paying some of the direct costs and spending a lot of time in discussion with the client and the equipment supplier. The entrepreneur told me he could never have survived if external resources from his business network had not helped him find a temporary solution, additional financing and specialized training for his staff.

6.3 ELEMENTS CONDUCIVE TO OBTAINING RICH INFORMATION

To be appropriate for public and private organizations, an information system needs to have at least five elements, namely:

1. the ability to capture, accumulate and archive information;
2. technological, commercial and environmental watch capabilities;
3. the ability to convert information into meaning, in order to move on to action and strategy;
4. proximity deriving from a shared language;
5. strong and weak links with outside information sources.

Cohen and Levinthal (1990) were among the first to show that rich information requires a special ability on the part of individuals and the organization as a whole to seek out, understand and analyse internal and external information. They showed, among other things, that the presence of educated, experienced staff (technicians, engineers, and so on) was the principal condition for an organization to be able to follow the changing needs of the market and developments by competitors, in order to stand out through innovation. Informed staff and a synergic organization providing interpretation models (Gioia, 1986) are essential in understanding change in a timely fashion and then acting, or at least limiting reticence, and seeking out new opportunities, both large and small. Van den Bosch et al. (2002) and Zhara and George (2002) also mentioned the learning capacity of the partner firm network, in particular through the peer learning mechanism that we examine in greater detail in the next chapter. This dual capacity leads inevitably to development, thus requiring regular training for management and employees alike, regardless of the size of the firm.

This capacity must be fuelled by technological, commercial and environmental watch activities. The term *watch* (or *scanning*) means being on the lookout for change by generating and using remarks by the personnel (staff, employees) or through the boundary spanners (sellers and buyers), or remarks by customers, suppliers, equipment manufacturers and order-givers, and so on, for information on forthcoming developments and seeking the necessary information in the media, specialist magazines, industrial fairs, dynamic business associations and, if possible, research centres. Table 6.1 shows the sources that are used more frequently than others, such as customers and suppliers, not to mention indirect external information provided by the personnel.

We have shown that there are several levels of watch activities, of varying effectiveness, depending on the sector's turbulence (as shown in the third

Table 6.1 Characteristics of sources of technological information¹

<i>Relative importance (ranking)²</i>	
Customer	2.14
Specialist magazines	2.11
Production employees	2.11
Staff	2.07
Suppliers	2.06
Sellers	2.01
Brochures and catalogues	1.93
Industrial fairs	1.85
Commercial fairs	
Business Magazines	2.98
Agents and representatives	2.80
Order-givers	2.73
Newspapers	2.62
Competitors	2.50
Subcontractors	2.33
Internal databases	2.30
Public organizations	2.24
Consultants	2.21
Books specialized	
Industrial association	
Other employees	
Research centres	
Government publications	
Board of directors	
Financial institutions	
Universities and colleges	

Frequency of use³

<i>Personal sources</i>		<i>Impersonal sources</i>	
<i>Informal sources</i>			
Customers	3.58	<i>Written sources</i>	
Production employees	3.43	Specialist magazines	3.39
Staff	3.31	Brochures and catalogues	3.18
Sellers	3.16	Business magazines	2.95
Universities and colleges	1.54	Newspapers	2.63
Agents and representatives	2.59	Specialist books	2.00
Subcontractors	2.07	Government publications	1.94
Competitors	1.96	<i>Oral sources</i>	
Board of directors	1.89	Industrial fairs	3.00
Other employees	1.88	Commercial fairs	2.77
		Sector asso.	1.87
		Suppliers	3.14

<i>Numbers of personal sources used</i>		
Informal	8.62	
Formal	3.74	
Total	12.38	
<i>Frequency of using personal sources</i>		
Informal	2.70	
Formal	1.81	
<i>Numbers of impersonal sources used</i>		
Written		5.90
Oral		2.48
Total		8.40
<i>Frequency of using impersonal sources</i>		
Written		2.65
Oral		2.56

Notes:

1. On an average.
2. Scale of 1: not important to 5: very important.
3. Scale of 1: very rarely to 5: very often.

Source: Julien (1995: 468).

dimension of Figure 3.2) and the type of strategy applied. The more hostile a sector or the faster it develops in terms of both technology and market structures, and the greater the firm's desire to be a leader, the more it will need a well-organized, diversified watch activity to identify change before it occurs (Julien et al., 1999b; Raymond et al., 2001). Porter and Millar (1985) point out that, although some sectors create very little information in the value chain (such as the petrochemical sector, whose management and production methods are well known), and have less need themselves of constantly renewed information, others systematically create pure information. An example would be the multimedia and book sector or the financial sector. Foray and Hargreaves (2003), for their part, believe some sectors quickly take advantage of technological information – especially the manufacturing sectors dependent on engineering (equipment, transportation, electronic products, and so on) – while others operate in a more humanistic way, where processing is slower and is based mainly on tacit information obtained through interpersonal contacts and through action learning. Examples would be many of the services, including teaching, consulting and other disciplines that are dependent more on relationships than on service as such, or on art rather than on science. Vaghely (2005) thought that many manufacturing SMEs and some business service SMEs should produce innovation both in the value chain and in their own products, and should therefore engage in adequate watch activities and apply a process to convert information into knowledge.

These studies on watch activities also show that obtaining a large volume of information is not enough, on its own, to overcome uncertainty. These activities depend on selecting the right information and circulating it adequately throughout the organization in order to support the analysis of change and generate reactions that can be used to improve strategy. This allows the organization to go beyond the ambiguity caused by information overload and to convert information into meaning in order to take action – in other words, to shift from knowledge to strategy and expertise, with a view to standing out from the competition (Weick, 1969 [1979]). Choo (1998) shows how important and difficult it is to convert information in such a way as to guide the search for additional information that will support and, if necessary, change the firm's technological path.

One example of anticipatory and intuitive watch activities is the speed of development of small gourmet food manufacturers, most of whose products are sold directly to consumers (for example, small brewery beers and farm-produced cheese⁶). These products

address the growing criticism of so-called *classical* consumption (such as *industrial* Camembert or *national brand* preprepared dishes) among an ever-increasing fringe of the general population (between 15 per cent and 25 per cent according to IRI-France), known as *alternative consumers*. The impact has been major. In France, for example, classical consumption has declined in volume by nearly 1 per cent per year in recent years, after having grown steadily by between 3 per cent and 4 per cent per year.

New (and hence richer) information is collected in a variety of ways in addition to via ICTs. Often, it is tacit and partial, and therefore requires face-to-face exchanges of the question-and-answer type, completed by information from other sources. Proximity fulfils the need for an immediate measure of certain information, especially the technical component, since entrepreneurs do not have the time or the means to study every piece of information in detail. The first measure is trust in the informer. Trust is developed only through proximity and over time, and it increases in gradual exchanges of the 'you give me this information and I'll give you that information' type. It is also developed through collusion other than in competitive situations and opportunistic behaviours. Proximity presupposes that those concerned speak the same language (whether verbal or not); in other words, that they can understand the meaning of shrugging, grimacing, hesitation and enthusiasm on the part of the interlocutor. None of these elements can be conveyed by ICTs, clearly illustrating their limitations.

In the Bombardier Recreational Products subcontracting network, we have attended meetings of engineers who thought that in some cases of component development – for example, breaking a deadlock or entering unknown territory – direct exchanges between powerful and perfectly compatible computer-assisted design systems such as KATIA were insufficient. Face-to-face meetings were required to obtain the subtle and tacit information available only through interpersonal communication.

Saxenian (1994) showed that, in Silicon Valley, most knowledge development began with chance meetings between engineers and scientists (sometimes working for competitive firms) in cafés and other places of relaxation.

Effective watch activities require outside contacts with informers in different networks. The networks extend the resource and help the actors to adjust information quickly or automatically to the needs of their interlocutors, for both transmission and reception. This extension provides a larger critical mass, generating synergic effects conducive to innovation.

6.4 MECHANISMS FOR CONVERTING INFORMATION TO KNOWLEDGE AND EXPERTISE

Circulation of rich information between actors is the key to stimulating innovation within a firm and within a territory. It depends on the contacts the actors maintain with one another and with outside information sources – contacts that should foster adjustment, transmission and receipt of rich information.

Yona Friedman (1974) had already shown that the best way of gaining acceptance for new and complex development ideas that are poorly structured and applicable differently in different structures is to organize face-to-face meetings of small groups. In larger groups, the ‘noise’ quickly amplifies, forcing the firm to adopt protocols that are often unable to deal with complex, subtle or tacit information.⁷ It is a case of applying the *principle of least difficulty* – by working in small groups instead of allowing bureaucracy to increase the distance through hierarchy, thus limiting the richness of the information. Watts (1999) summarized these ideas in his *small world approach*.

The principle of least difficulty is derived from the *Ulam theorem* showing that the difficulty of managing the sharing of fine information and hence administering an organization increases proportionally to the square of the number of members (N^2). Total difficulty D can be calculated using the following formula:

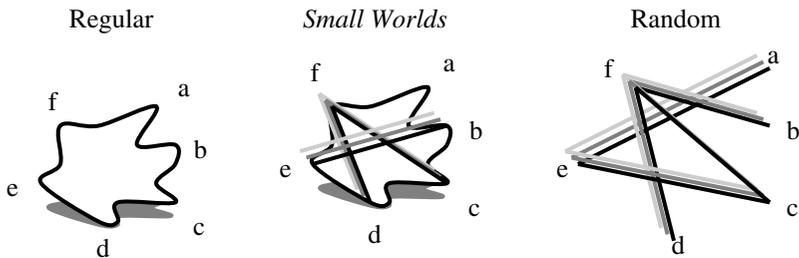
$$D = N_i N_j \times 2 + (1/2)P$$

where N_i is the number of groups of N_j individuals in the organization, and P is the number of hierarchical layers (Toulouse and Bok, 1978).

Friedman (1978) calculated that the optimal number of members in a group for an optimal information transfer (based on a bell

curve) was approximately 15;⁸ at the very least, he found that affinities in large groups were limited to 15 people, and subgroups were often created to limit noise.

One of the clearest examples of the application of this principle is the Vietnam War, in which a small guerrilla army was able to defeat the most powerful army in the world. The guerrilla groups were composed of an average of 15 soldiers able to carry weapons close to the enemy, attack suddenly and then withdraw to avoid being killed. Other research has shown that in the field of health research, and especially cancer research, small teams of 15 or so researchers are almost always more successful than large teams.



Source: Adapted from Watts (1999).

Figure 6.2 Types of networks representing different forms of relations for organizations

For this researcher, the organization's use of a regular network where each player is in contact with colleagues or close friends (culturally or geographically speaking), who are themselves in contact with others, as shown in the left-hand element of Figure 6.2, means that the circulation of information is slower and much less rich than in other forms of organizational contacts, but is guaranteed and therefore highly effective in the longer term. On the other hand, random contacts that develop with distant colleagues (right-hand element of Figure 6.2) provide richer information but less social cohesion. Thus, a firm or a locality whose employees or inhabitants are close and function well between themselves will develop coherently but will lack the new information they need to stimulate innovation. They will therefore have to choose between coherence and quality of information on the one hand, and variety on the other.

Numbers, when used alone, tend to distort and introduce bias into the strategic formation process (Mintzberg, 1994). To be complete and conveyed properly, information must go beyond the obstacles, including lack of proper support, voluntary obstruction for tactical reasons or power play, or other personal or bureaucratic considerations, as explained by Parkinson's various laws (1958) relating to the unfortunate consequences of bureaucracy in large firms and governments.

To understand the notion of noise or information distortion in organizations, one need only think of the telephone game, where children sit in a circle and the first in the circle whispers a phrase into the ear of the next child. The next child then whispers the same phrase to his or her neighbour, and so on, right up to the last person in the circle, who then says the phrase out loud. In most cases the last phrase bears little or no relationship to the original phrase – a result of 'noise'. Noise is created by large numbers of interlocutors and hierarchical levels. Therefore, to ensure that information is not distorted and to limit interpretation errors, organizations need special resources and costly control systems such as organizational newsletters that they can use, for example, to defuse harmful rumours.

Voluntary obstruction can result from collective standards, which often prevent people from seeing things other than in the way they have always seen them. For example, in the early 1970s, American researchers recommended that the weight and power of American cars be reduced, after noting the growing demand for German and Japanese cars as second vehicles and, gradually, as primary family vehicles. However, the engineers working for the major automobile companies refused to make the alterations, on the basis that consumers would never change their habits. The successive energy crises of 1973 and 1975 supported the researchers' findings, and ultimately the changes were made. A similar situation appears to have occurred in 2006, when oil prices soared and General Motors failed to adjust the size of its cars. As a result, it lost out to Toyota, which sold more cars in the USA than General Motors for the first time in its history. This latter example clearly shows that the greatest obstacle to change is often in people's minds.

Watts states that building a 'Small World' type network, combining close and distant contacts, appears to be the best solution. In the next chapter, we compare strong and weak signal networks to understand this combination. For the time being, we simply say that although weak signals do contribute new ideas and can lead to innovation, they are less easy to understand and assimilate because some of the rich information they convey can be lost due to lack of proximity and the resulting failure to obtain the required complementary information.

Firms can, however, go beyond the boundaries of the Small World model and improve both the quality and variety of the information they collect. This involves increasing their research and absorption capacities and organizing or creating information translation and adjustment systems. Simply gathering more information through watch activities or in other ways is not enough. The organization must also be able to sort, analyse and use the information it obtains, and it is this aspect that we will examine in the next section.

6.4.1 Improving the Ability to Obtain and Absorb Information

A firm can be a processor of knowledge if it has the resources it needs to learn – in other words, to extract and convert explicit and tacit information through externalization, combination, internalization and socialization cycles (Nonaka, 1994). Knowledge results from interactive learning, which forms the basis of different types of 'knowing' depending on the experience and learning capacity of the actors in a firm. This presupposes at least eight attitudes or aptitudes towards information:

1. The ability to seek out targeted information, among other things through watch activities.
2. The creation and regular maintenance of internal and external absorption capacities through the hiring of qualified staff, ongoing training and contacts with outside information conversion resources such as intelligent consulting firms⁹ and scientific advisers.
3. The ability to convert information into knowledge and circulate that knowledge throughout the organization.
4. The ability to persuade within the organization, based on the aptitudes to be learned, the attitudes to be changed and the practices to be introduced, rather than power plays, which tend to hold back information or introduce bias.

Husted and Michailova (2002) explain that the cultural behaviours of Russian executives, such as the fact of refusing to admit their mistakes in order to preserve their ranking in the hierarchy, would be an obstacle to the exchange of information and can cause significant problems if the people in question work for subsidiaries that are wholly or partly owned by Western corporations.

5. The development of information flows via networks (medium- or long-term collaborative initiatives of all kinds with major customers, partner suppliers and equipment manufacturers, development and research laboratories, and so on – in other words, with different actors who provide a broad variety of multidisciplinary information), and via systematic exchanges of tacit and codified information based on mutual trust, without interference from power plays.
6. Acceptance of possible dissonance or discontinuity, which may lead to new innovation opportunities.
7. The ability to inform the outside world of the firm's skills (using patents to protect its reputation or setting up shop in a technology park) in order to join 'new ideas' clubs or advanced information exchange networks.¹⁰
8. The construction of strong trajectories involving new combinations.¹¹

In short, these attitudes or aptitudes allow firms to go beyond the information limitations caused by noise and limited learning abilities (Sørensen and Stuart, 2000), by shifting the curve that limits information as the number of interlocutors increases through rich networking. This is shown in Figure 6.3 and is discussed in the next chapter.

6.4.2 Translating Information by Forging Contacts and Organizing Summaries

It is not simply a case of increasing the amount of rich information; firms must also be able to link and summarize that information, and give it meaning so that it can be converted into strategy and action. The initial conversion takes place as a result of *boundary spanners* and *champions* in organizations. Boundary spanners are employees with contacts outside the organization, such as salespeople, technicians or engineers who talk to customers, suppliers and equipment manufacturers. Salespeople who listen carefully to customers' comments can contribute numerous elements able to trigger different kinds of innovation. Executives or employees in contact

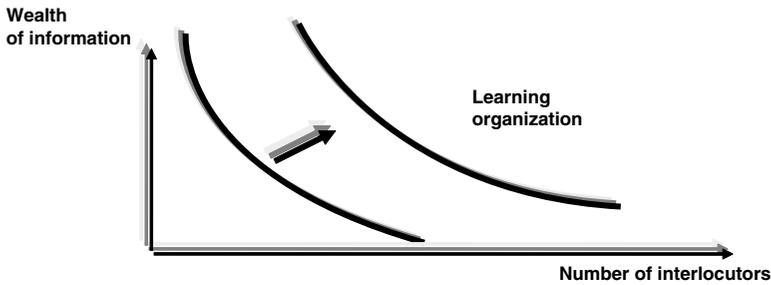


Figure 6.3 Conversion of information into knowledge, and the principle of least difficulty

with new material or new equipment salespeople can prepare change or help adjust the firm's existing equipment to take advantage of new opportunities. Champions, for their part, work to convince the organization of the benefits of change and help reduce reticence or resistance.

After having obtained and circulated information, the organization needs what we have called *information catalysts* (Vaghely et al., 2007) – what Von Krogh et al. (1997) referred to as *knowledge activists*. These are people who facilitate the capture, sorting and summary of information circulating inside and outside the organization. They are equally comfortable in algorithmic information environments (using formulas, templates and other problem-solving systems suited to uncertainty) and in heuristic environments involving the creation of meaning, discussion and interpretation in order to deal with ambiguity. They tend to be junior executives whose job is to obtain tacit and explicit decision-support information from boundary spanners or gatekeepers and other employees, give meaning to that information, share it, summarize it and convey it to management, which will then decide what to do with it. A catalyst may, for example, be a troubleshooter within the firm, someone who solves problems, who does not have a specific job but who can help out employees or teams working on special orders. A catalyst may also be an older, experienced employee who knows all the organization's ins and outs, and who can therefore help establish direction. Some catalysts may be more official – for example, people hired to prepare bids, who are able to go beyond the usual algorithms in order to satisfy special orders by offering lower prices, better quality or shorter delivery times than competitors.

Catalysts are also creators of (virtual) forums for sharing information and expertise. Rogers (1995: 337) describes some qualities of these as follows: they help develop exchange needs and establish contacts with the market; they can diagnose market and non-market related problems within the firm

that may encourage customers to go elsewhere, and are able to ensure that the firm reacts actively; they stabilize the adoption of change and forecast breaks in continuity; and they consolidate reticular contacts to ensure permanency. Catalysts are mechanisms through which information is converted into knowledge. They foster network efficiency by increasing the number of networks where necessary, thus reducing uncertainty and ambiguity.

6.4.3 Going Beyond Linear Analysis and the Dominant Logic

Pralahad and Bettis (1986) point out that firms obtain a great deal of information but are often unable to use it because their conversion and appropriation systems are poorly organized, or because of certain habits and prejudices that prevent them from going beyond the dominant logic. Firms such as these use existing algorithms to analyse their information, forgetting that they need a heuristic vision that leaves room for intuition (Miller and Ireland, 2005). It is only when faced with severe crises that they will agree to break from their routines and question their practices, but it is often too late at that point.

Better control of information forms the basis of a good strategy, especially a proactive strategy, and fuels a firm's spirit, as we saw in Figure 4.1. The flexibility, and hence the distinctive nature, of a firm or territory depends on its control of information. Control is acquired through networks that, if they are selected wisely and maintained intelligently, enable the firm or locality to go beyond the factual information it has obtained in order to identify the underlying potential that will allow it to go further or faster than its competitors. In our metaphor, all the criminal questions examined by William of Baskerville are ultimately a matter of information control, thus explaining the importance of the monastery's library. It is for this reason that criminal organizations must develop a broad direct and indirect corruption system, so that they are informed about change in their environment and are able to seize new opportunities and then develop.

NOTES

1. As early as 1939, Georges Stigler mentioned this truth that information *transfer* is not the same as information *exchange*.
2. It is described as sticky, and thus difficult to grasp.
3. That is, useful for changing one's mind and, finally, for action.
4. This trend of trying to create bias in information in no way contradicts the Marshall principle that all ideas are in the air. It is true that the vast majority of general information is available to anyone who wants it. However, a certain if not significant effort is required and takes time to make it operational for different types of products drawn from different production systems.

5. Hence the adjective *tacit*, derived from the Latin *tacere*, meaning to keep quiet. The importance of tacit information for change was examined by the Hungarian economist Polanyi (1944), but was originally observed by the philosopher Seneca (4th before JC to 65 after JC), as Merlo-Ponti (1964) pointed out. For example, Seneca, in his 6th letter to Lucilius, said 'We learn more from the acquaintance of scientists than from the reading of their books'.
6. Small breweries have always existed – an example would be the restaurant breweries in many regions of Belgium. What has changed is the fact that, after declining steadily, they have now sprung back to life, aiming for a target consumer group of professionals with high spending power seeking new power over their consumption (Sicotte, 2003).
7. Voge (1978) showed that information needs evolve quadratically as the organization grows, up to a maximum threshold beyond which all new information is rejected. Only truly decentralized firms are able to overcome this limitation.
8. We also found this optimal number in several of the small high-technology firms with which we worked.
9. That is, those able to bring back new information and new and useful practices, going further than the traditional tools that most consulting firms use in creating tools ahead of a new situation.
10. This was one of the reasons given by members of the Bombardier Chair network to explain their participation (Julien et al., 2003b), and also applies to technology parks (Storey and Strange, 1990).
11. In contrast to the entrenched positions that render some technological trajectories ineffective, but that survive due to inertia, even when the reasons for their development no longer exist (David, 1994).

7. Networks: a second *necessary* condition – the sharing of information leading to innovation

Coffee is very much used in Paris, there are a great many public houses where it may be had. In some of these they meet to gossip, in others to play at chess. There is one where the coffee is prepared in such a way that it makes those who drink it witty: at least, there is not a single soul who on quitting the house does not believe himself four times wittier than when he entered it.

(Montesquieu, 36th *Persian Letter*)

Local, regional and extra-regional networks are one of the foundations of environmental dynamics, whether they are the cafés described by Montesquieu more than 280 years ago, or professional associations and other structures. They offer an excellent means of sharing information within a given area, and of seeking out, sorting and accumulating information from outside the area. They are basically disseminators and amplifiers of information for firms.

In view of the characteristics of information, actors and especially entrepreneurs almost always prefer to obtain it through face-to-face discussions with people they know or to whom they have been referred, rather than through institutionalized or remote means. Personal meetings help develop knowledge, and constitute a key element in supporting learning and creating synergy in an area.

Why do entrepreneurs form networks when one of the main goals of venture creation is to achieve independence? This is one of the paradoxes we discussed earlier. It is important to realize that networking meets the entrepreneur's need for proximity with people who understand him or her and are able to support his or her efforts and enthusiasm. If entrepreneurs are free to network with whomever they wish, they do not perceive the networks they form as being barriers to independence. Entrepreneurs and the people in their organizations are social beings; they are members of families and communities, and are therefore all connected in some way or another to various social or economic networks built on reciprocal exchange and trust. All entrepreneurs have at least their families and friends with whom to exchange and from whom to obtain information, and

partners that will help sell their inputs and distribute their outputs. In venture creation, these partners can often be crucial elements during the start-up process, until the firm reaches cruising speed.

Every locality has a number of informal locations at which information can be exchanged, including cafés, bars, restaurants, clubs and various associations through which entrepreneurs can obtain and assess data. The firm's employees, too, have much to contribute, through their contacts with friends inside and outside the firm, and with professional colleagues, fellow members of sports clubs and cultural associations, volunteer communities and so on.

In the early 1970s, a study performed by the Battelle Institute in Geneva revealed that, in Europe, cafés were the principal place at which businesspeople shared business development information. In North America, the principal locations were restaurants, bars and golf, suggesting that relaxation is conducive to exchanges of information.

Networks have always existed, even though researchers only discovered them about 30 or 40 years ago. Their ignorance was due again to the old economic theory that firms were isolated and operated only within fiercely competitive systems. However, every organization has numerous networks, which may or may not be connected, depending on the number of personnel. For example, many small businesses use their employees' networks as a means of hiring new staff or understanding changes in the milieu, or their executives' networks to support applications for government subsidies (Dess and Shaw, 2001). As Figure 7.1 shows, these various networks may overlap, depending on how management uses them. They

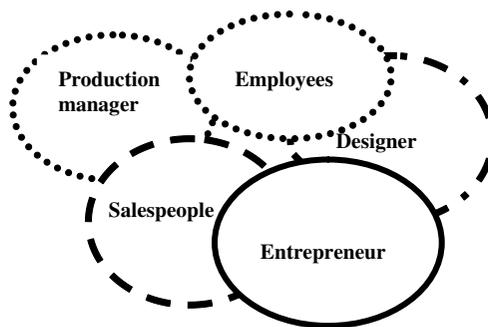


Figure 7.1 *Interrelations between staff networks in a firm*

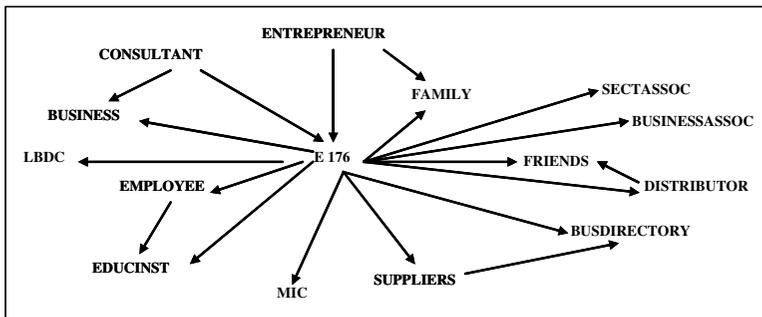
develop at varying speeds, as new members join and new goals are established.¹

Networks are the communication and learning structures offered by the territory to its actors, in the form of physical and virtual information exchange facilities. Networks are also an expression of the collective will and conventions of society. They show how the milieu operates. In addition, they form the basis on which social capital develops, by fostering or failing to foster the development of a dynamic entrepreneurial culture that is open to innovation and by providing new, varied and good quality information through their outside links, or encouraging conformity by remaining within the region or opposing change. They also constitute the best way of circulating and sharing information and hence of learning how to achieve a shared understanding of changes within a production and consumption system (Maillat et al., 1993). They can be based on more or less formal, long-term contracts in business networks, or simply on trust, trustworthiness and reciprocity of gains between partners (Ferrary, 2002). Networks can allow firms to develop shared, collateral and auxiliary assets, thus facilitating collective invention and helping them to stand out from the competition and grow (Allen, 1983).

NETWORK OF FIRM 'E176' OWNER-MANAGER

Even the smallest firms develop networks. An example is the network developed by the owner-manager of E176, a manufacturer-exporter employing four people, founded in 1990 and located in a small, remote municipality.

The diagram illustrates the contacts maintained by the owner-manager, who told us (1) she was a member of two associations, namely the businesswomen's group (Busassoc) and an industry



sector association (Sectassoc); (2) she worked with two outside resource people who helped her with everyday business issues, namely a raw material supplier whose name she found in the business directory (Supplier/Busdirectory) and a representative introduced to her by a friend (Friends/Distributor); (3) in addition, in the last two years she had received help with specific problems from two institutions, namely the Local Business Development Centre (LBDC) for business development and the Ministry of Industry and Commerce (MIC) for export activities; and (4) in the past six months she had discussed the development of her business with three significant people, namely, a consultant (finance and R&D) who contacted her for business purposes, and whom she had known for only a few months (the contact has since been broken) (Consultant/Business), an employee she met at university (10 years ago) with whom she spoke every day (Employee/Educinst) and her brother, who lived in another city and was co-owner of another firm, with whom she spoke about 10 times a month (Family/Entrepreneur).

Networks, if they are dynamic, are the best way of fostering the systematic circulation of rich information within an area – in other words, of seeking out information and adjusting it to the needs of entrepreneurs in order to speed up their learning and hence their ability to face up to change (Zajac and Olsen, 1993). For example, a technology transfer is easier when it is interactive and embedded in existing capabilities on both sides in a networking process for a long-term view not limited merely to change. Networks meet a vital need, that of reducing uncertainty and ambiguity in transfers and when making decisions. They provide unsought-after information as well as indications of opportunities and openings for innovation, through which the firm could distinguish itself from its competitors, and of the resources available to help seize those opportunities, thus permitting variety. They form a kind of fishing net,² catching structural information that enables firms to spot opportunities and take action. The size of the mesh determines which information is filtered out and which is retained as being desirable. Networks therefore play an extremely important role in entrepreneurship, especially since the information they provide has the advantage of being sorted in advance, due to the fact that the members know one another and their respective needs. To return to our metaphor, Maigret explains that it is as important to know the family and other network members of the victim in order to understand what happened than to grasp the links between the victim and the murder.

Networks also have the further advantage of being examined and measured in different ways by careful observers with a certain amount of complementary expertise in their respective fields, and of being adjusted to the specific or special needs of the person receiving it, who tends to retain information within his or her disciplinary area or based on his or her past or future interests and trajectory, while being open to the needs of friends or partners – remember the adage, birds of a feather flock together.

Also, as we said earlier, network membership generates potential information that facilitates the decision-making process by providing auxiliary resources or escape hatches where necessary. Birley (1985) rightly refers to this potential information from the networks as reassurance in support of decisions and action. Effective information and potential information adjusted to the needs of entrepreneurs reduces uncertainty and ambiguity and convinces them to be even more active – unless, of course, the networks are conservative and constitute an obstacle to dynamic behaviour.

In this chapter we begin by examining network operations, and go on to present the different types of networks according to firm type and milieu. We end by pointing out that the mere existence of networks within an area does not mean that the area is properly networked or that exchanges are necessarily conducive to innovation. This point is explored in more detail in the following chapter, dealing with innovation.

7.1 HOW NETWORKS OPERATE

Networks depend principally on interpersonal contacts maintained in a variety of ways (Johannisson, 2000). They may go beyond simple exchanges of information, extending to collaboration and joint action and leading eventually to cooperation.

The first form of cooperation, namely, collaboration, may or may not be spontaneous. For example, several firms in competition with one another, such as furniture stores or shoe stores, may collaborate implicitly by setting up in the same sector or on the same street to attract more shoppers. This behaviour is by no means new; it has existed for centuries in North African bazaars (*medinas*), for example, and in Europe, in streets whose current names refer to the trade practised there over the centuries (Butcher Street, Baker Street, and so on). The second form of cooperation, known as joint action, is more voluntary in nature. An example would be the tanners or dyers of olden times who needed enormous amounts

of water for their work and banded together in order to obtain it. In other words, joint action is based on the sharing of certain services to reduce their cost – for example, a railway or a port. Further examples can be seen in industrial parks or, more recently, in incubators and technology parks offering shared services, in street fairs organized to attract customers and in the kind of shared behaviour seen in industrial districts. The third form of cooperation takes the form of dense networks, interconnected within complex production processes, and one-off alliances designed to help achieve long-term goals that would be difficult for firms working alone.

All these communication networks differ in terms of their structure, the contacts they permit, the positions of their members, the proximity they offer, and their size, density, diversity and quality. Contacts may be primary, in other words forged directly between members, or secondary, in other words indirect, via intermediaries who are also members of the network. Indirect contacts enable network members to confirm secondary information received from interlocutors they do not know but who were introduced by another network member, who may also be able to suggest how to address the interlocutor in order to extract the desired information. In many communication networks, contacts often progress from person to person in order to obtain information that is as accurate and complete as possible. It is these secondary contacts that constitute the wealth of a reticular or networking structure, since they considerably reduce the time required to find solutions to situations blocking innovation, when all the other elements and information already exist (Greve and Salaff, 2003).

A good primary communication network does not need to be extensive³ because its basic role is to provide personalized information, and this is much harder to do when there are too many interlocutors (Athreya and Keeble, 2002). Its secondary role is to connect its members to other networks. According to the *principle of least difficulty*, discussed previously, a network that is too large generates a lot of noise – in other words, misunderstandings based on lack of reciprocal knowledge. *Valence*,⁴ or the network's capacity to obtain, absorb and transmit accurate, appropriate information, is dictated by the number of members and their mutual attraction or repulsion. If there are too many members, contacts tend to be more brittle and information tends to be of poorer quality because the members do not know one another well and do not adjust their information to the needs of their interlocutors. On the other hand, if there are too few

members, information will be of limited variety, as will synergy within the network.

However, the number will also vary depending on proximity and density. If contacts are weak or one-sided, more members will be needed in order to ensure that someone is able to answer a given question. But if the density is high, fewer members will be required. Density depends not only on the number of participants, but also on their reciprocal contacts, their positions within the network and their proximity to one another. Position may be central or peripheral, with the former generating the most information. A core position in the network (the white circle in Figure 7.2) will, if it is dynamic, facilitate discussion and increase proximity. Proximity also depends on the trust that exists between members and the reciprocity of their direct exchanges (Bidault et al., 1995). Density is measured as the ratio between the number of contacts actually existing between pairs of members and the number of possible contacts (Neimeijer, 1973). In Figure 7.2, for example, network A is less dense than network B. In both cases, however, the member represented by the white circle holds a fairly central position (the core position), thus obtaining the most information, while member *n* is peripheral and therefore receives much less information.

Contacts are many, and their quality depends on the connectivity, intensity and sustainability of relations. Connectivity is the number of contacts between members, their accessibility, their reciprocity, their reactivity and their sustainability. The more contacts that exist, the greater their reciprocity and the longer they have been in existence (sustainability), creating more familiarity, then the greater the number of reactions generated by a question, the more intense the discussions, and the richer the result (Johannisson et al., 1994; Julien and Lachance, 1999).

However, numbers alone are not enough; diversity is also required (Hoang and Antonic, 2003). A network composed of members who resemble one another and have more or less the same ideas will not be particularly rich, since it will normally generate very few new or complex ideas, but will simply repeat the same ideas. This redundancy is not necessarily bad, especially for entrepreneurs who are distracted. It is what Burt (1992) tried to illustrate when proposing his theory of structural holes, a term used to describe missing contacts between potential interlocutors. Burt suggested that, contrary to popular belief, the more holes that exist, the less redundant the information, and the newer and richer it will be. In Figure 7.3, sources B and C in case 2 are redundant and therefore less useful to A, who can use either source to get the same information from D or E. In contrast, in case 1, C is necessarily useful to A, who can call directly on B, C or D because there are no structural holes between them, in order to get the

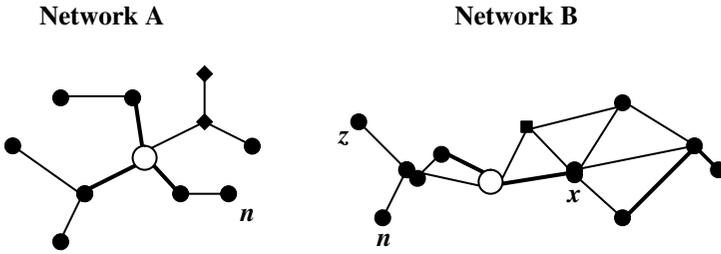


Figure 7.2 Different potential contacts between members depending on network type

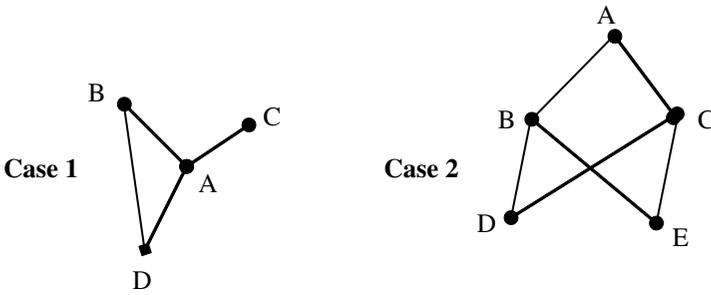


Figure 7.3 Direct and indirect contacts between network members, and structural holes

information without going through an intermediary. This makes the process quicker and avoids the possibility of noise.

A good network must always include different kinds of members contributing different ideas. However, diversity without depth (that is, if exchanges are not frequent enough) prevents the members from getting to know one another, meaning that answers will not be adjusted to the needs of interlocutors (Degenne and Fossé, 1994; Human and Provan, 1997).

Type of contact, size, density and diversity are important elements in achieving a good quality network. Quality is measured by the ability of network members to provide rich information. The greater the diversity (Aldrich and Zimmer, 1986), the more the network contains experts rather than peers (Ruef, 2002), and the more information channels it offers, then the better able the entrepreneurial team will be to absorb the information, and the greater the quality of the network.

What, then, is the weight of all these variables? It would seem that researchers only agree on size (bigger) (Singh et al., 1999); although too

large a size also means bureaucracy and noise, as we saw earlier, and also usage costs. Too much intensity or other characteristics, including the speed at which information is circulated, can prevent members from benefiting fully from the networks and seizing opportunities before anyone else. This lack of unanimity is, however, quite normal, given the diversity of networks and the extensive entrepreneurial absorptive capacity of SMEs, in particular in new firms (Witt, 2004). In addition, current research has considered only business networks and entrepreneurial networks. Elements such as the nature and quality of the contacts, their short-term and long-term influence, the type of network to which members are connected and its development over time have yet to be measured (Julien, 2006).

7.2 TYPES OF NETWORKS

There are many different kinds of socio-economic information-sharing networks. Some firms network as little as possible, while others are members of network systems that go well beyond the so-called natural (personal and business) contacts found in voluntary and strategic networks. Not to mention the power (political) networks used to obtain monopolies, receive special state assistance or 'fool the public', as Adam Smith said in 1776.

Networks can be natural, basic or spontaneous; examples would be networks of relatives and friends, workplace networks, social clubs and so on. They are described as social networks and are *enmeshed* or *embedded* in a community, thus allowing members to understand local conventions and learn about other economic networks. They may be ad hoc or highly specialized and based, for example, on geographical proximity (for example, high-technology parks). They may be developed for short-term reasons, at industrial fairs or scientific conferences, to take full advantage of the opportunity at hand. However, they may also be voluntary or built gradually to meet more complex information needs. Often strategic, these latter types of networks are formed to support business dynamics within an industrial area of interdependent firms (industrial districts, technology parks, and so on) or to foster training and complex information. Table 7.1 illustrates these various forms, distinguishing between social networks and business networks, which may be strategic and dynamic in that they foster innovation and training.

On one side are the business networks, divided into personal networks and actual business or transaction networks, while on the other side are the information networks, which may be social in nature, providing more general information or strategic information when targeting specific kinds of innovation.

Table 7.1 *Different types of networks*

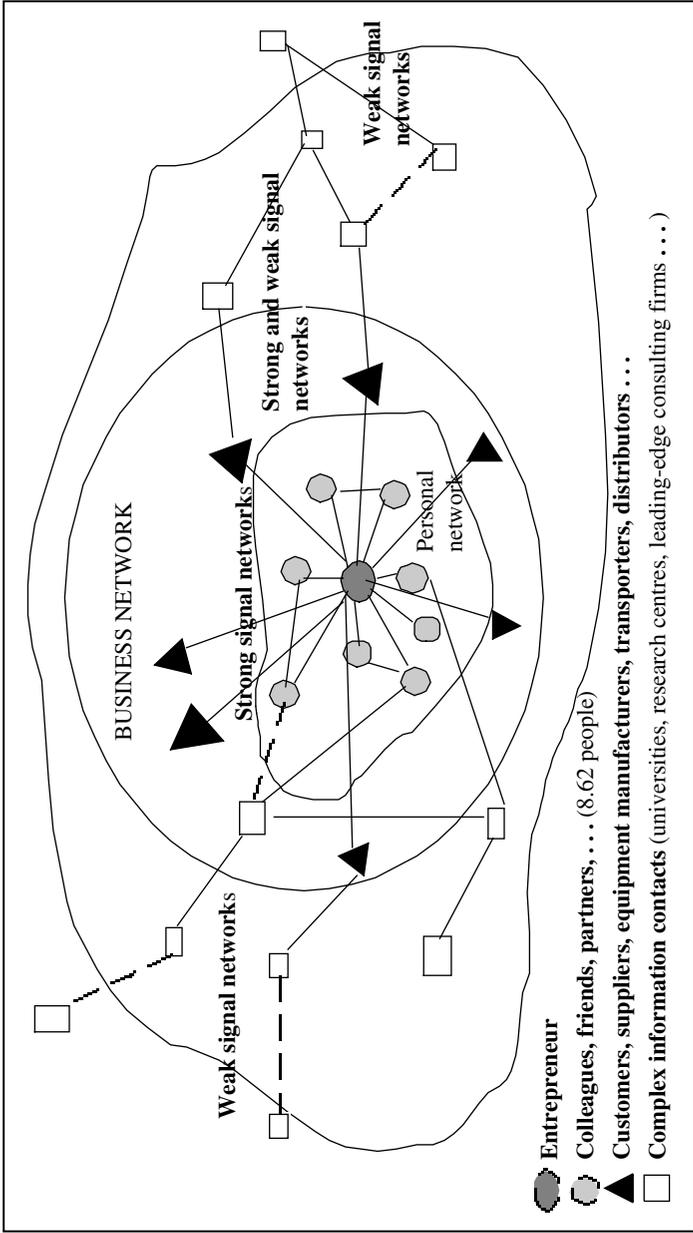
	Generic form	Specific form
Basic existence	Social networks Embedding networks	Business networks
Voluntary construction	Strategic networks	Dynamic innovation and training networks

Source: Dussuc (2000).

Generally speaking, personal networks include staff members, executives or key employees (including senior employees), close or distant relatives, friends or school acquaintances, some large customers, specific members of the entrepreneur's association, and so on – in other words, people with whom the entrepreneur maintains an intense emotional relationship and whom he or she trusts sufficiently to discuss the firm's development on a regular basis. Again generally speaking, such networks have eight members, at least in northern countries, and up to 14 members in southern countries (Birley et al., 1991; Drakopoulou Dodd and Patra, 2002; Julien, 1995); again, this emphasizes the impact of culture on entrepreneurship, especially in informal firms in developing countries (Sverrisson, 1997). A personal network may be organized like a board or quasi-board of directors, or may be activated as required, for example to test new ideas or obtain opinions or feelings about changes in the firm's environment.

Communication networks are the other source of new information. They include consulting firms, training agencies, the advisory services of financial firms, research centres, government aid agencies, and so on. They may simply provide general services such as accounting audits or quality system certifications, or they may be much more active, stimulating change within firms by providing leading-edge information that will allow them to innovate, stand out from the competition and improve their competitive capacity. Figure 7.4 shows some possible configurations of entrepreneurial networks.

Clearly, some members of business or information networks may also be brought into the personal network after a certain time, if the information they provide is of high enough quality to earn the entrepreneur's trust and encourage him or her to consult them more frequently. Network members may be called upon regularly or sporadically, depending on the quality and importance of the information exchanged (Johannisson and Kantis, 2000).



Source: Adapted from Johansson and Johansson (1988).

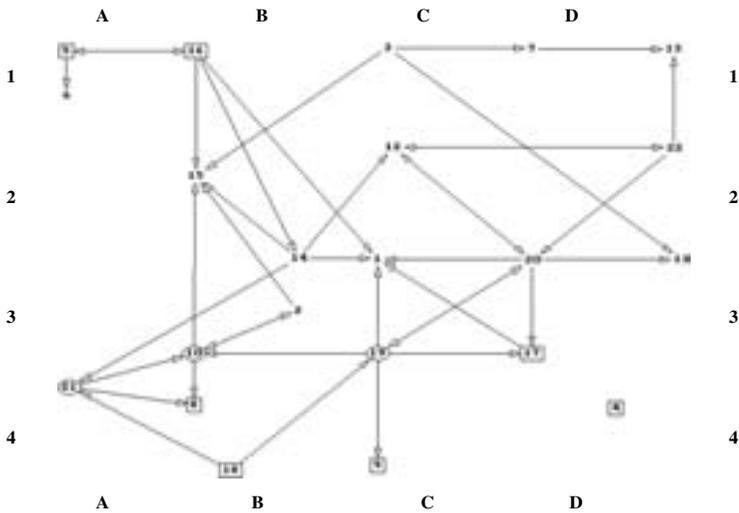
Figure 7.4 Diagram of principal entrepreneur networks

Sociologists (Granovetter, 1973; 1985; Krackhardt, 1992) have differentiated between networks of strong ties and weak ties. The former are based on frequent contacts and offer a climate of substantial reciprocal trust. The latter, however, are based on sporadic meetings and require a much greater effort on the part of the entrepreneur, who must often consult other sources to confirm the information obtained in order to understand it properly.

For Granovetter, strong ties usually trigger intensification of relations between the interlocutors, since the intermediaries foster closer relationships and transitivity between sources to create more redundancy and hence less new information. Thus, strong ties tend to create closed zones, reproduce the same mental representations and provide duplicate information, while weak ties act as bridges to other networks for more case-specific, targeted information (Sundbo, 1998). Research appears to show that weak ties are the ones to trigger change, whereas strong ties provide conformity with the group, unless the group accepts deviants. In other words, friends and close acquaintances tend to resemble us, and our contacts with them only rarely contribute new elements, while contacts with new people often trigger questions and objections that help us to change.

From an economic standpoint, and from the information-based perspective discussed earlier, it is preferable to use the term strong or weak *signal* networks, as opposed to strong or weak *tie* networks. Generally speaking, strong tie networks provide information that is easy to understand, and can thus be described as strong signals, whereas weak tie networks provide information that is less easy to understand owing to lack of trust and inattention, making them weak signal networks. For Caron-Faisan (2001), the notion of weak signal is closely connected to time, since a signal has only a limited duration and can only be seized at a given time; an entrepreneur must therefore be present at the right time, especially since the signal is hidden by, and circulated inside, a host of other information and noise (Leska and Blanco, 2002).

It is reasonable to think, generally speaking, that firms maintain business relations within their own industry sectors. And yet, contacts are only rarely limited to the sector. Drolet et al. (2003a) compared the customer–supplier contacts of 22 manufacturing firms in a small region, classified into three different sub-sectors, namely, land-based, air and maritime transportation. They observed that the firms all maintained contacts with one another, regardless of their sub-sector.



Key: Figures in boxes: land-based transportation sector firms; figures in circles: air transportation sector firms; other figures: marine transportation sector firms

Relations between suppliers and their clients in 22 transportation sector firms

In the diagram, (1) land-based transportation sector firms also act as suppliers for air and marine sector firms; (2) air sector firms also act as suppliers for land-based and marine sector firms; and (3) marine sector firms also act as suppliers for air sector firms. The table lists these inter-sector customer–supplier links. In the table, the entry 21→8 indicates that firm 21, from the air sector, supplies firm 8, in

Inter-sector customer–supplier relations

	Land-based	Air	Marine
Land-based		18→21 and 19	5→6 16→1,14 and 15
Air	21→8 10→8 19→9 and 17		10→15 and 2 19→1 and 20
Marine	None	14→21 2→10 20→19	

the land-based sector; 18 → 21 and 19 indicates that firm 18, from the land-based sector, supplies firms 21 and 19, from the air sector.

For example, a land-based transportation sector firm that manufactures trailers could very well modify its products and sell them to a marine sector firm. These business contacts allow the firms to go beyond their respective sectors and diversify their production.

Weak signal networks usually include organizations that do not form part of the traditional milieu for business people, such as research centres and universities (Woodward, 1988; Julien, 1993a). Weak signals can also be found in tacit information collected from machine operators or commercial agents. To reach weak signal networks, it is usually necessary to go through intermediaries who are members of strong signal networks, as we saw earlier in Figure 7.4.

In rich networks combining strong signals derived from a long-standing habit of working together, and weak signals derived from the range of knowledge and expertise of members, it is often possible to form alliances with other innovative firms, for example as a way of supporting research and development (Gulati, 1998). Firms in leading-edge sectors such as biotechnology and new energy forms have everything to gain, in terms of learning the latest developments, by forming alliances or cooperating in the medium term with specialist university research centres, which are themselves in contact with other foreign university centres. Another highly effective form of networking is participation in a network firm, usually comprising a major order-giver and its subcontractors. This dense type of network is conducive to synergy, offers a systematic collective learning system and provides member firms with a production capacity that distinguishes them from their competitors through a complex web of relations that would be difficult to reproduce. The Bombardier Chair is an example of a network organization (Julien et al., 2003b).⁵ The network is able to offer a rapid learning mechanism because it can count on the presence of members whose training, experience and approach to problems vary significantly, as well as on better information sources, owing to the fact that every network member has its own special contacts, and because the real-life examples provided by the members have a multiplying effect and become models that help other entrepreneurs to find the best solution to a given problem.⁶ Industrial districts that are home to large numbers of small firms sharing different elements of a production chain are extremely effective as dense networks when it comes to controlling an international market (Beccatini, 1989; Corolleur and Courlet, 2003).

Localities have much to gain by encouraging firms to join richer networks or helping local networks to connect to sources of international information, for example through university or college research centres that maintain contacts with international networks. Local dynamics, even in large cities, often decline because the localities in question fail to renew their contacts, for example by adopting an open attitude to international links (Cabus and Vanhaverbeke, 2006). Every network system must evolve and be renewed regularly, by replacing certain members or adding others, and by constantly forging contacts with new networks. Similarly, every network must join other, more complex networks, including international networks that, although usually based on weak signals, nevertheless allow their members to anticipate change and detect new opportunities.

We recently studied a small region that had been in decline but had begun to recover. We found that 70 per cent of the local small manufacturing entrepreneurs had forged one or more new contacts during the year, equivalent to between 10 per cent and 50 per cent of the number of network members. Nearly 29 per cent of the entrepreneurs maintained most of these new contacts over time, while the others used them only once. Probably, in the former case, the contacts transformed and enriched the networks, while in the latter case they simply answered explicit or tacit questions at the time they were asked. These contacts may be used again in the future, if the need arises. The larger the firms and the more technology-oriented or innovative they were, the more complex their networks seemed to be, the more likely those networks were to be weak signal networks, and the more frequently they were altered.⁷

In short, reticular cooperation has a number of benefits, including: a better perception of change or anticipated change, especially on the market (tastes or opportunities); the location or addition of additional resources; sharing and combination of existing or new knowledge; and finally, links with new information sources for new technological breakthroughs or new perceptions of problems (Ahuja, 2000)

It was thanks to its managerial complexity that an industrial furnishing company dealing mainly with hardware stores was able to triple its workforce in less than 10 years. The management included a team of several young executives who worked together

so well that they were each able to do the others' jobs if necessary. For example, the sales manager was able to talk about special orders directly with production staff, the production manager was involved in transactions when the customer's needs were new and required production adjustments, and so on. The CEO encouraged all his managers to visit industrial fairs on a regular basis, form their own information networks and then pool their knowledge and expertise, giving the firm a high level of flexibility and a very effective ability to innovate and adapt that helped it earn significant market shares throughout North America.

7.3 INFORMATION, NETWORKS AND INNOVATION

If, in a locality, the relations maintained by entrepreneurs are limited to their personal networks and one or a few business networks, it is because access to more subtle information networks supporting innovation and competitive capacity is not widely available. Entrepreneurs who want to improve their competitive capacity must organize their networks better and join more intelligent networks that are able to support their learning on a systematic basis – in other words, help them to develop their knowledge and provide regular rich information to support innovation and new opportunities (Allen, 1983). However, being a member of several networks provided by the milieu does not necessarily mean being supported in one's efforts to stand out from the competition. Many entrepreneurs prefer to stick with networks that offer a minimum level of newness because they are afraid of being contested. Membership of active or proactive networks is not always natural. This may explain why there is not necessarily a cause-and-effect relationship between networking and the firm's success (Johannisson, 1995; Witt, 2004). It may very well happen that a territory's networks are more conducive to conformism and actually constitute obstacles to new ideas.

Shan et al. (1994) showed that there is a positive link between the number of relations, the position in the network, and innovation. However, as we said earlier, the results of these studies are not yet clear and many questions remain, in particular because of the way the networks complement one another and because the information depends on the firm's capacity to absorb, and hence on a cumulative process that is difficult to assess.

Clearly, the choice of a network depends on the sector in which the firm works and the strategy it has chosen. In a mature industry where change is slow, such as the textile or wood industries, the networks do not need to be

as dynamic as in the fashion (for example, sportswear) or leading-edge technology (for example, biotechnology) sectors. In these latter cases, the time taken by a firm to realize that a certain piece of information is crucial can make the difference between survival and development. The same applies to the strategy of a firm recognized as a leader in its field, which must devote a significant amount of resources to watch activities in advanced, often international networks. On the other hand, networking must develop when the environment and the organization change. New members can be added or can replace older members. New links must be developed which involve other links (Dodd et al., 2004; Julien et al., 2005).

It is always possible and beneficial to improve the quality of one's natural networks, including personal and business networks, and to change if necessary. In their personal networks, entrepreneurs have everything to gain by adding one or two critical or non-traditional members, people from outside the sector and the business community, such as scientists, in order to oppose existing ideas and generate new ones, among other things by answering the questions the new member will certainly be asking in order to clarify ideas he or she finds confusing, even if everyone else does not. In business networks, entrepreneurs must not only work with dynamic suppliers and equipment manufacturers, but must also choose their representatives well and, if necessary, talk to their managers and research offices to obtain more accurate information. In communication networks, information must be to the forefront of technology and change.

A small mattress-manufacturer said that his contacts with his fabric supplier, whose firm was 40 or 50 times the size of his own, had enabled him to meet with the research centre manager and form a friendship with her, to such an extent that she often did 'free' research for him, to answer the complex questions he asked her – questions she enjoyed because they were so innovative, in contrast to the often conservative approach of her co-workers.

In downstream firms, cooperation can be extremely beneficial – for example, with transporters, who possess all kinds of information that can be used to improve distribution and support competitive capacity. Recent research has shown that it is better for innovation-seeking entrepreneurs to join weak signal networks, which are more likely to contribute new ideas (Ansoff, 1975; Ruef, 2002). On the other hand, if they want reinforcement for their itinerary and decisions plus the extra information they need to

maintain their strategies in the short and long terms, they are better off using strong signal networks.

This clearly shows that strong signal networks have their uses. In reality, the two forms (strong and weak signals) are complementary rather than oppositional, in that the new ideas coming from weak signal networks need to be completed by other information from strong signal networks – with the former usually being the necessary and determining condition and the latter being the sufficient condition for systematic innovation (Freel, 2000; Julien et al., 2004a). Industry secrets are not *always* ‘in the air’; they often circulate through networks or interactive structures based on relationships of trust. Even so, the fewer weak contacts a firm has and the less use it makes of weak signal networks, the less innovative it will be. Conversely, the more strong contacts a firm has and the more use it makes of low-density networks or networks with structural holes, the more innovative it will be.

Ideally, firms need to achieve a combination of routines, tried-and-tested ideas and new ideas from weak signal networks, since the former provide the experience base on which to build the application of the latter. This brings us back to the approach based on resources and competencies, according to which the firm’s specific combination of resources and competencies changes through the systematic contribution of new ideas by network members, thus upsetting and transforming the known, in a disordered process that Cohendet (2003) referred to as the *percolation* effect.

The percolation metaphor refers to the coffee-making process in which crushed coffee beans are broken up, mixed together, brought into collision and recomposed in a percolator to extract the full flavour of the coffee. The term percolation used in reference to networks illustrates the phenomenon of ‘disordered contagion’ of individual ideas that encourages network members to change their qualitative understanding of an issue when the mixture and accumulation of ideas reaches a certain threshold.

In other words, for small business and entrepreneurship, networks create proximity between different regional actors, thus fostering the exchange of subtle information affecting knowledge and transforming expertise to support innovation. This in turn supports flexibility within the organization and inter-organization (in the networks) to respond specifically to each customer and thus compensate for smaller economies of scale. Because small businesses by definition do not have the same resources as large businesses, they need access to a reservoir of external resources to complete

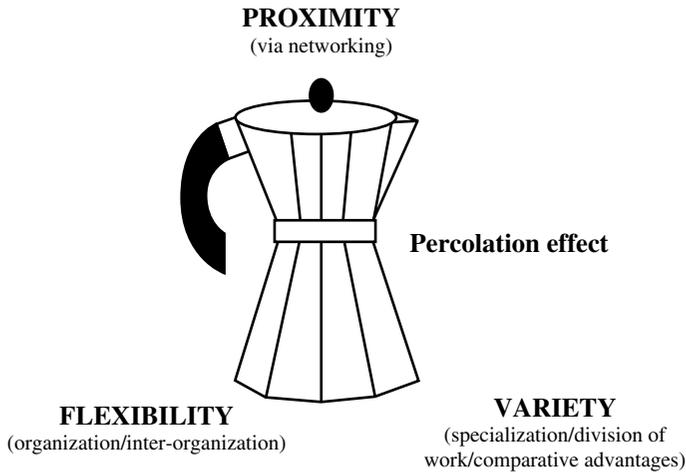


Figure 7.5 Relations between proximity, variety and flexibility stimulated by the percolation effect developed in networks

their own, including new resources to seize opportunities. Firms use networking of knowledge and sharing of tasks between firms (concentrating on their own skills while working in networks with subcontractors) to provide the variety required by the new knowledge economy and meet the needs of the new division of work.

Figure 7.5 illustrates the percolation effect between proximity, flexibility and variety, an effect that generates new ideas and new skills, enabling the firm to stand out from its competitors.

As we see in Part 4 of this book, the locality must play an important role in the development of networking, by facilitating or creating alliances and information exchanges between advanced service firms, research and development centres and small manufacturing firms. To return to our metaphor, a good way of limiting the development of criminal gangs within a territory is to divide or block networking and communication between different gangs, as the Montreal Police have done in their battle with the Hell's Angels. Networking emphasizes the importance of the service sector for manufacturing production, since the dynamism of both elements is conducive to general development. This explains why it is so difficult to speak of service productivity, which at first glance appears to develop much more slowly than manufacturing productivity. Yet, manufacturing productivity is increasingly dependent on the productivity of new services in the transportation, finance and distribution sectors, for example (Gadrey, 1996). To be dynamic, manufacturing productivity

requires contributions from the key interactive services (training institutions, computer consultants, market training and development firms, engineering firms for R&D and implementation of new technologies, research centres, and so on) that foster knowledge development (Gallouj, 1994). We have also shown that gazelles systematically use outside expertise provided by all kinds of supplementary services, and it is this that explains their performance in spite of the limitations of their internal resources (Julien et al., 2003a).

If the local industrial fabric is limited to traditional strong signal networks and is not open to outside influence, it will limit deviancy within its boundaries and thus foster inertia. If entrepreneurs are embedded in conservative, tightly woven networks, they will tend to promote facility and duplication rather than innovation (Uzzi, 1996).

Once again, however, the networks do not constitute the entire networking activity underlying the dynamics of an area. Too many firms make do with a traditional personal network (often underused) and business networks that provide minimal resources (a) because they lack the time to do otherwise; (b) because they do not seek growth; (c) because to do otherwise would upset their habit of working alone, as well as the methods learned through experience for managing a small business, especially in the smaller firms (Chell and Baines, 2000); and (d) because they do not particularly want to innovate or stand out from the competition and still believe that their location is sufficient to protect them. Yet, in the new knowledge economy innovation is a core element of singularity and hence of competitive capacity, for firms and localities alike. It is the sufficient condition required in addition to the necessary conditions discussed earlier. We look at innovation in more detail in the next chapter.

NOTES

1. Entrepreneurs can therefore be connected, either directly or via their employees, to several dozen people who are themselves connected to others. Based on the $N(N-1)/2$ formula (Rogers, 1995: 308), 100 people can have up to 4,950 potential contacts. Obviously, this potential number is never achieved, nor is it even necessary to obtain good information, because many networks are duplications or because there is not enough time to devote to so many relations.
2. A fishing net that works. The term has the same origin in other languages, for example, *red* in Spanish or *ret* in Italian, which also mean a fishing net.
3. At least, from the standpoint of the information seeker. For example, an entrepreneur can forge contacts with one or two researchers even in a large university, thus constituting a small primary network within a much broader general network.
4. In chemistry, valence is the maximum number of atoms that can be interconnected. In psychology, it is a measure of attraction (positive valence) or repulsion (negative valence) between a subject and an object.

5. The main and more obvious result of this network is to have helped member industry organizations to appropriate technological and organizational change and prepare future change, whereas 10 years ago, when the network was first set up, all major changes triggered immediate resistance and often became mountains of dissent.
6. These adapted solution models also reduce resistance and help overcome habits ('if such-and-such a firm managed to solve the problem in an environment I know well, why shouldn't I?') Similarly, dense networks increase the chances of finding new solutions, through comparisons of new information and experience.
7. Source: Julien et al. (2004b).

8. Innovation: a *sufficient* condition

A lady leaves Paris to spend six months in the country, and comes back as antiquated as if she had been buried there for thirty years . . . Sometimes hairstyles creep up unnoticed, and a revolution brings them back down again . . . Who would believe it? Customs and lifestyles are like fashions: the French change their habits to match the age of their King.

(Montesquieu, 99th *Persian Letter*)

Maigret explains on many occasions that most criminals are caught because they lack imagination and are not innovative enough to dupe the police system, which knows most, if not all, the techniques used in the past and can easily trace a culprit who tries to apply the same recipe. The same applies to new firms, which must be imaginative and innovative in order to survive the early years and go on to develop in a competitive knowledge economy.

Although this relationship between innovation and entrepreneurship has never been fully resolved, it remains at the heart of the entrepreneurial process, as we can see in Schumpeter's definition of the entrepreneur, and is a key factor in distinguishing firms, as explained in Chapter 4. One of the obstacles to understanding its importance comes from the difficulty of imagining innovation as a perpetual process, as reflected in the steady-state theory, developed by thinkers such as John Stuart Mill in the nineteenth century and Simon Kuznets in the twentieth century, which posits a limit to perpetual change and therefore to innovation. However, the number of possible combinations remains infinite, as pointed out by Montesquieu, who gave the example of ever-changing fashion. Innovation is a core element in a strategic approach based on resources and skills, and therefore underlies local and global competitiveness. Small businesses and territories must innovate in the new economic climate of globalization.

According to Schumpeter (1924), a *renewed combination* of existing ideas or elements allows an organization to stand out in the marketplace, while creating new routines within the organization that will be transformed again if the innovation continues. This definition based on the recombination to generate a new reality for one or more products or production processes matches the statement made previously about the knowledge-based economy. It is amplified by Choo (1998), who considers that innovation is a creation of new knowledge through the conversion of existing

information into new information. Tarondeau (2002) has shown that businesspeople consider innovation to be the result of the knowledge and skills controlled by the organization and intelligently applied to seize a market opportunity or open up a new area of activity.

Alexandre Dumas, the author of the *Three Musketeers*, tells a story in his 1850 book *Grand dictionnaire de cuisine* about Napoleon's personal food expert, the Marquis de Cussy, who fell from favour following Napoleon's defeat at the battle of Waterloo. When Louis XVIII found out that he had been the first to combine 'strawberries, cream and champagne', he quickly granted him a pardon. Complex new combinations by top chefs are, however, criticized by another French chef, Hervé This, who trained as a physicist and chemist. He affirms that almost all such combinations are minimal and follow a handful of rules governing contrast between two of the six elements: bitter, sweet, dry, oily, sugary and salty. Up to three elements can be involved, giving more than 18 combinations. But each element comes in countless gradations, giving an almost infinite number of new combinations based on extremely subtle differences.¹ In addition there are the factors of aroma with, for example, spices, and colour, with mixes of vegetables, which affect senses other than taste. It is the same thing for any business organization when the number of possibilities open is astronomical, regardless of the sector concerned, as long as the organization remains creative and aware of new information.

Innovation is based primarily on an entrepreneur, or organization, learning and assimilating or recomposing one or more ideas from outside the organization that are then transformed, or that come from within the organization depending on its own field of knowledge. Innovation gives it a competitive edge and enables it to develop. Finally, the presence of several innovative firms within a geographical area allows a region to develop quickly.

Innovation differs from invention, which is rarer and occurs on a more random basis, and from creativity. Invention is founded on theories and principles, and is most often conducted in laboratories. It involves something completely new. Creativity is the search for new ideas that must then be verified and developed.² Innovation introduces something that is new *in terms of the result achieved* when used or applied, like the culinary innovations of great chefs. It is, in one way or another, a transgression of the established way of doing things, of order and standards, although the

individual elements are all known. It is therefore local or specific to each organization, even if it is brought in from the outside, as in the case of new equipment that is already used by other firms, but that requires a new layout for existing equipment and a review of the whole organization to improve productivity or a specific product.

At the 1996 International Congress on Small Business in Stockholm, I found myself face to face with Edith Tilton Penrose, one of the researchers who had the most influence on my early writing on the importance of small businesses in the economy, thanks to her concept of interstices. According to this concept, alongside every large market there are several smaller markets with a limited customer base that are open to smaller businesses, regardless of whether the interstices are cultural, geographical or technological. When I discussed this with her, she told me that, first, her book on the causes of business growth was a commission from a British government department that had been passed on to her by her supervisor so that she could earn some money while completing her thesis on a completely different subject and, second, that the idea of interstices came to her during discussions with businesspeople. Afterwards, in her keynote speaker speech, she repeated that she had never felt she had created one of the essential concepts for understanding small businesses and that, in the end, her book and its influence resulted from a series of coincidences that occurred more or less without her knowledge.

Innovation rarely occurs in isolation, whether within a business or within the economy. It is found in numerous situations of varying degrees of stability. In businesses, it most often results from a series of very small controlled or uncontrolled changes, some based simply on systematic astuteness, to various elements of the value chain, from the reception of raw materials and processing to the distribution network. This is even more evident in the service sector, where product and process are often the same; innovation generally runs through all elements in the chain, from purchasing to processing, marketing, sales and delivery.

Innovation arises from an *interactive learning process*, based on tension between the individual and the organization, and using ideas from many different sources (Nooteboom, 2000). It is not necessarily an organized process, since a single change can lead to a whole series of other changes. It is a whirlpool (Callon, 1995) or spiral, as illustrated in Figure 8.1 starting,

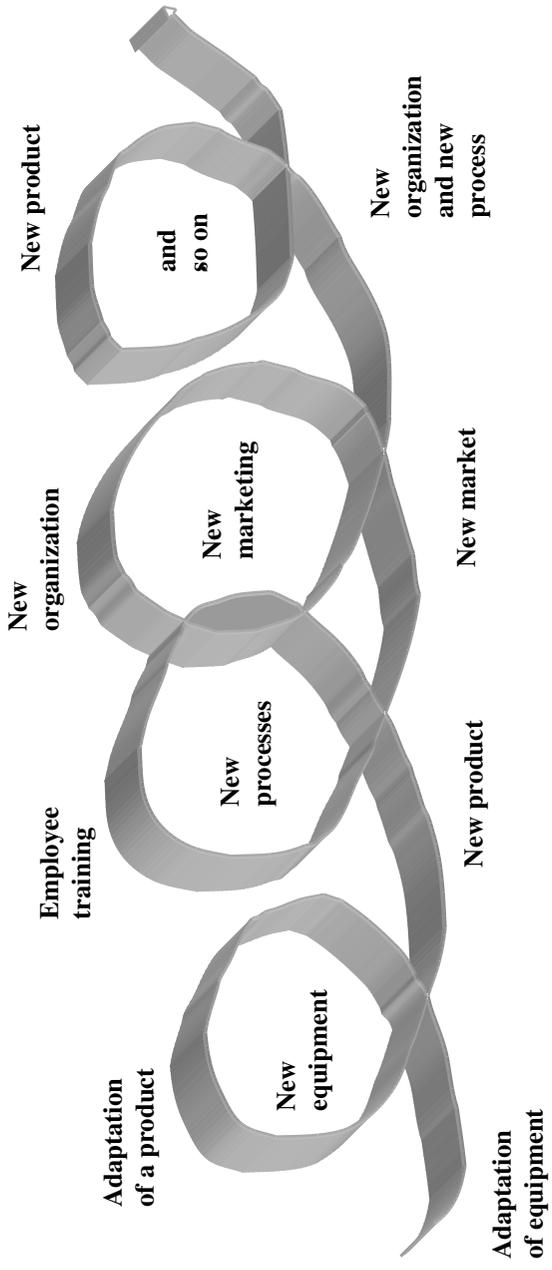


Figure 8.1 Spiral, whirlpool-like operation of innovation in many small businesses

for example, with new raw materials and then spreading to production and organization, and then to distribution and the product itself, generating a new cycle of change. It involves a sharing and collective transformation of information within the business, with the direct or indirect intervention of several employees, but always with a connection to the outside world, capturing the prevailing ideas in the environment that are not always shared in complex networks. For this reason, innovation can appear at practically the same time in different companies, industries or countries (von Hippel, 1988).

One example of the whirlpool-like nature of innovation is the Feursmetal foundry, which had a turnover of 43 million euros and around 500 employees in 2000, and is located in the town of Feurs in France. It was threatened with closure because of the quantity of waste it produced. While working to solve this crucial problem, the company not only had to transform the processes it used on the materials that generated the most waste, but also to work on the behaviour patterns of its employees and its production routines, while reducing its overhead by 15 per cent over five years. The volume of waste produced dropped from 26 641 tonnes in 1991 to 300 tonnes in 1996 (MIFE, 2001).

Another example is a small business in an outlying region that processed peat moss, initially to extract specific elements for use as fertilizer for various types of plants and flowers, and later for use in water filtration, a job that peat moss does particularly well. Gradually, it extended its activities to include other physical and chemical approaches to water filtration. After finding ways to pack peat in bags, it started to manufacture equipment for other bagging processes. And so it went on. This small company, founded 30 years ago, now has 1000 employees involved in a wide range of activities.

Innovation is seldom spectacular. It stems from tiny differences in the product and the materials used to produce it, the methods and processes, distribution, the manner of offering goods and services, and after-sales service. The SESSI (1999b)³ distinguishes between innovation in small businesses and innovation in large corporations, explaining that it is often based more on dissemination and adaptation than on actual innovation. For many service providers, it results mainly from changes to the relationship between sellers and buyers that lead to sales.

Over 60 per cent of all businesses show a low, medium or high level of innovation, whether in terms of product or process, or most often, both.⁴ The proportion is roughly the same for very small businesses (fewer than 10 employees), as shown by Médus and Pacitto (1994). Most of the time, the innovation results from an outside change, such as the arrival of a new piece of equipment or tool, a new type of raw material or, in the case of the service sector, the addition of a new product to the range offered. It can lead to a small change in the equipment of the factory or its layout, or to a change in the way the product is displayed for sale. This unspectacular type of innovation is diffuse (since it eventually affects many small different elements in the enterprise's value chain), and improves competitiveness because it makes it difficult for other firms to understand all the elements involved. In contrast, a major innovation may not only attract the attention of competitors, but also encourage them to imitate it by introducing a similar innovation (especially if a patent reveals part of the recipe). In addition, a spectacular innovation may face many obstacles before reaching the market, and the high risk involved puts it out of the reach of some firms.

In this chapter, we look at the various possible types of innovation, and then at the underlying logic. Next, we examine how innovation is applied, in other words the rules governing success. We end by establishing a link between individual innovation by specific firms and local innovation, and re-examining the role of networks able to multiply instances of innovation.

8.1 DIFFERENT TYPES OF INNOVATION

As early as 1924, Schumpeter distinguished between product innovation and process innovation,⁵ including innovation in equipment, adding the categories of innovation in marketing and distribution and organizational innovation, which mainly involves the way staff are assigned. Even though these distinctions are practical on a scientific level, they are generally not observed in practice since for most businesses, as described above, they come as a package: a product innovation requires changes to the process, followed by adaptations to the work schedule and to the marketing process in order to make the product profitable. Process changes allow improvements to be made to the product that, once on the market, generates reactions from customers that in turn trigger adaptations to both product and process. And so on. In the service sector, most innovations are not technological, although technologies developed in the manufacturing sector may be introduced,⁶ but instead involve methods to approach and win customers, and therefore sales. This is why we talk about the innovation

process, an ongoing, whirlpool-like movement with no defined beginning or end, although periods of stability and acceleration can be discerned as ideas are defined and disseminated concerning various elements of the value chain. An innovator who has a good idea for a product is asked to rework it many times to find related ideas concerning production and distribution that are necessary if the initial idea is to reach the market and become profitable.

To get around the difficulty of this distinction, Barreyre (1975), among others, introduces the idea of dominance. Innovation can have:

- a technological dominance (for example, optical fibres, Velcro, contact lenses, black boxes for installation in trucks, and so on);
- a commercial dominance (for example, new gift wrapping, new distribution method such as Internet sales, new promotional methods with free trial, new product presentation, and so on);
- an organizational dominance (for example, franchise, matrix structure of the organization, semi-autonomous teams, organized analysis of customer comments, and so on);
- an institutional dominance (for example, value added tax, anti-pollution standards, the return of urban tramways after their disappearance in the 1950s and 1960s, and so on).

Once again, in many firms it is unusual for innovation not to affect a large number of elements in the value chain. This applies especially to small businesses, since they function systemically, are not divided into departments, and control all or part of the process. This is why it is best to use the term *diffuse innovation* in order to remain consistent with an approach based on resources and competencies. The competencies generate a range of specific applications throughout the firm, and a new combination of elements to support the firm's distinct identity and to promote more flexibility. All of this underlies the competitive advantage, because the combination is hard for other businesses to copy in the short term. In other words, even if competitors dismantle and examine the new product and study the way in which it is marketed, they will still not be able to see how the elements are developed, produced, assembled and distributed; once they have found this out, after a lot of hard work, the initiating firm will already have moved on, as we discussed in Chapter 4.

Periods of stability or acceleration lead to a distinction between gradual or incremental innovation, which involves small changes but covers 95 per cent of all innovation (Mansfield, 1968), and radical innovation, which involves major changes. It is radical in itself, and also in terms of its effects in several sectors of the economy, unlike most gradual innovation.

Computers are a good example of a radical innovation that has spread to most, if not all, economic sectors. Radical innovation covers less than 5 per cent of all innovation. Some researchers (especially Abernathy and Utterback, 1978) consider that most, if not all, radical innovations result from a series of gradual innovations, the last of which triggers a major leap forward. The history of innovations such as the electric light bulb or the telephone, which are simply new combinations of previously known elements (especially now we know many different researchers in various countries were working towards the same goal at the same time) appears to confirm this view of innovation. A progressive radical innovation does not need to be material: Jean-Jacques Salomon (1992), former director of the OECD Science and Industry Committee, considered that the biggest innovation of the twentieth century was self-service, which has transformed the entire commercial system in industrialized countries.

Innovation can be a response to the market or spring from the ideas of researchers, producers or users⁷ able to combine new elements to create a new market, as mentioned above in the discussion of venture creation. In the latter case, Hamel and Prahalad (1994) have identified *convention-breakers* whose innovation is product related (Swatch watches), commercial (Ikea for furniture, Benetton for clothes), or based on new market rules (Coca Cola or Microsoft for monopolistic behaviour⁸). When possible, other firms attempt to copy them slavishly, or with slight modifications. Often, innovations that transform the marketplace are introduced by pioneers or individual precursors, noticed by observant entrepreneurs and adapted for use by the general public.

The dissemination of an innovation can be slow or fast, depending on the ability to convince the marketplace and the methods used. The commercial element always becomes important, if the goal is to make the innovation profitable, but innovators often fail to take it into account, leading to many commercial failures.

When Theratechnologies and a venture capital agency set up Andromed in 1997 to develop an electronic stethoscope (in response to the needs of its managing director, André de Villers, an emergency specialist and owner of a medical clinic who was tired of using traditional stethoscopes and drew his prototype on a piece of paper while on vacation with his spouse in the mountains), it was believed that the innovation would disseminate itself because of its clear advantages. As sales were progressing too slowly, an association was formed with Hewlett-Packard and Philips to market the product, which Philips sold under its own

label. Despite this, the traditional acoustic stethoscope continues to account for 99 per cent of the world market. The strategy failed to take into account that physicians are members of highly conservative corporations that jealously conserve their powers. Another example occurred 15 years ago with computerized diagnosis (a system that limited the number of possibilities for a given series of symptoms), which has only just begun to penetrate the market despite its major advantages. Once again, this shows that an innovation, regardless of its intrinsic value, must be supported by a number of other innovations if it is to overcome resistance and gain a wider market.

We were asked to advise an innovator who had an extremely interesting idea for evacuating people from buildings over 20 stories in height during major fires. We suggested that he should concentrate his efforts on changing building codes, even though he believed the clear value of his idea would itself trigger the changes. It is always hard to introduce changes to codes, because a code is a bureaucratic tool that affects dozens of interest groups, both public and private.

Rogers (1995) states four conditions to ensure the rapid market penetration and dissemination of an innovation:

- The relative advantages of the innovation compared to the previous product must be major – either genuinely so or perceived as such by potential purchasers.
- The new product must be compatible with the values and norms of users, or must complement the other technologies and related equipment used in a business or household.
- In the case of an innovation for the general public, the more user-friendly it is and the shallower its learning curve, or, in the case of an innovation for business, the more compatible it is with the training of the workforce, the quicker it will be adopted. In addition, if it reduces effort and adds ergonomic elements, its dissemination will be facilitated.
- It must be possible to try out the product before purchase, or the product must be seen to be used by some satisfied pioneers. A satisfied individual or company is the best possible sales tool.

The time taken to introduce an innovation also varies. Most businesses that are not threatened in the short term by the competition innovate

sporadically, when the need arises or they are under pressure in the marketplace, or when their processes become inadequate or unable to cope with new materials imposed by suppliers. However, a minority of businesses innovate in a systematic and organized way, with each innovation leading to a further innovation, especially if they are in a highly competitive market, such as gazelles or businesses exporting professionally (Julien et al., 1997). The distinctive character of these businesses is based on their ability to innovate, making them what Miles et al. (2000) call leaders in certain types of products, with other firms following in their wake. Some small businesses even play at hide-and-seek or guerrilla warfare based on genuine or fake innovation, using bluff and disinformation; some lay a patent trail or even register fake patents in a logical progression to deceive competitors (Eisenhardt, 1990).

However, it is important to note that patent protection is seldom a definitive solution. First, a patent often gives details, including elements that can be adopted by competitors or used to direct their research;⁹ and second, it requires the financial capacity to sue imitators, a solution often not open to small businesses, especially if the competitor is a large corporation. The best defence is often secrecy, at least for a time, and the complexity of the product or its production process,¹⁰ which increases the difficulty of imitation. In addition, regular innovation increases the difficulty for competitors, although this depends on the sector.

In short, innovation is most often sporadic and reactive, or involves adopting a change introduced by another firm or a research centre. Most innovators imitate or adapt innovations developed elsewhere. Fewer than 20 per cent are *initiators*, except in new sectors which, by definition, require an innovative approach. Another 20 per cent refuse to innovate or make changes, preferring to concentrate their energy on managing what they have acquired over the years.

If the latter group cannot be considered as innovators, and if the initiators are removed from the equation, the remaining 60 per cent are reactive, or delayed, innovators who merely introduce methods that have long been used in other places, with little or no change. They are known as *imitators* or *reproducers*. They must, however, be counted as innovators, since the introduction of an outside innovation requires them to recombine their assets and production operations or routines, creating a new combination that distinguishes them from other firms, even if the new combinations are easy to decode and imitate. Every new combination, even if it only involves borrowing or reworking an outside innovation, provided it is a new departure for the firm, constitutes an innovation that introduces a new element of competitiveness and allows the firm to survive until another more

innovative, or more adaptive, firm conquers the market, as recalled in the Oslo Manual definition.

Rogers (1995) re-examines these distinctions and defines *initial innovators*, who introduce change, as compared to those who adopt an innovation with more or less delay, tweaking other elements to make it work better. Gradually, other firms follow suit, referred to by Rogers as the *precocious majority*, until a broad majority of firms are in the same position. At the end, the *latecomers* or *passive innovators* try as best they can to join the group, while a last segment still holds out, protected by some absolute advantages such as geographic distance, cultural or religious rules, or by a conscious decision to not react either through ignorance or because they intend to close down the business in the near future. Rogers estimates the per centage of initiators (also called adventurers) at approximately 2.5 per cent; that of precocious followers (more involved in the community, with more considerations from their peers than the initiators) at 13.5 per cent; that of the precocious majority (who show more willingness) at 34 per cent; that of the latecomers (or sceptics) at 34 per cent; and the *rebels* (or traditionalists) at 16 per cent, if those who refuse innovation are not considered.¹¹ Rogers shows that the initiators and the *early adopters* need few communication channels to become involved with innovation, in the former case because they quickly transform and go beyond the information received, and in the latter case because they are easy to convince that innovation is necessary, while the precocious followers and the rebels need much more information, influence and persuasion. It is important to note that the follower strategy is not necessarily bad for a business; it may be preferable to let others deal with the surprises, and then take advantage of their mistakes. This does not apply to high-growth areas or businesses.

An innovation can also begin in a few businesses or research centres, and then slowly spread through the economy and region. Another innovation will once again trigger changes. The most common pattern is an 'S' curve, as shown in Figure 8.2, which presents only three cases, all intermediate. The first is a situation where an innovation has not taken off, is limited to the initiator and a few followers, and then disappears because it has failed to adjust to the features of a larger market, has been badly marketed or has been unexpectedly sidelined by another more effective innovation. The second is a form of dissemination or penetration that starts slowly, accelerates, and then slows after covering most of the market potential. This is the well-known example of a winning innovation. The third is the slow, irregular adoption of an innovation, speeding up or slowing down according to the adjustments needed to meet the specific features of a small market.

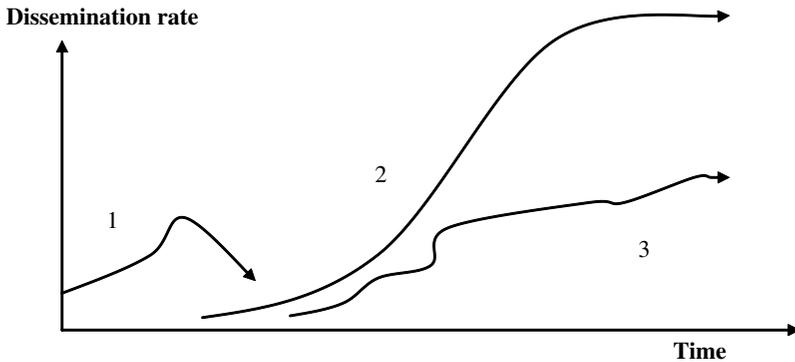


Figure 8.2 Three cases showing the spread of an innovation

8.2 THE LOGIC OF INNOVATION

Innovation cannot be understood through a single line of reasoning, as in traditional economic theory. Richard Lipsey (1996) stated that the science of economics is unable to understand innovation and even technological change,¹² since it depends on the learning capacity and on the cognitive (mental) mechanisms of individuals and organizations that escape the grasp of the traditional positivist approach of economic science (or of any algorithmic process). The major barrier to the understanding of innovation is, first, that economics sees it as a rational individual process, rather than as a collective, iterative process that goes beyond, for example, the search for the best possible solution for a given business (Nooteboom, 2000: 117–20). In other words, innovation bows to considerations other than a rationale based on market efficiency and the invisible hand. It leads to results that cannot be programmed and are thus uncertain.

The time arrow of change, which brings benefits but also errors and negative results, can be explained by the fact that innovation is based on chance and intuition, and not just on a seizing of opportunities. Innovation is a wager on the future. It is the domain of entrepreneurs and not of researchers, since there is no such thing as a trained innovator. It is a belief that stems from uncertainty and does not have well-defined boundaries. It is not, in itself, rational. The logic of an innovation does not exist until it is brought onto the market. The underlying calculations used to justify innovation are often window-dressing, based on a form of logic that is not believable but is required by the banks. This explains why the relationship between innovators and venture capital firms is so difficult. Innovation is created by a close (and, in some cases, almost intimate) relationship with

the market, with a large volume of tacit information, allowing the innovator to *feel* the market (Akrich et al., 1988), or to predict a market before it has emerged. As a new combination of elements, it breaks rules in order to reinvent them or reconfigure them to advantage, or imposes new rules based on internal determinants.

Rogers (1995) gives an example of a lack of rationality, or of false belief: the 'qwerty' (or 'azerty', in Europe) typewriter layout, developed in the USA in the early nineteenth century but still used on computer keyboards. It was designed to make typing slower, to prevent typists from locking letters together and blocking their machines. Obviously, computers do not have the same mechanical problems, but although several superior systems have been developed, the original, inefficient layout has been retained. The same applies to the North American video-cassette recorder (VCR) video system format that has prevailed over the Japanese Beta standard despite being less effective, or the Microsoft operating system which is clearly inferior to the Apple and, especially, the Linux systems, both of which benefit from superior logic and efficiency.

In the field of innovation, nothing can be taken for granted, whether in terms of complexity or in terms of costs and expected profits. Innovation is a risky process whose outcome cannot be predicted and lies outside business realities and procedures. By definition, innovation deals in uncertainty and therefore luck, both in terms of results and the time needed to produce something that will be well received in the marketplace. A company CEO cannot be forced to become innovative or to adopt technology quickly, even when provided with information and subsidies. Similarly, a business cannot be forced to grow, regardless of the market opportunities available. Innovation is thus an eminently entrepreneurial act, one that underlies the very idea of entrepreneurship (Gagnon and Toulouse, 1993; Hoffman et al., 1998).

In a case study on the reasons behind the dissemination of technological change and its adoption by 14 small businesses in six industries¹³ of approximately the same size working on a similar market, we began each interview by asking the entrepreneurs to comment on photographs of cutting-edge equipment developed for their industry. Immediately, their assessments differed depending on their perception of uncertainty: some foresaw all the problems

involved in using the equipment, while others were able to discuss its advantages and limitations. The rest of the interviews, based on a complex grid, confirmed this initial perception, showing that innovation is first and foremost in the mind before being a question of analytical skill (Julien et al., 1994a).

The logic of innovation explains why some small businesses, in both city and country environments, can be especially innovative. This contrasts with Schumpeter, in his American period, who saw innovation as the affair of large corporations with immense resources in certain specific industries. He nevertheless understood, from his time in Austria, that small businesses were in a strong position to innovate because of their entrepreneurial nature, making them less bureaucratic than large corporations.

Scherer (1984) explains that one advantage small businesses have over large corporations in terms of innovation is their systemic (inter-departmental) behaviour, the subtle involvement of their personnel, co-location (or proximity) that leads to complex exchanges, their direct and informal relations with the market, their ability to capture new ideas, a swift communication system based on tacit and promising information, and their special flexibility that facilitates initiative and creativity. On the other hand, the bureaucratic barriers in large corporations tend to block initiative or systematically create inertia, preventing the generation of overall innovation (Cerisier and Lubot, 1992). It is true that, in return, some small businesses suffer from a lack of high-quality resources and a restricted portfolio of innovations to reduce risk when R&D expenditure is high in sectors that require constant innovation.

Over the years researchers have tried to compare the performance of large and small companies in terms of innovation. For example, Hamberg (1966) analysed 27 discoveries and attributed only seven to large corporations, although he also pointed out that more large corporations were involved during the development phase. Jewkes et al. (1969) studied 64 important inventions and showed that 40 were created by individual inventors or small businesses, and 24 by research centres or large corporations. The extensive survey carried out in the 1970s by the Science Policy Research Unit (SPRU) at the University of Sussex, which analysed 4378 innovations over a period of eight years, showed that the number of innovations during the period went down as the number of employees went up (Pavitt et al., 1987). Acs and Audretsch (1990) analysed 8000 innovations introduced commercially on the US market between 1988 and 1990, and concluded that small businesses (fewer than 500 employees) had contributed 2.8 times as many innovations per employee as large corporations. It might be thought that innovations in sectors controlled by large corporations, such

as the heavy chemical industry, the power distribution industry and the automobile industry, come from large corporations. In fact, the opposite tends to be true if small businesses are present in large numbers. The importance of small businesses compared with large corporations in introducing innovations has been confirmed in Italy by Santarelli and Sterlacchini (1990) and Epifanio (1995), in Holland by Kleinknecht et al. (1991), and more recently in Canada by Baldwin and Gellatly (2003). Nooteboom (1994) sums up the comparisons, saying that small firms participate less in R&D but are more intense and more productive when they do formal or informal research; moreover, they implement innovations more quickly and easily in the marketplace than do large enterprises.

For both small businesses and large corporations, success rates remain low at less than 5 per cent of the ideas brought forward; and most success stories are gradual (Dewar and Dutton, 1986). Lachman (1996) points out that 80 per cent of innovation projects are abandoned before completion, while 10 per cent fail after being launched. In sectors in which the scientific foundation has not stabilized, the success rates are even lower (Mangematin, 2003). Pras and Le Nagard-Assayag (2003), summarizing a large number of other studies, posit a failure rate of 30 per cent to 40 per cent following the launch of new, fully developed products, and in some cases 80 per cent for innovations based on imitation. In short, nothing is easy where innovation is concerned.

8.3 THE ORGANIZATION OF INNOVATION

Because innovation is a collective, iterative, whirlpool-like, internal and external process, it is difficult to organize. It is possible, though, to give businesses the ability to seize or multiply information and new ideas for change, just as a locality can be made more innovative by increasing the number of intelligent networks, especially by helping firms link up to weak-signal networks and other resources that facilitate the development and application of new ideas.

For small businesses, the first step is to mobilize the competencies of as many employees as possible, and to link them internally and, if possible, with outside resources, such as technology consultants, to create synergy and develop what are known as relational competencies, helped by a catalyst. Next, the competencies must be improved by training and information, to create a distinct identity, using an original combination of new routines and ideas (Kiesler and Sproull, 1982). The competencies allow more complementary ideas to emerge (Latour, 2003), maximizing the number of chances, as though by increasing the number of players and

throws of the dice, both internally and externally, since less than 5 per cent of ideas end up on the market, as mentioned above.

To achieve this, *inventics* (or *synectics*) techniques can be applied,¹⁴ some of which are particularly effective for specific products or sectors (Carrier, 1997). These techniques facilitate the transformation of mental systems, in order to disrupt routines and stimulate the memory.¹⁵ Then, specific techniques must be developed to create a broad choice of ideas, with the techniques based on knowledge and experience.

One way of creating a broad choice of ideas involves getting part of the work done by other people such as customers or users, by stimulating their critical faculties and interpreting their ideas using proximity mechanisms, such as networks that help them become mechanisms for research and the transformation of rich information (Hedström et al., 2000) or as local and regional organizations for research and valorization to extend knowledge (Strang and Meyer, 1993; Trépanier et al., 2004). This analytical capacity is made even more important by the fact that the research is carried out almost simultaneously, taking development and marketing into consideration in an informal process of simultaneous engineering.

For analysis, a greater range of complementary information must come from within the firm, by organizing tests, the fabrication of prototypes, market tests, and so on, inside or outside the firm, while limiting the constraints of routine. The sequential or linear model¹⁶ developed several decades ago to manage innovation is decreasingly valid, since effective innovation often moves from one sequence to another while backtracking or leaping forward, with many two-way links with the outside world (Mustar, 1997). It is often better to integrate the phases in parallel, or to overlap stages.

Lenfle and Midler (2003) give four rules for improving rules or choices:

1. Reformulate the underlying questions *during the process* to smooth them out.
2. Create a knowledge/action dialectic, since experience is not always useful, except in action.
3. Develop strong management of knowledge to reinforce iteration.
4. Specify the temporal focus of exploration. The steps are particularly facilitated in learning, innovative organizations.

Senge (1990) describes various characteristics of such organizations, to which we can add several elements:

- Small size, with a minimum and maximum number of players, according to the principle of least difficulty. At the very least, small responsible groups must be set up within a larger enterprise to minimize

cacophony, misunderstanding or endless discussion. Innovation is incompatible with bureaucracy and hierarchy.

- A range and depth of personalities, disciplines and backgrounds, including the knowledge of suppliers and subcontractors. This multiplication of knowledge can even be organized in dense networks when the benefits are apparent (Pras and Nagard-Assayad, 2003).
- The presence in the group of innovative staff, in other words people who are open-minded and unconventional, including champions and deviants, and the involvement of critical and intuitive employees and some free agents who know how to learn from their mistakes¹⁷ and are able to find new ways around obstacles. In other words, both rational and non-rational or heuristic approaches must be included.
- The reduction of declared or undeclared resistance to change through the broadest possible participation, at least in terms of information (Nonaka, 1994). Schumpeter, as Alter (2003) points out, has proposed three types of resistance: objective (lack of stability in the situation or experience and so on), subjective (imagination of situations without markets) and social (with routine partners).
- A broad range of ideas, some of which will be selected. In general, out of 100 sensible new ideas, 90 are either not new or are too imprecise to be valid. Of the 10 remaining ideas, only one or two are sufficiently interesting to be developed and to reach the marketplace.¹⁸
- The development of a form of language shared by the participants, which goes beyond the language of their discipline or culture, to facilitate agreement. This shared language must be based on trust.
- The ability to express opposition coherently and realistically through the presence of one or more conciliators, and the ability to locate necessary information quickly, for example by linking the team to databases, research centres and research partners, and so on.

In collaboration with the Polytechnic Institute of Nancy, France, we organized 48-hour days at the university, during which teams of 10 students from the faculties of engineering and management had to define an innovation as precisely as possible on the basis of ideas proposed by participating entrepreneurs (a new material, a production technique, a potential market, and so on). The students were locked up in rooms, where they had a computer connection with databases and a list of experts they could contact. The results were assessed by entrepreneurs and teaching staff, and some were later taken up and put into production.

- Rotation: teams that work together for too long may end up going round in circles, creating constricting routines.
- Some (but not too much, so as not to block promising ideas) supervision must be provided, to ensure that all aspects are considered but that the work remains focused, mainly using operational objectives (such as a cost limit) defined by the overall strategy, target market and time and resource constraints. These objectives must be clear from the outset, especially if people from outside the firm are involved. Otherwise, the process may go round in circles (Corriveau, 1997).
- The ability to advance and not remain in the same spot for too long, an ability linked to the firm's own strategy to ensure coherence.
- Material facilities such as a shared office for the main staff assigned to the project, with a central discussion table for when one member has an idea to discuss or reject, and strong links with the outside world to obtain complementary information, based especially on generally weak-signal networks.
- In short, a mixture of knowledge, skills, know-how and chance or an equilibrium between the four. The process is like a whirlpool; it operates tentatively, within latitude to act within a directed process.

Nonaka and Takeuchi (1995) summarize, in four words, the elements needed to support innovation systematically: socialization, exteriorization, combination and interiorization.

However, the process can only be specific to a single firm, depending on its strategy, target market, aptitudes and abilities, and it requires a relaxing of the normal management approach. It must be placed outside the day-to-day context, and depends to an extent on luck and chance. It improves over time, as experience with innovation accumulates, including experience of failure that, if properly analysed, allows improvements to be made. Attempts to organize innovation can only really focus on the learning and reaction trajectory or curve to play to win, while hoping that luck will be on side.

One of the necessary (but not sufficient) conditions for success is the existence of a degree of financial flexibility, not only for the research phase which always includes some surprises, but also for the application phase, when equipment must be modified and staff trained, or sometimes when new equipment must be purchased and extra staff hired, for example to offer a new product (Santarelli and Stellachini, 1990; St-Pierre, 2004). Once again, however, the most important factors for innovation are under the responsibility of the entrepreneur and the internal and external firm



Figure 8.3 Variables behind success in innovation

organization; financial backing can always be found for a sound innovation that will have a genuine impact on the market.

The variables for successful innovation can be summarized from four points of view, as shown in Figure 8.3. The first is the ability to understand the market, and actual or potential customer needs. The second involves the quality of the organization and its ability to absorb complex, rich information, in particular through networks and effective scanning. The third concerns the flexibility of the organization and its ability to learn. The fourth focuses on the involvement of the organization with outside resources such as research centres and consultants in the areas of technology and training (Feldman, 1994). Pras and Le Nagard-Assayag (2003) add three elements for success that affect the marketing of a new product, namely: (1) giving consideration as early as the adaptation phase to customer needs, (2) the uniqueness or superiority of the product and a competitive or attractive price, and (3) a proactive marketing strategy.

Nothing, however, comes easily, since it is always difficult to manage change in part of an organization, while working with other services and outside firms or institutions. Every innovation under development, by definition, creates disturbances. For example, opening the firm up to outside influences may develop disagreement, while a failure to do so may deprive the firm of information and new or complementary ideas. A multiplication of divergent viewpoints, if it is properly managed, can become a source of even greater innovation.

To explain the semi-failure of an innovation system in a dense network composed of a major transportation product firm and its subcontractors, developed over a 10-year period, we used the analysis proposed by Giddens (1984), who believes that every commitment is first individual, and then collective. An individual commitment is based on three types of knowledge: *conscious knowledge* (in this case, the ability of each engineer in the firm's development department involved in developing new components), *practical knowledge* (the recognition that the new components will effectively improve product performance), and *unconscious knowledge* (the sum of skills that allows the process to go beyond what is readily known about the development of new components). In a collective commitment, the knowledge is shared and reinforced by the group, as each individual acts within the framework of a business structure that has its own rules of conduct and sharing that are often hard to ignore.

These rules guide the actions that, together, appear sensible, legitimate and empowering. The feeling that an action is sensible is based on interpretation schemas that come from the three types of knowledge developed individually and collectively. The traditional approach generates efficient products that provide a competitive edge: why change? Legitimacy is necessarily collective, and is based on conventions developed in the organization over the years that are both secure and hard to transgress. Especially since, if the transgressions lead to failure, the sanctions applied will underline the need to stick to the rules. A failure that occurs after following the rules is less important, since everything was done according to the rules. These customs and conventions are reinforced by power, for which they serve as a basis.

Using Giddens's rules for analysis, it is possible to suggest that the development department considered that its approach, which hardly involved any subcontractors, was, first, perfectly sensible and tested, and did not encourage the engineers to try anything new. Since it was already hard for several different people to work on the same innovation project, given the difficulty of organizing innovation, which by definition introduces disagreements because of its novelty, the solution did not appear to be to increase the number of outside participants and to increase the possibility of disagreement. Second, this approach was legitimate because it complied with the rules; in particular, it met the constant pressure from management to reduce costs, placing the focus on low-risk

solutions. Third, in any case, it was the best way to retain power over internal services (without interference from the outside) and, especially, subcontractors. In short, the structure based on reasoning, rules and powers was sufficiently strong to counteract the management's declared interest in working in genuine cooperation with subcontractors as part of a dense network (Julien et al., 2003a).

Innovation is therefore a combination defined following repeated exchanges of information inside and outside the firm. The information is mainly tacit, and more informal than technological, and is completed by coded information (Leonard and Sensiper, 1998). It requires a regularly updated ability for absorption and imagination. It results from the participation and interaction between the quality of the linkages between internal and external partners, the interaction of the learning processes implemented by the firm, the intensity of positive feedback, and network quality. Participation and networking overcome the lassitude of the innovator by a sharing of ideas and risks that maintain the necessary tension and the process continues in the firm.

This combination allows the organization of improvisation, even if this appears paradoxical. A strong organization of this type encourages velocity (flexibility and speed) in the overall innovation, based on a set of small changes in various areas that are intended to overtake or sometimes deceive competitors to discourage them or remove them from the race. The key is the ability to feel the market, to remain within the bounds of what is possible, given the fact that many things are uncontrollable. This is the principal strategy followed by gazelles to develop rapidly, especially by seeking out complementary knowledge and stimulation through a network or alliance inside and outside their home region.

8.4 FROM INDIVIDUAL INNOVATION TO COLLECTIVE INNOVATION

Innovation in businesses is even more effective if it is based on a collective effort involving a large number of well-educated employees within the firm (Owusu, 1999) and with strong ties to the outside. The result is a complex interactive process (internal and external) and cannot be reduced to the mere discovery of a new idea but supposes, first, the development of several ideas (Amar, 2001), as seen in connection with business creation (Long and McMillan, 1984). Second, the process requires the ideas to be developed

(Gartner et al., 2003) and, after a proper assessment, integrated into the operations of the firm to take into account the other functions and constraints in the overall development process up to the marketing stage (Hills et al., 1999). However, the role of the collective goes beyond the technical aspects, since its primary objective is to support the belief that success is possible. Since innovation is an entrepreneurial act that also depends on the type of entrepreneurial culture present in the region and on the prevailing spirit, either conservative, which increases the weight of constraints or creates complications while limiting the necessary material resources, or dynamic, which encourages new ideas and facilitates their implementation in concrete ways.

This is a long way from the classical approaches of economic theory, and goes further than the evolutionist theories, still too linear, of Nelson and Winter (1982). It also goes beyond Schumpeter's Austrian period, which tends to limit innovation to an individual entrepreneur without placing any importance on the links between the entrepreneur, the market and the community (Witt, 1993). In fact, as pointed out by Dosi (1988), innovation is necessarily an open dynamic process that includes the community and networks, and therefore the links with a dynamic local environment. Even the learning or knowledge development underlying innovation is a collective process (Avenier, 2001).

Danielle Capt (1994), in her doctoral thesis, has shown that the innovative attitude developed in mountain villages in the Pyrenees is based on a spiral process. It began with existing products, such as farm-produced cheese and sausages, and then led to the gradual involvement of other players such as chefs proposing regional menus in country inns, Bed and breakfast owners coming together to develop quality criteria, mountain guides offering mushroom-picking, bird-watching and expeditions to Roman or medieval ruins, and transportation firms working with outside travel agencies, all supported by an emphasis on quality, sometimes with official certification of origin.

Michel Marchesnay (2001) has discussed similar results with Espenette pepper production in the French Basque region, showing that despite the benefits of climate and a long history since the discovery of America, a group approach and spirit of enterprise was needed to give the product a unique identity and gain recognition in the form of an *appellation contrôlée*, or official certification of origin, to ensure further development.

Networking and social capital play a central role that affects attitudes to innovation and risk and provides catalysts to stimulate innovators and firms, as pointed out by Saxenian (1994) and Dakhli and De Clercq (2004), and as illustrated in Figure 5.3. For example, institutions of higher learning, through their multiple links with other universities and colleges, can, if they are proactive, play a major role in this social capital. But they must first break down the cultural barriers between businesses and educational institutions and do so as part of an innovative environment that allows the area to generate pollination mechanisms for innovation in and between businesses and other socio-economic sectors. Pollination increases the amount of new information, the primary source of innovation, and ensures that the entrepreneurial culture as a whole encourages innovation and change. To return to our metaphor, Michael Connelly explains in his detective novels that the problem of understanding the development of Californian criminal gangs is due to the fact that the gangs have many branches and affiliated clubs which expand in different markets by sharing information that allows them to adjust quickly to new situations. This phenomenon is examined in the fourth part of this book.

NOTES

1. A prime example of this is the humble potato, which exists in over 100 varieties some of which go best with particular meats, creating a specific taste rather like certain combinations of wine and cheese. Similarly, over 100 different kinds of pasta are common in Italy, most of them delicious and far removed from the tasteless pasta served in neighbourhood North American restaurants that are 'Italian' in name only.
2. Branbandere (1998) explains that creativity is the spark that triggers thought, whereas innovation is the gas that allows a chemical problem to be solved. The first is instantaneous, whereas the second requires more time.
3. The industrial statistics study division of the French government.
4. This percentage can reach 80 per cent if minor adjustments to equipment or work organization are included, or strictly aesthetic changes to products.
5. The OECD *Oslo Manual* defines technological product innovation as 'the implementation/commercialisation of a product with improved performance characteristics such as to deliver objectively new or improved services to the consumer. A technological process innovation is the implementation/adoption of new or significantly improved production or delivery methods. It may involve changes in equipment, human resources, working methods or a combination of these.'
6. One example is provided by the new refrigeration systems for grocery and meat products counters, or the use of Global Positioning System (GPS) by transportation companies to track truck movements.
7. Von Hippel (1988) calculated that 77 per cent of the innovations affecting scientific instruments come from users, often scientists who adapt their equipment to meet their own research and development needs.
8. But new competition is emerging, in the former case with Mecca Cola in the Muslim populations or Koka Real in Andean countries, and in the latter case, Linus open software, particularly in China, India and Brazil, which have officially adopted it to the detriment of Microsoft.

9. Some patents are particularly complex, with over 1000 pages, or are broken down into a number of other patents, partly to build defensive barriers and delay imitators (Laperche, 2003).
10. Almost 82 per cent of the inventions patents granted by the United States Patent and Trade Office are assigned to institutions, in other words public research centres or universities, revealing another strategy used by businesses (*Observer of Sciences and Technologies*, 2001; Shane, 2003).
11. Rogers gives the example of the Amish, who refuse almost all modern inventions such as electricity, gasoline-powered tractors, automobiles and cigarettes.
12. 'When I was a student, I didn't understand technological change. Most of the economists I'm acquainted with know very little about technology and do not believe their lack of knowledge is a problem, which is even more scandalous. Yet, technological change is one of the most important economic forces to affect our standard of living' (Lipsey, 1996: 48).
13. The six industries were: relatively high-tech (rubber and plastic products, electric and electronic products and chemical products), medium-tech (various manufacturing industries) and low-tech (lumber industry and furniture).
14. Easy product innovation techniques require, for example, an analysis of the product and the possible use of other materials (wood replaced by metal or plastic), or an examination of its functions (add aesthetic elements, storage or transportation features, other or multi-purpose use, and so on). Other possibilities are to create some constructive confusion about a product, as a technique of creativity.
15. Nooteboom (2000: 122) recalls that the memory does not work as a system to remember but as a system to categorize anew, to reactivate and to reinvent.
16. The sequential or linear model presents innovations as a logical series, beginning with (1) perception of a need, and moving on to (2) research, (3) development, (4) marketing, (5) market penetration or dissemination and (6) analysis of the results or consequences. However, reality is hardly ever linear and this procedure may simply kill off any innovation.
17. Latour (2003) speaks of the 'non-paranoia' of initial innovators.
18. This rate can increase in the case of an innovative organization, as discussed in the next section. For example, we are aware of firms with a success rate of up to 4 per cent of the ideas generated by the organization.

PART IV

The Functioning of Local Entrepreneurship: Dynamism through Contagion

Endogenous entrepreneurship is the term used to describe the development of new firms by local entrepreneurs and the transformation of existing firms into proactive or high-growth firms. This in turn attracts other entrepreneurs from outside the region, drawn by the area's dynamism. Venture creation and transformation are actively supported by the increasingly rich information generated by the milieu or obtained through recurrent outside contacts via networks.

However, dynamism is not automatic, nor is it necessarily all-pervasive and ongoing. Dynamism requires determined entrepreneurs, innovative organizations that are able to learn, a diverse industrial fabric, public institutions that play an active role in the exchange of rich information, a social capital that fosters effective networks able to support innovation and, most importantly, an entrepreneurial culture based on conventions or beliefs that is able to direct the actions of the players to ensure that the area, regardless of its size and needs, sets itself apart and develops quickly. In other words, the success of firms, especially dynamic firms like the gazelles, depends on the development of synergy throughout the area to produce an environment that is both stimulating and conducive to entrepreneurship.

To go back to our original metaphor, the same can be said of crime. If crime is isolated (or was committed by a single monk in the Melk monastery), it is a function of irregular socio-psychological deviant behaviour and the Prior would not have had to ask William of Baskerville to come from far-away England to solve the mystery. However, if it becomes more general with a murder a day, then De Baskerville's help would have been indispensable even if the Dominican monks living in the monastery were not as used to associating with Franciscans as De Baskerville. The same applies to criminal gangs; the gangs must not only be able to attract minor and major delinquents and organize them according to strict conventions and a system of monetary rewards, but they must also be permitted or at least tolerated by society. In other words, where there are criminals who profit from crime, there are also consenting participants or victims who agree to pay; prostitution and drugs are just two examples of this.¹ In the case of *The Name of the Rose* (Eco, 1980), the open conflict between the Emperor and the Pope triggered assaults and finally deviances that explain these behaviours even in a sanctified place such as the monastery.

To understand entrepreneurship, we must therefore go beyond the entrepreneur and the firm; they constitute the first level of analysis, the Columbo level. To move on to the second level, we must also consider

the interdependency of firms, just as Detective Maigret examines the connections between criminals' histories, their families, their milieu and their victims. In addition, the entrepreneurial culture must also be taken into consideration, since it supports entrepreneurship, and hence collective behaviours, in a variety of ways. This collective behaviour, when it is especially dynamic, stimulates the creation and development of firms by allowing as many people as possible to become involved in a variety of ways, and by promoting other interests, such as respect for the environment and sharing of wealth. This is in stark contrast to the marked disparities observed in developing countries, and the exploitation of the poor that systematically hinders entrepreneurship by excluding a large percentage of the workforce and maintaining them in a passive role.

Workforce exploitation can, for a limited time, give an international competitive edge to developing countries, as is currently the case in China among others. However, it does not work in the long term, since exploitation inevitably generates costs, such as defective work and resistance to change. As early as 1776, Adam Smith criticized workforce exploitation and pointed out its inefficiencies, stating that the work done by 'free men was ultimately cheaper than that done by slaves'. As examples, he cited cities such as Boston, New York and Philadelphia, where salaries were higher than in England.²

To understand local entrepreneurship, we must look beyond entrepreneurs, other stakeholders, organizations, their resources, methods and openness, and also beyond local and regional human and material resources, to consider the milieu's collective capacity to develop the social capital, collective beliefs and conventions, and the industrial atmosphere itself, which incorporates society's various job-related, social and cultural needs – in short, the general well-being. This comprises the third level of analysis, leading us, like William of Baskerville, to consider the beliefs and entrepreneurial mindset of local society – politics in its most noble sense (that is, the general management of the *polis* or city). Indeed, politics become an active element, a sufficient condition for explaining the dynamism of certain localities over others. For William of Baskerville, the true cause underlying individual hatred, and even the war between the Pope and the Emperor, was control over beliefs – in other words, obstacles to the search for a certain truth and freedom, which form the starting point for creativity and innovation.

Thus, in our analysis we will be looking at generalized creation and systematic stimulation, as opposed to scattered venture creation and modernization of small numbers of firms. These two elements usually involve seven principal phases in localities that have undergone an industrial decline, especially those that were dependent mainly on natural resources for their development. The seven phases are as follows:

1. Cessation of new job creation or lay-offs by large firms.
2. The belief that the cessation or decline will be of short duration and that new outside investments or state-supported investors will restore development and job creation.
3. Disappointment and exodus to more dynamic areas or to an economic metropolis in search of employment.
4. Awareness among those who stay and those who come back without jobs that they hold at least some of the keys to the development of their territory. This phase can be quite long. It begins to take off when local socio-economic elites decide not to wait for outside salvation, but to change or hand over to a new elite.
5. Creation of the first local modern firms (not mundane firms), as entrepreneurs begin to roll up their sleeves, encouraging others to engage in new innovative activities, creating social capital or facilities for small business creation and development, and, gradually, in a process that will enable the area to compete and carve out a niche on national or international markets.
6. The acceleration phase, where entrepreneurs realize that they are not alone and that development always results from dynamic networking, triggering business modernization.
7. The seventh phase emerges slowly from the sixth, consolidating conventions, supporting success, developing new ideas and additional resources, and thus generating a greater development.

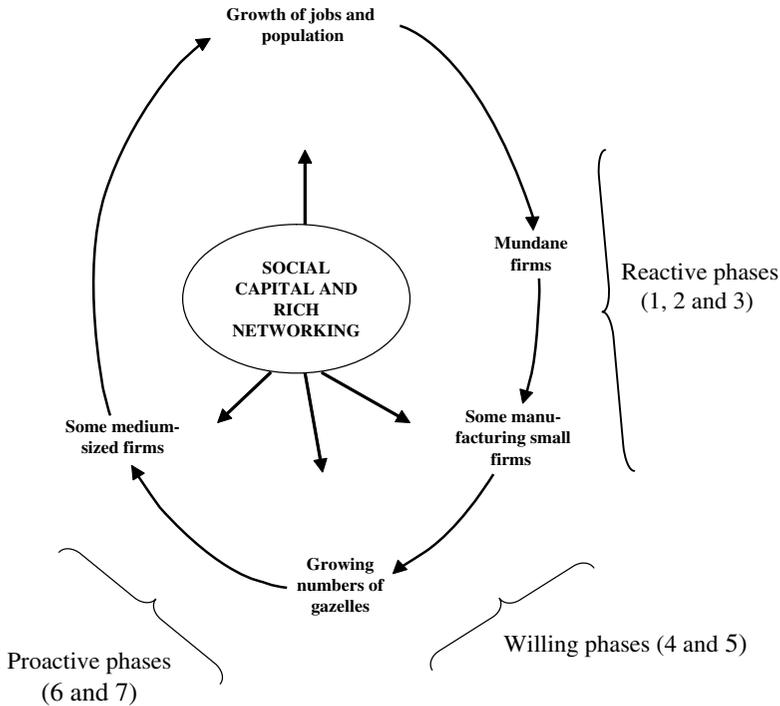
For territories that have not received outside capital, development follows the last four phases only. These phases can overlap and can clearly be much more complex than the above descriptions imply. The most difficult and often the longest process is the dawning realization that development requires a collective will, a new winning mindset throughout all social and economic elites, along with more resources and ideas from the milieu and the embryonic industrial fabric. This new atmosphere eventually leads to the growth of internal and external development networks, thus enabling more new firms to be created.

All the phases vary in length. When large firms do not commit all their resources (for example, in low capitalization sectors) or offer conditions

that are barely superior to those offered by small firms, then recovery depends on the experience of the small firms and can be much faster. Indeed, small firms provide an important basis for new venture creation, in that they offer models and resources, including transportation and consulting services. The process speeds up even further with the emergence of gazelles, demanding more dynamic services and networks, thus stimulating other new or existing firms, supported by a renewed social capital, ultimately transforming the industrial atmosphere.

The small Québec regions of Centre-du-Québec and Mauricie, located on either side of the St Lawrence River, used to form a single region. After the Second World War, the economy of the Centre-du-Québec region, in the cities of Victoriaville and Drummondville and the surrounding areas, had become specialized in textiles, clothing and furniture, with a number of large firms bringing in capital from outside the region and paying low salaries. This did not prevent numerous small firms from developing and prospering at the same time, many providing services for the Montreal area. When the large firms fell into decline in the 1970s, the experience of the existing small firms, combined with the local networks, allowed other small firms to emerge, creating a vigorous and dynamic economy. By 1996, gazelles accounted for 10 per cent of the region's industry base. In contrast, the Mauricie region had built its highly prosperous post-war economy basically on the shoulders of major foreign investments in the heavy chemical and natural resource processing sectors (aluminium and pulp and paper), thus taking advantage of cheap energy from the major hydroelectric generating facilities on the Saint-Maurice River. However, heavy chemicals were gradually abandoned in the 1960s in favour of oil-based chemicals, requiring a deep-water port that the Saint-Maurice River, with its hydroelectric dams, was unable to offer, and the aluminium and pulp and paper mills began to modernize, slashing jobs and triggering a rapid decline in the local economy. During the period of prosperity, it had been impossible for small firms to develop, since they were unable to compete with the excellent salaries offered by the large corporations. When the decline began, there was therefore nothing on which to build the recovery. This explains why the part of gazelles did not exceed 5.1 per cent in its municipalities before 1996. It was only in the second half of the 1990s that the region, emerging from the waiting, disappointment, awareness and sleeve-rolling phases,

was able to initiate change, and the endogenous gazelles grew to reach 20 per cent for the northern city of La Tuque, 11.1 per cent for the central area of Shawinigan and Grand-Mère and nearly 9 per cent for the southern area of Trois-Rivières.



These phases will not occur if the more mobile younger population and skilled workers leave the region during the disappointment phase, thus reducing the availability of resources, triggering the decline of the milieu and causing gradual shrinkage of the population and even of public institutions. This can become a vicious circle within which the population ages rapidly, firms close down or move and networks become impoverished.

Networks providing rich information are therefore one of the cornerstones that allow for the pooling of resources, the transformation of attitudes and the creation of an entrepreneurial culture to develop a dynamic social capital, systematically encourage local entrepreneurs to launch businesses in spite of uncertainty within the economy, trigger the creation of gazelles and medium-sized firms, and increase the size of the population and the number of jobs available. The figure shows how a rich network base

allows development to enter a virtuous circle, via three reactive phases (phases 1, 2 and 3), two more willing phases (phases 4 and 5) and, finally, two proactive phases (phases 6 and 7).

In this part of the book, we look more closely at the elements supporting the shift to the proactive phases. In particular, Chapter 9 examines the networking mechanism, and Chapter 10 the phenomenon of contagion or acceleration of venture creation, as well as the transformation of attitudes and the creation of an entrepreneurial culture. This brings us full circle with respect to the functioning of endogenous local entrepreneurship in the knowledge economy.

NOTES

1. It is possible to reduce the influence of criminal gangs, but only by applying a solution that is both social and individual in nature. For example, some communities have fought the open presence of Hell's Angels chapters in their area, actually forcing them to move. In the Philadelphia region of the USA, it was impossible in the 1970s to openly oppose the neighbourhood gangs that forced many stores and businesses to close down. To deal with the problem, control over business was handed over to the gangs, thus forcing them to learn how to manage within the legitimate economy. In addition, school-age children who had not yet fallen under the influence of the gangs were transferred to other neighbourhood schools, breaking down artificial area boundaries (Pires, 1994).
2. Smith (1776 [1788]: 87).

9. Intelligence networking: developing a dynamic regional fabric

Mankind multiplies in a country which affords abundance for the children, without diminishing in the least the parents' provision. That very equality of the citizens which generally produces equality in their fortunes, brings plenty and vigour into all the parts of the body politic, and spreads these blessings throughout the whole state.

(Montesquieu, 122nd *Persian Letter*)

As we said in Chapter 6, firms and entrepreneurs have always worked through personal and business networks. While personal networks exist so that their members can share their ideas with others, the primary motivation for business networks may date back to the old theory of the division of work and the associated theory of comparative advantages. In the former case, Adam Smith, in the eighteenth century, pointed out that there was no benefit for producers to try to do everything themselves; it was better for them to work with other producers, upstream or downstream, with each party concentrating on what it did best. In the latter case, Ricardo's theory of comparative advantages states that it is better to limit certain activities, even if they can be performed effectively, in order to concentrate on those that generate the greatest profit. This is the idea on which the theory of core competencies is based – in other words, a firm concentrates on the area in which maximum value can be derived from its competencies, leaving other firms to produce the things that are less profitable. This is the perfect application of the industrial district system, where each firm concentrates on one element of the value chain, with the group eventually offering a joint product able to compete with goods produced by other firms with costly bureaucracies. It is also visible in the trend of recent decades towards outsourcing of part of the production process (for example, in the automobile industry) to create a cascading subcontracting system. In the case of mature industries manufacturing complex and changing products, it is not particularly beneficial for firms to try to do everything themselves, even if they are extremely productive. By specializing, they reduce the weight of inertia due to large size and increase their flexibility, a vital element in an increasingly global economy and one that is expressed, among other things, through a higher rate of shared innovation.

However, these two theories, complementary though they may be, do not explain the need to work with advanced information networks, especially weak signal networks, some of which may be connected through personal or business networks. The second basis for the theory is derived from the knowledge economy and the resource and competency-based approach in which, as we said earlier, the competitive edge of a firm depends on a dynamic (and therefore difficult-to-copy) combination of competencies based on knowledge and expertise, and extending to the resources and competences of partners, rather than on rare and difficult-to-copy internal resources. This enables the firm to respond specifically to each customer, thus standing apart from its competitors. Knowledge and expertise gain tremendously if they are systematically enriched and transformed within intelligence networks¹ in order to enhance both opportunities and innovation.

In this chapter, we review the need to work as part of a network and look at how to improve networking in the localities. We then describe the mechanisms needed to filter the information provided by the network in order to extract its full flavour.²

9.1 THE EFFECTIVENESS OF DEVELOPMENT WITH PEERS IN NETWORKS

The short-sightedness of researchers who were content for far too long to regard firms in isolation rather than as elements of a collective, network-based system can be explained partly by the neoclassical approach, as we said earlier. In reality, entrepreneurs and firms do not act alone, in isolation, as pointed out by John Maurice Clark as early as 1926.³ Indeed, networking is the best way of facing up to uncertainty and ambiguity, since it provides shared conventions. For example, the information networks, by proposing all kinds of information and filtering it like a net, provide a series of indications or clues that can reassure entrepreneurs and support their actions. The business networks, for their part, provide entrepreneurs with a certain guarantee that they will be supported in their business endeavours, since all the network partners will gain from their success. Marshall, in his 1890 *Principles of Economics*, noted that business networks help firms to absorb outside shocks by spreading at least some of the impact across all their members. Above all, however, networking is an extremely effective shared learning mechanism that helps firms to face up to future uncertainty.

Networking stimulates five levers of learning in particular (Jacob et al., 1997):

1. It speeds up the circulation of information among members, especially where mutual trust and trustworthiness is high, and therefore allows them to save time systematically for analysis.
2. It multiplies new complementary sources and new information links to complete the known information when needs develop.
3. It forces organizations to compare themselves with one another: the cognitive dissonances created by different perceptions tend to stimulate firms and force them to continually prove their competitive capacity in order to enhance their individual competitiveness within the group. Feedback from the environment helps the firms to improve their competitive capacity and supports ongoing learning, allowing them always to push back their limits.
4. It provides new, non-routine information, and facilitates its extension and exchange within and outside the group via a structure with little or no ambiguity: observation of others with their similarities and differences, and condensation of information from different sources, both foster the active acquisition of new information (especially rich tacit information, completed by shared explicit information) and extend new ideas that are conducive to innovation.
5. When necessary, networking converts competitive relationships between network member firms into cooperative relationships, without necessarily setting aside competitive pressures.

Historically, it has been the faithful rather than the priests who foster new conversions (Katz and Lazarfeld, 1955); similarly, change and dissemination of new technology and innovation tend to arise from peer example (via so-called peer behaviour). To convince entrepreneurs to innovate or organize themselves with innovation in mind (for example, by enhancing their information absorption capacities), it is always better to go through other entrepreneurs or someone similar, because entrepreneurs are much more likely to accept change if their peers bring them into contact with appropriate resources via the networks. Communication between peers reduces the cultural distance and greatly increases this absorptive capacity or the process of agreement by bringing out the 'hidden maps' that people have in their minds, or their resistance to change (Nooteboom, 2000: 155–6). By using people that have been recommended, entrepreneurs have better access to the complementary information they need, including tacit information, and will be better placed to understand it. Trust is not limited to relationships between economic players; it also has a clear social and territorial aspect (Michelsons, 1990) that affects both the behaviours of network members and the conventions upon which they agree. It is also derived from the fact that entrepreneurs often share the

same experiences and are familiar with one another's backgrounds and reputations.

Rogers (1995) explains that peer dissemination is effective because it allows information to travel via many different paths within communication networks, depending on the recipient's level of attention, then to pause, restart and speed up again, providing practical examples of applications or uses and, if necessary, referrals to sources of complementary information. The process also allows for questions, answers and reviews. These paths are especially effective where one of the peers in the network is recognized and acknowledged as a leader, thus setting an example that may help accelerate change.

Networking efficiency also derives from a mechanism described by the philosopher Habermas (1981) and known as intercommunicational action. This is where information changes the mental representations of the person who receives it, generally preparing them for action. Habermas explained that intercommunication does not simply transmit data and, ultimately, knowledge, it also triggers the action it is intended to provoke, on the part of both the giver and receiver of the information, by helping them to preview its potential applications. In other words, action is triggered by the idea when it is exchanged, and is clarified by subsequent explanations.

We monitored manufacturing firms for nearly five months to help them implement ongoing improvement plans that would enable them to achieve world class operations (with the support of different audit tools to characterize their production systems, structures and operations). When we discussed our findings with the firms' key personnel, we observed that approximately 40 per cent of the recommendations we had intended to make had already been implemented. This clearly shows that the recommendations had already begun to take shape in the questions we asked on the organizational and production problems encountered by the firm, and that they formed gradually, as the investigation progressed (Julien et al., 2003b).

The information provided by people known to and trusted by entrepreneurs speeds up the process of change and hence the innovative process by acting on mindsets and attitudes. If so-and-so is capable of using such-and-such a technology, then why can't I? Information sharing can go even further, triggering enthusiasm in the recipient, who may, for example, decide to start exporting despite the inherent difficulties, encouraged by the fact that the potential information provided by the networks will reduce the uncertainty.

This is not to say that only networking can foster innovation; innovation also depends on individual intuition, as seen in Chapter 8. However, networking is a necessary complement that supports and stimulates complex cognitive mechanisms, and thus encourages entrepreneurs to undertake more extensive innovations than they could possibly have considered if they had been alone.

Figure 9.1 illustrates how the fact of incorporating external partners into the innovation process, or several people embarking at the same time, can actually foster the process. The dotted line clearly shows that innovation in a vacuum, even if undertaken by an experienced team, will be quicker at first but will soon run into all kinds of problems that the project members did not anticipate because they did not, for example, understand the market's ability to absorb this particular innovation, or because production was not properly prepared. The curve therefore drops off quickly. The innovation process resumes once these problems have been solved, but it soon plateaus because of the team's limited learning capacities (Sørensen and Stuart, 2000). In contrast, the broken line shows how concurring engineering, by incorporating members of the marketing, product and other (for example, human resources) departments from the very early stages of the project, actually allows potential problems to be assessed and anticipated. As a result, the innovation process is slower to begin with, because team members who may not be used to thinking about innovation must agree on a shared language and goals to create effective team energy. However, there is no midstream decline to solve unexpected problems, and the larger team is able to provide new ideas and find better solutions to

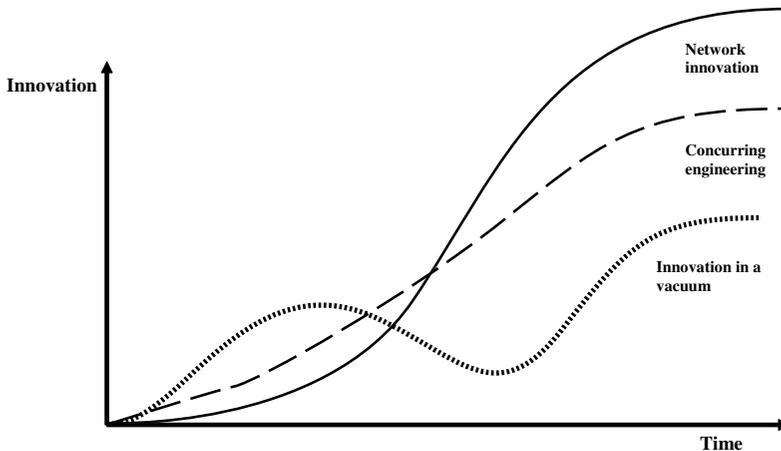


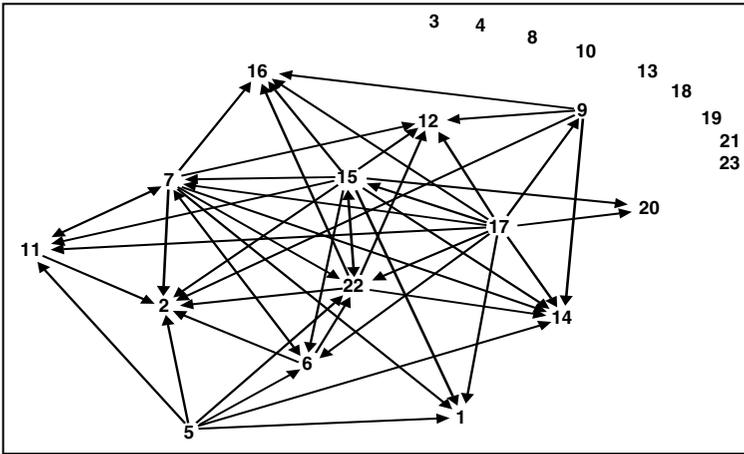
Figure 9.1 *Impact of the integration of outside partners by networking or concurring engineering into the innovation process*

problems as they arise. In Figure 9.1, the broken line climbs well beyond the dotted line at the end of the process. The third line (the solid line) illustrates the network innovation process, in which outside members such as component and equipment subcontractors are brought into the research team by co-development. Here again, the process starts very slowly because of the need to adjust goals and language, but it takes off quickly thanks to the broad range of experience and ideas within the team, and generally is much more successful than the other two approaches (Bala and Goyal, 1998).

However, dense or soft networking does more than provide new information; it also generates a sense within new firms that forces them to take action. As Velts (2002: 88) points out, being part of a network or dynamic local fabric allows people to be aware, to know what is not written down, even in the specialist media, and to become familiar with the reputations of suppliers and customers. For a firm's leader, the ability to make judgements, to separate the positive from the negative, and to make qualitative assessments of risks, is absolutely fundamental. This ability is infinitely more difficult for entrepreneurs working alone, just starting out or stuck in social enclaves than for entrepreneurs who are integrated into a milieu. In particular, networks reassure early inventors and innovators by offering a sense that they are not the only ones to be taking a risk, much in the same way as social groups do for individuals (Miles and Snow, 1995).

The task of bringing competing firms together to form a network is often difficult. However, the following analysis shows that competing firms can take part in networks and even benefit from them, for example by identifying other firms willing to trade with them. In a questionnaire submitted to the members of the Bombardier Chair network (Julien and Lachance, 1999), we asked the owner-managers which other firms they would like to send information to, obtain information from and/or exchange information with (for example, information on strategy, R&D, production, human resource management). Respondents could also identify firms with which they did *not* wish to trade. The diagram illustrates the resulting links, and shows that several firms (top right) had no contacts at all.

For strategy-related information, two firms (numbers 2 and 17) rejected one another. However, in carrying out a hierarchical typological analysis of maximum contact flows (progressive disengagement from the network, in the table), we noted that, although these two firms said they did not want direct contact with one another, they nevertheless reserved the right to have indirect contact through their contacts with other firms.

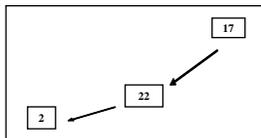


Firms wishing to send, obtain and/or exchange information concerning strategy

Thus, at the last analysis level (level 6), the last two firms remaining in contact are in fact firms 2 and 17, which are direct competitors that had clearly said they did not want contact. The second diagram shows, however, that they were linked through firms 22 and 15, with which firm 17 said it wished to enter into contact, and which itself wished to enter into contact with firm 2.

Hierarchical typological analysis

Level	3	4	8	10	13	18	19	21	9	15	20	1	5	6	11	7	12	14	16	2	17	22	23	
6	XXX	.	.
5	XXXXXXXXXXXX	.	.
4	XXXXXXXXXXXXXXXXXXXX	.	.
3	XXXXXXXXXXXXXXXXXXXX	.	.
2	XXXXXXXXXXXXXXXXXXXX	.	.
1	XXXXXXXXXXXXXXXXXXXX	.	.
0	XXXXXXXXXXXXXXXXXXXX																							



Competition and potential exchanges

In short, the richer the networking activity within an area and the more the area's firms are connected to innovative sources (intelligence networking), the more likely they are to grow quickly (Baudry and Breschi, 2000).

9.2 INTELLIGENCE NETWORKING

In the business world, cooperation is the norm, while pure hierarchy (producing everything) and the single market approach (buying everything) are much rarer. Dense networks have, of course, existed for many years – for example, in the construction industry, with contractors known as *generals* who hire plumbers, electricians, plasterers, painters, and so on while keeping the main construction work and general planning for themselves. In Europe, many of the current industrial districts can trace their roots back hundreds of years, as pointed out by Braudel (1979), who gave the example of the rag-trade district of Prato in Italy, which dates back to the Renaissance. The same is true in North America; for example, Montreal's fur district dates back to the fur trade with the Amerindians. Some researchers go so far as to refer to these districts as leftovers from eighteenth- and nineteenth-century capitalism (Pyke and Sengenberger, 1992).

Networking differs from one firm to the next, depending on the experience, involvement and organization of the entrepreneur and the networks of the firm's personnel. For example, a young entrepreneur, especially if he or she is not from an entrepreneurial family, will have a relatively undeveloped network that will have to be enriched if the firm is to grow (Larson and Starr, 1993). In contrast, an innovative entrepreneur working in a sector with a large new technology segment will quickly join forces with others, and will develop a complex network that provides information before competitors have access to it, as well as taking advantage of staff networks (Witt, 2004). In territories with a good supply of dynamic entrepreneurs, networks tend to be well developed with links to outside networks. These entrepreneurs encourage the complexification of networks by creating new networks, thus enhancing local dynamics in order to create a complex industrial fabric equipped with a strong social capital and an entrepreneurial culture conducive to new venture creation.

A Swedish woman, after launching her own firm in a different field from her family firm, found that the networks she had developed for herself had to be readjusted considerably when she agreed to take over the family firm. Even so, her old networks had enabled her to demonstrate her abilities and support the activities of her

firm, allowing her to carve out a niche for herself as an individual, rather than simply as the daughter of the firm's former owner (Tidåsen, 2001).

In the small regions, networks are ultimately as important if not more important than the volume of resources in a firm, especially if they extend beyond industrial sector boundaries. A fabric of networks can take many different forms, and will restructure itself continually to overlap in different ways – hence the difficulty for researchers to understand them, illustrate their structure and measure their impact (Johannisson, 1996).

A system of innovation networks can only be created from an entanglement of institutional contacts, including education upstream, firms downstream, and a set of economic activities able to support an entrepreneurial mindset and foster an open business culture. For example, the educational institutions train people to support potential innovations in their field of study. However, proximity between financial institutions, firms and other knowledge-generating and labour-generating institutions can vary. The greater the proximity,⁴ then the faster innovative projects can be assessed, since their promoters are well known and their networks are able to support them regardless of any obstacles that may arise. Where proximity is less present, the assessment criteria tend to be financial in nature – in other words, more conservative and less conducive to new ventures and change (see Figure 5.2). This applies also to other resources; proximity can allow for labour to be shared seasonally (Hitt and Reed, 2000) or for infrastructures to be shared in business incubators or technology parks.

All localities that are large enough can usually count on a minimum level of fairly dynamic networks to provide firms with basic resources (qualified labour, new or used equipment, maintenance services, and so on) and services (transportation, finance, distribution) or offer public institutional support programmes (for example, advice from experts or certain forms of partnership). These networks are completed by intermediary groups (chambers of commerce, social clubs, employers' associations, and so on) that bring entrepreneurs together and facilitate the exchange of information. Bhéner and Désaulniers (1998) showed that not only can the areas rely on large numbers of intermediary groups to offer services and connect businesspeople, but also the ratio between the number of networks, the number of local inhabitants and the level of development remains fairly constant, even with the varying needs of different industries' and firms' life cycles. Clearly, however, levels of dynamism vary significantly. For example, while France's chambers of commerce play a major role in regional development by controlling river ports and by supporting business conciliation by

industrial tribunals, in North America their role is often mainly social and involves pressuring local authorities and providing entrepreneurs with an information exchange forum.

Even so, the number of networks is not a reflection of their dynamism or of their ability to connect to other national and international networks, nor even of the wealth and pertinence of the information they provide. A dynamic locality needs proactive networks that are capable of developing and mixing new information and at the same time of supporting the diffusion of new technologies and innovation (Lawson and Lorenz, 1999). These networks can even facilitate alliances or the creation of dense networks. Some of them need to be connected to weak signal networks if the area is to be able to attract high-technology firms (Keeble and Wilkinson, 1999).

Proactive networking depends first and foremost on a handful of pioneers or local catalysts,⁵ including social or community entrepreneurship (Johnstone and Lionais, 2004). These pioneers create rich local networks, informal at first and becoming better structured over time, and invite other dynamic entrepreneurs to join. These early networks may well continue to be limited in scope if the agents of change are not representative or are considered isolated cases unable to attract others. Rogers (1995: 272–4) sets out some of the characteristics of pioneers. For example, they demonstrate empathy (able to place themselves in someone else's shoes), are not dogmatic, are able to understand abstraction, are curious about the changes triggered by scientific development, are not fatalist, are able to manage uncertainty and have strong aspirations. Other features can be added to the list – for example, they are highly sociable, comfortable in interpersonal communications, are well connected to sources of new information and have a cosmopolitan vision. These characteristics are, of course, questionable, just like those proposed by the proponents of the theory of traits for entrepreneurs. They may be significant or not, they may be compensated by other characteristics, and they may change to reflect circumstances and needs.

In addition to pioneers, the networks must also attract leaders capable of being champions of change. They have generally a very open-minded approach to new issues. They are known for their experience, often acquired in major public or private institutions that are well known in the region. They are altruistic and want their messages to be disinterested, or at least to provide as much rich information as they are themselves able to derive from their contacts. Finally, they are able to bring people into contact with new sources of complementary information (Sparrowe and Liden, 1997). These leaders may be among the first to adopt a given change and disseminate it in the region, or at least to promote the change if it does not apply to their own specific field. The more of these people there are in dynamic networks,

and the greater their acceptance by their peers, the more they will be able to foster change and the more dynamic the region will become.

Some of Québec's best-known leaders include those responsible for what is commonly referred to as the *Beauce Miracle* of the 1950s to 1970s – the people who helped convert the Beauce region's economy, based almost exclusively on farming and forestry, into an industrial economy supported by hundreds of small firms, mostly in the steel and plastics sectors. In the early days there were the Lacroix, Dionne and Dutil families, all local to the region, who gradually launched new manufacturing firms. When they became thriving, they continued to be committed not only to social initiatives (a predictable outcome), but also to other entrepreneurs, young and old alike, whom they supported through advice and funding, thus fostering the growth of enterprise within the region.

The same can be said of many other regions, including Oxford, in England. Lawton Smith et al. (2005) showed that here, scientific and business leaders such as Wood, Hirsh, Bradstock, Cary, and so on had played a major role in speeding up high-technology development. Clearly, this does not diminish the importance of other researchers and entrepreneurs. Such leaders have also been triggers in the development of technology parks in the Grenoble region, in Sofia-Antipolis near Nice, and elsewhere, although it is true that they would never have had such an impact if they had not been preceded, supported or followed by a very large number of other, less well-known players.

The industrial fabric created by networking will ultimately generate different types of social capital, starting with angel capital for start-up, and then risk capital, often for technology firms. However, it must also support a certain psychological capital, including the interest of the various parties for change and innovation, and hence an entrepreneurial culture of change. Networking can, however, be limited to relatively weak structures if information sharing is not sufficiently developed.

If the industrial fabric is to be able to support new ideas and innovations, the networks must fulfil certain conditions, including the following:

1. They must be able to generate new ideas by adapting them to the needs of the firms and their innovative capacities, regardless of whether they are precursors or late majority innovators.

2. They must be compatible with the values and operating standards of their present and future members, and must be innovative in helping these values to develop.
3. They must be easy to use for members wishing to take part, share and learn – in other words, the networks must be user-friendly or at the very least adjusted to the level of education of the members, who must also be able to find a certain level of relaxation.
4. They must be connected securely to other networks outside the locality, and to weak signal networks, in order to increase the wealth and variety of information available and help member entrepreneurs to join more complex networks.

9.3 THE NETWORKING MECHANISM

Networking to create a richer local fabric develops in six phases: (1) percolation of rich information; (2) ripple effect from opinion leaders; (3) multiplication of networks; (4) complexifying of networks; (5) network contribution to the number of gazelles; and (6) assessment of the remaining fabric by regional development officers.

9.3.1 Percolation of Rich Information

The percolation mechanism discussed in Chapter 7 is a metaphor used to explain the initial impact of networking, namely, to multiply the number of new information sources and filter and enrich the resulting information while adapting it to the needs of firms and helping the firms to share it in order to generate change through intercommunication. The metaphor refers to the coffee percolation process, which extracts the full flavour of the beans but eliminates any bitterness. If we apply this notion to raw information, which is often difficult to digest, we see that information is often rejected because it is not adjusted to the needs of the recipient, but also because of the recipient's lack of attention, time, capacity and interest. It must therefore be examined from different standpoints, partially repeated, and adjusted to the receptive capacity of firms through the provision of additional elements, namely trust between the giver and the receiver of information, and keys to remove any ambiguity.

9.3.2 Ripple Effect from Opinion Leaders

The ripple effect occurs when a handful of opinion leaders whose influence is acknowledged by network members help the network to accept the

information, for example through imitation, and then through action and change. Network efficiency therefore depends on the quality of its members and on the new information it receives, and – primarily – on the presence of a small number of entrepreneurs who are acknowledged leaders and can encourage others to imitate their dynamic approach. Every energetic network needs members who are able to act as agents of change with a core position in the network, at the junction of several links; without them, the other members would be reactive or passive. A network or a milieu can be either a trigger or a brake to innovation, and must therefore be able to count on the presence of acknowledged opinion leaders to overcome conservatism and foster change.

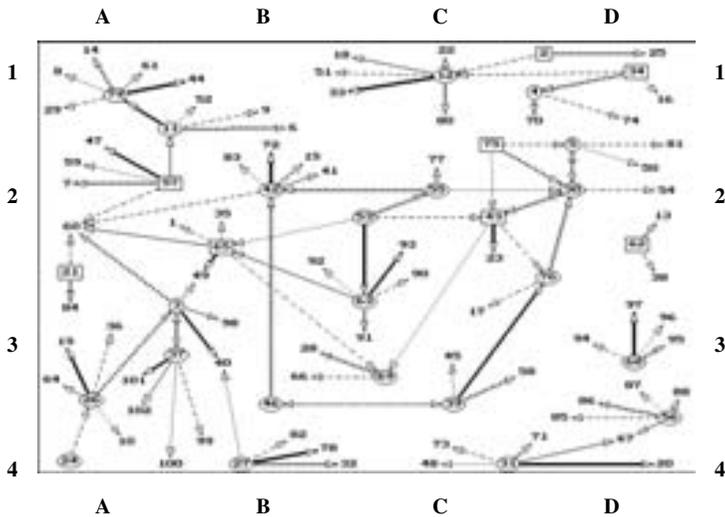
At the territorial level, these agents of change must also be in key networks, otherwise their impact will be limited.

9.3.3 Multiplication of Networks

Just as all firms and all entrepreneurs are connected to several different networks, every territory can count on a number of interrelated or overlapping networks, with some extended to the national and even the international level. Entrepreneurs must always be able to move beyond their territories, for example to see what is done in other countries; this is essential not only for their sector, but also for their strategy and information development.

In the Bombardier network, some firms that are not members of the Chair nevertheless hold key positions to stimulate change between sub-networks. For example, in the figure, firm 60 (quadrant A2), a major order-giver, is connected to the global network through firms 57 (A2), 42 (B2), 65 (B2), 3 (A3) and 21 (A3), which are themselves connected to numerous other firms.

The central firms – central because they systematically exchange products and information with several other firms – include firm 30 (D2). They form three-part cliques or clans, composed in the case of firm 30 of firms 5 (D2) and 75 (C2); 75 (C2) and 43 (C2); and 43 (C2) and 76 (D3). In the Bombardier network and elsewhere, examples of leader influence include professional exporters that have encouraged other firms to begin exporting (Julien and Morin, 1996). Their successes and methods serve as examples for other, more reactive firms. Here again, we see the notion of model, which is relevant to experienced entrepreneurs as well as young start-up entrepreneurs.



Key: Numbers in circles indicate firms that have been members of the Chair for several years; numbers in square boxes indicate recent members; and unframed numbers indicate firms that are not members of the Chair. The intensity of a connection is indicated by the thickness of the line, with the bold unbroken line representing the strongest connection. The outside numbers and letters are there to help the reader to identify the quadrants more easily.

Source: Julien and Lachance (1999).

Sub-network of subcontracting firms that are members of the Bombardier Chair

The figure also reveals a number of sub-networks connected to the global network only by one large pivotal firm (not shown in the figure). An example would be the sub-networks grouped around firm 12 (C1 and D1), the two smaller networks 31 and 56 (C4 and D4) connected through firm 67 (D4), and lastly firm 68 (D3) firm 62 (D2). Here, the Chair member firms are intelligence subcontractors, and many of their main partners are major order-givers, often located outside Québec.

Even firms located in technology parks are connected to several outside networks because the technology park alone cannot provide all the answers they need (Storey and Strange, 1990; Westhead and Batstone, 1999). These networks are usually local for basic resources such as labour, some financing and professional support (for example, accountants).

Networks therefore differ in size, according to need. They depend on the habits, trust and reputation of their members. To avoid collapse, they develop and change in line with the trust, habits and needs of their members.

The remaining structure differs by region. For example, Putnam (1995) explains that trust-based relations appear to be responsible for democratic differences between Northern and Southern Italy. The relations maintained by Italians from the North appear to be more horizontal, based on voluntary (for example, sports and cultural) associations of all kinds. These relations foster proximity and the development of networks able to support democracy. In contrast, the relations maintained by Italians from the South appear to be more vertical in nature, from local to proximal regional to broader regional (Sicily or Mezzogiorno), which limits contacts between ordinary citizens and heightens the power of authority, both political and criminal.

We studied particularly two networks that exist in the Central region of Québec (Canada), each linked to the restaurant used frequently by members. The first, which we refer to as the Young Wolf Network, is composed of young entrepreneurs mostly from the technology-related fields, who meet at a restaurant called the Sports Cage, which has extravagant sports-related decorations and spicy, Mexican-inspired food. The second is composed of more traditional, older entrepreneurs who meet at a restaurant called The Dolphin, which offers upscale traditional cuisine. Clearly, there are also many other networks that many times overlap.

9.3.4 Complexifying of Networks

Networks must also become more complex over time; otherwise, they may be unable to contribute new ideas if key sectors of their economy are affected by slowdowns. This has happened numerous times in Italy's industrial districts. It is also rare for dynamism to be constant; even Silicon Valley has experienced a significant slowdown since the technology stock market bubble burst in late 2000. If networks are to be able to offer new ideas, they must be complex in terms of the range of resources they contain and their connections with weak-signal networks at the national and international level. Weak signals must be renewed or extended; otherwise they become

bogged down in routine, thus preventing inventiveness. To benefit fully from the percolation process, networks must shift directly or indirectly from local networking to international networking, connecting not only with research centres (despite the potential problems of reconciling entrepreneurs' needs with researchers' methods), but also with networks in other fields, including the social and cultural networks that help businesspeople to relax and feel at home in the region (Coleman, 1990). For example, young workers will be more inclined to remain in their regions, rather than moving to the city, if they have access to social and cultural networks that showcase the 'wealth of the world'; the availability of jobs, alone, is not enough to make them want to stay (Leclerc and Béland, 2003). In addition, young entrepreneurs enjoy meeting challenges within a stimulating environment that allows them to use their ability to live in society – in other words, an entrepreneurial milieu with well-developed social and cultural aspects.

Florida (2001) points out the importance of multifunctional contacts, such as those between business networks and other types of social or cultural networks. He highlights the link between a dynamic culture that offers various kinds of activities such as theatre, movies, festivals and so on, and a high-growth region, where the culture allows innovation to be absorbed and integrated. He proposes a *Bohemian Index* to measure the interdependency of economic dynamism and the development of arts and leisure activities within society. This index has been criticized because it is very difficult to measure such a thing as the quality of an informational network, which is personal and temporal by nature. But art is by definition an index of subtlety and then a level of complexity, information and the capacity of the locality to supply resources and competencies that will sustain the distinction of firms and the area itself in the knowledge economy. Johannisson (2003), for his part, describes some cultural networks as *attractors* that enable their members to develop richer contacts and to complete them with business exchanges. Innovation is a function of dreaming and opposing ideas, for example through contact with different people, including immigrants, who emit weak signals that trigger new ideas.

9.3.5 Network Contribution to the Number of Gazelles

Networks must also help increase the number of proactive firms, especially gazelles. Figure 9.2 although greatly simplified, is a two-dimensional

diagram that shows how dynamic networking can facilitate the development of this type of firm. The first curve represents the various business opportunities available, and the second represents the resources required, including information resources to assess cost-benefit.

The first curve clearly shows that it is usually profitable to be the first to seize a new opportunity on the market or to innovate. However, profits decline as other entrepreneurs take up the same opportunity and copy the response, since competition places downward pressure on prices. The curve therefore descends from left to right. On the other hand, new opportunities are uncertain, since there is no guarantee that they actually respond to a market need or that elements can be added to respond to a need. To reduce uncertainty, entrepreneurs need access to supplementary resources in order to assess the benefits and costs of the various opportunities available, or to ensure that the innovation makes it to the marketplace. Thus, although the first firm to sell a given product can make a significant profit, the risk of making a mistake is high. To limit this risk, the firm needs information and additional resources, both of which are costly. The second curve therefore starts by rising from left to right, then declines over time, as the trials and errors of imitators and forerunners provide information. However, the very fact of imitation creates competition, which places pressure on resources and pushes costs upwards, thus preventing the curve from descending completely.

These two curves reveal three major types of firms or entrepreneurs, shown on the bottom axis. The first, on the right, are imitators or

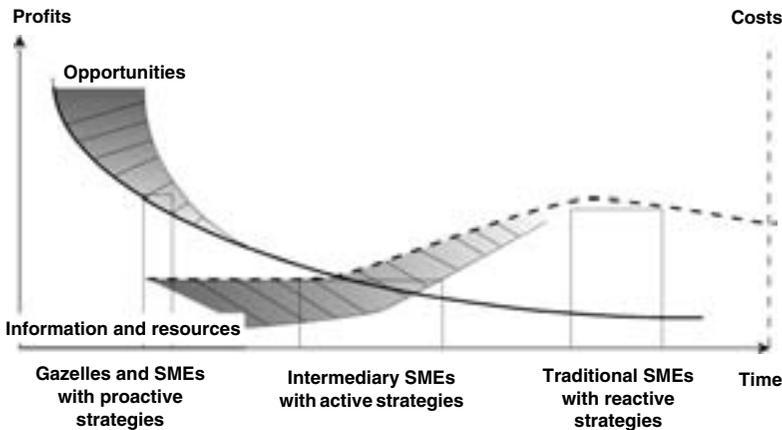


Figure 9.2 *The impact of networking on profits and the cost of an opportunity or innovation, and on the share of proactive or high-growth firms within a territory*

reproduction entrepreneurs, or firms with reactive strategies that prefer sustainability and independence to growth (SIG).⁶ They would rather let other firms be the first to innovate or seize an opportunity, and also the first to make mistakes or try several times before succeeding. The second, in the middle, are development or improvement firms or entrepreneurs, those whose strategies are more active and who are prepared to follow on the heels of the forerunners as soon as they are successful. They do not seize opportunities at once, but wait to have enough information first. The last, on the left, are the so-called adventurers, firms with proactive strategies that are the most likely to grow quickly by seizing opportunities as they arise and by innovating on a regular basis. This type includes the gazelles, which develop by seizing challenges quickly.

As we saw in Chapters 3 and 4, a territory will normally have less than 10 per cent of proactive firms, around 20 per cent of active firms and nearly 70 per cent of reactive firms (or *defensive* firms, to use the typology developed by Miles and Snow (1982); Daily and Dollinger, 1992). Clearly, the proactive firms run the largest risk, since they often act intuitively, with little or no information. In many respects they wager on the future, hoping to win at least two times out of three, with the second win compensating for the loss. They prefer a spirit of adventure to prudence and analysis. The second type, the active firms, try to seize opportunities early enough to profit from them, but they also allow enough time to gather information that will enable them to avoid mistakes and reduce their risk. The third type, the firms with reactive strategies, try to win every time, by refraining from adopting an innovation until it has proved its worth, even if they make less profit than the other types of firms. As we said earlier, it is the fact of having a lot of proactive firms – gazelles – that best explains regional dynamism. But how can local networking (and social capital) foster the development of these firms?

The answer may lie in the wide shadow space between the two curves at the starting point, which gradually diminishes as the curves travel to the right. The opportunity curve starts at a higher point because of networking, and especially weak-signal networking, which provides large volumes of information on new opportunities for innovative firms on the lookout. However, these same networks also provide information at less cost on the best ways of seizing those opportunities and adjusting innovations to the market, by providing various resources at low cost through the available social capital. It is this that is indicated by the shaded space.

Networking therefore has the primary effect of helping proactive firms to take more chances (or risks) with the market. By providing them with generous numbers of ideas and amounts of information and resources, it allows firms to succeed three times out of four, or even four times out of

five. With the help of the milieu, networking encourages firms to go faster and to become gazelles. This support, in the shape of more ideas and more information on how to apply them, also pushes active firms towards the left-hand side of Figure 9.2, thus increasing the number of gazelles. As a result, some regions have between 15 per cent and 20 per cent of gazelles, a percentage that transforms the entire regional dynamic. Networks allow for the creation of what Bruyat (2001) referred to as *hot configurations* that encourage entrepreneurs and other regional players to create firms and innovate.

The five networking phases described above can, of course, overlap or occur in a different order, depending on the region and the timing. They are summarized in Table 9.1.

With good networking, a locality will develop a strategic environment that fosters exchanges, stimulates innovation and enhances its own competitive capacity and that of its firms. Supported by rich networks, all these interactions create a spiral movement similar to that seen in some of Italy's industrial districts (Paniccia, 2002) or in certain depleted communities (Johnstone and Lionais, 2004). With their resources and ideas, dynamic environments become essential not only to stimulate entrepreneurs but also to increase their numbers. The result is a form of collective entrepreneurship within which the very fact of sharing information through networks encourages broader dissemination of both information and resources, which in turn fuels the enthusiasm of the environment. This was the case, for example, in the nineteenth century in the British Potteries region (Allen, 1983), which encouraged market modernization and development. It was also the case of the German chemical sector, especially the synthetic dye industry, which was able to develop to the point of controlling as much as 85 per cent of world production in the early 1900s only because its firms were well-connected to the university research centres, which in turn were supported by the German state, as well as to a large number of other supplementary actors. This is called coevolution (Murmman, 2000).

Such a situation is described in *The Name of the Rose* by Umberto Eco (1980), where the spirit of morbid curiosity, shared in whispers in the corridors, causes the monks to research the poisoned book (in both senses of the world, because the director of the great library had poisoned the pages). De Baskerville, after careful consideration, eventually understood that individual behaviours could not be explained without a broader analysis of coevolution and of the unorganized or informal contagion process in the monastery.

In short, dynamic networking supports the creation of 'virtuous circles' that foster local dynamism by using collective resources and territorial experience as a source of rich information, which is then transformed into

Table 9.1 Phases in dynamic territorial networking

Phases of regional networking	Purpose	Conditions	Short-term impacts	Long-term impacts
Percolation	Filter, sort and adapt new information	The capacity of the networks to circulate rich information	Enrich effective information for entrepreneurs	Stimulate technological change
Ripple effect	Impacts of mimicry	Quality and dynamism of members	Do what the others are doing by modernizing	Speed up gradual innovation
Multiplication	Adjust networks to suit different needs	Quality of information bridges within firms	Open entrepreneurs' minds to cooperation	Speed up collective learning
Complexifying	Increase the number of weak signal networks in the region with non-traditional information	Development of trust in sources such as research centres and universities	Criticize stock answers and satisfy traditional markets	Foster more radical innovation and increase the number of opportunities
Growth in number of proactive firms (gazelles, medium-sized firms, etc.)	Increase the number of dynamic firm models	Develop contacts outside the region, especially international contacts	Increase the number of qualified jobs	Complexify proactive services and lastly subsidiaries

new firms and jobs, creating the entrepreneurship contagion which we discuss in the next chapter.

NOTES

1. 'Intelligence' in both senses of the term – namely, obtaining information even via industrial espionage, and allowing for better access to and better assimilation of information.
2. It is interesting to note that the Latin translation of flavour is 'sabor' which has the same origin as 'saber' or knowledge, because people in the seventeenth century who were seen as able to smell complex flavours were considered to be 'learned'.
3. In his book entitled *Social Control of Business*.
4. Cognitive, organizational, sociocultural, institutional or geographic, as discussed in Chapter 5.
5. Repeating the image of the information catalysts found in firms, as discussed in Chapter 6.
6. See Chapter 3, section 3.3.

10. Entrepreneurial contagion and knowledge acquisition

Will you have it that in an army of a *hundred thousand* men there may not be a single coward? Do you think that the discouragement of such a one may not produce discouragement in another? That the second influencing a third, would soon make him produce a like effect upon a fourth? No more would be necessary to cause a whole army to be suddenly seized with despair, and the larger the army, the more sudden the seizure.

(Montesquieu, 143rd *Persian Letter*)

Local decline can be caused by business closures or the departure of a key firm, but is due primarily, as Montesquieu points out, to an attitude of dependency, affecting business leaders first but spreading to the locality as a whole. Similarly, if we look at the issue from the opposite side, dynamism depends first and foremost on the willingness of a small group, and then on the synergy developed with other players as they learn to overcome obstacles and deal better with uncertainty. These people end up forming networks to speed up their collective learning, obtain rich information on which to base innovation, and facilitate access to the resources they need to take action. Innovation allows not only firms but also the area as a whole to stand out, facilitating production for different markets, and hence job creation. There is then a shift from pessimism or resignation to collective optimism or *the world of imagination* (see Montesquieu's words at the end of Chapter 11), and finally to coevolution and action. The path taken by this shift is spiral and includes some failures or backward returns, but mostly a series of cumulative successes. It is illustrated in Figure 10.1.

Collective learning and the gathering of rich information through networking will ultimately create an atmosphere conducive to business, allowing those concerned to move beyond uncertainty and ambiguity while generating social capital and an entrepreneurial culture, both of which reinvest in the industrial atmosphere, making a difference between a defeatist attitude and expectation or action. A lively entrepreneurial culture is therefore a sufficient condition for stimulating venture creation beyond the level that potential entrepreneurs may have expected, and for supporting change within the territory's key firms, fostering their competitive capacity, transforming support firms and generating innovation in imitator firms.

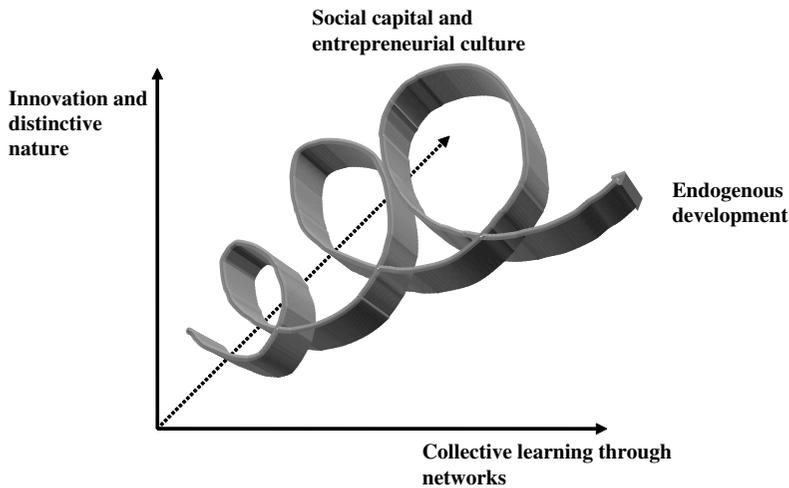


Figure 10.1 *How learning through networks, the availability of social capital and innovation combine to help dynamize a locality*

Innovation explains how small firms and ultimately the area as a whole are able to integrate the knowledge economy. Social capital, entrepreneurial culture and innovation are therefore of capital importance in reinforcing the distinctive nature of firms and localities and allowing them to develop.

A dynamic milieu and social capital form the basis of local embedding, and hence of transactions affecting low-cost or easily accessible resources and information. They also multiply facilities for business start-up and development, and provide business models, potential information, trust, trustworthiness, and reputation, in particular for financing and innovation support – in other words, real and virtual assets that give the locality its distinctive nature (Storper, 1996).

Figure 10.2 illustrates the relationship between the milieu and local embedding. In this relationship, social capital provides facilities to create and to develop small business and the mechanism of networks disseminates them and stimulates learning for actors, in accordance with the capacity of each enterprise to take advantage of the networks, to innovate and to help to enrich and develop the networks in turn, as illustrated with the reversed arrow.

It may be useful to look at an example that is the opposite of embedding – such as the arrival of great commercial chains or large department stores in a given locality. They create direct and indirect jobs, it is true, but they also generate lay-offs and even closures among their smaller competitors in the city's main streets, and it is difficult to judge whether their overall impact is

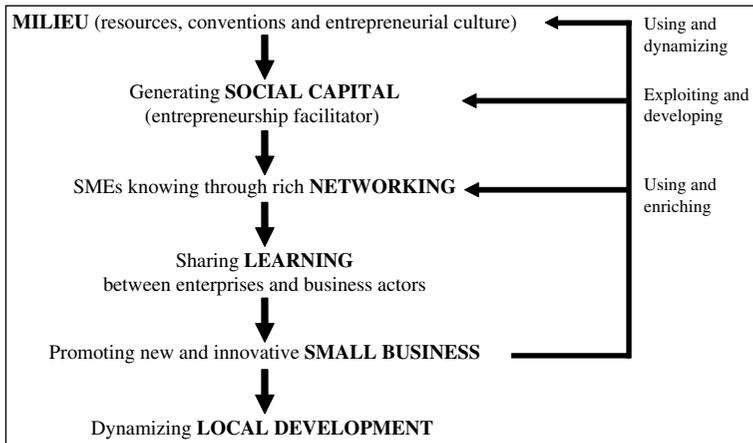


Figure 10.2 Relations between the milieu, the social capital, the networks and its capacity to increase learning, entrepreneurship and local development

positive or negative. All too often, however, they buy little or nothing from the locality, perhaps because its firms are not competitive, but more probably because they are unaware of the products available and the ability of the locality's firms to adjust to their broader needs. Their buyers, required or encouraged by a head office that knows nothing of the locality, usually opt for national or even international products and services.¹ Similarly, although their managers may join regional social clubs, they are less likely to support other social activities, through lack of flexibility, lack of awareness or lack of interest. As a result, a large part of the locality's industrial fabric declines, hindering territorial development rather than supporting it. In contrast, exchanges between local entrepreneurs actually support the territorial fabric, and are able to foster the development of the local economy, provided, of course, that they become competitive quickly. This manner of thinking is well understood and applied, for example, by the *formula-restaurant ban* movement, launched by the small Californian city of Carmel by the Sea in the middle of the 1980s, which limits the construction of any commercial chain which alters the local life.²

Large chains and shopping malls enhance competition and extend the variety of products available to consumers. In any case, they are an integral part of the shift to globalization, and follow the example of international trade. However, a high level of dependency on outside resources usually ends up having negative impacts, in that it limits local entrepreneurship to such an extent that some people may be tempted to apply the theory proposed by

List, a nineteenth-century German economist who was in favour of temporary protection to develop a minimum level of local trade. More often than not, it is not in the long-term interests of local authorities to offer important direct and indirect support for the construction of shopping malls.

However, a large volume of local trade does not explain how start-up or rapid development occurs. In this chapter, we begin by describing the mechanisms and stages in the business multiplication process, until a critical mass is created and is able to trigger regional development through what we will refer to as entrepreneurial contagion. We then examine the role of government in regional start-up and growth, before moving on to the goal of creating innovative, 'learning' regions and firms within a knowledge-based economy. Finally, we summarize our findings with a discussion of the mechanisms of endogenous entrepreneurship and its various stages from stagnation or dependency to local responsibility for development and dynamism.

10.1 THE STAGES OF ENTREPRENEURIAL CONTAGION

A local economic start-up or recovery is usually derived from the work of a handful of development (improver or adventurer) entrepreneurs who initiate new production, often in the moderate to high knowledge-based manufacturing sector. These entrepreneurs need to be acknowledged, or need to be able to impact the opinions of businesspeople, the chamber of commerce or other economic development organizations. They must also be able to rely on a minimum level of initial social capital, including some good employees who share their enthusiasm, as well as means of transportation and distribution for their new products and maintenance services for their equipment. They may also need some government start-up assistance to ensure the success of their ventures.

These early experiences, by attracting attention in the locality, can help change mindsets, generate a certain amount of optimism and serve as models for other potential entrepreneurs – 'if he can do it, so can we'. They lay the foundations of local confidence, as well as the social and cultural support systems required to spread optimism throughout the community and encourage businesspeople to embed themselves in the region. Ultimately, they will help develop new resources such as institutions to stimulate innovation.

This stage is consolidated as existing networks become more complex and new networks with outside links (including some weak signal networks) are developed to receive new ideas, information on national and global competitors, and more complex resources. When the networks are able to

generate strong interest in modern management techniques and advanced production systems, such as cellular systems and mix model production if necessary, they will become true motors of change.

Networking should facilitate the emergence of early followers, influenced by the behaviours of the initiators. This leads to an acceleration of the process through person-to-person contact, producing entrepreneurial *contagion* in different sectors of the economy, gradually creating the critical mass of firms needed to alter the industrial fabric (Uzzi, 1996). At this stage, service firms begin to develop, in the shape of subsidiaries of city-based firms or new local firms, facilitating distribution (transportation, warehousing, wholesale trade, consultation, and so on) and modernization of the area's firms, as well as decentralization and the introduction of techniques such as kaizen.

Researchers do not agree on the subject of contagion. Should it foster diversification or help achieve concentration in one or more industrial sectors? Diversification can help counter fluctuations in sectors where economic or structural slumps may affect the entire locality's dynamic. Concentration, on the other hand, quickly creates a critical mass to attract the specialist services such as consultants, that are required by firms to develop. In the end, the question is a false one, in that it oversimplifies the notion of sector. Only in rare cases will a significant percentage of a region's businesses work in the same sector and the same market. For example, the Italian industrial districts and the Swiss Jura region, both specialized in certain specific sectors, nevertheless have large numbers of firms working in other sectors and tens of thousands of different trades (Maillat et al., 1993). The main thing is the development of additional activities to generate complex layers, possibly with one significant sector supporting more specialized services but also able to work with firms from other sectors. There must also be a critical mass of manufacturing firms and motor services to support the development of rich information networks that will, in turn, help dynamize the social capital and improve local synergy (Best, 1990).

Social capital helps speed up the creation of new firms not only because material resources are more easily available and less expensive, but also because the good reputation earned by the locality's entrepreneurs stimulates trade, cooperation and transactions by providing a backdrop of trust or confidence. It also plays a major role in helping to change mindsets, conformist attitudes and other admitted or inherent hesitations concerning change. Social capital, by acting on standards and conventions, can help limit opportunist behaviours (Knack and Keefer, 1997), such as speculation on sites being considered by firms or limitations on the introduction of motor services even where the area is properly managed.

As Giddens (1984) showed, obstacles often emerge from the desire of certain traditional elites, including some businesspeople, to preserve their power, whether legally or not, through conservative conventions (or closed or limited control industrial structures), or by limiting the number of competitors, including those in capacity subcontracting systems.³ However, these obstacles tend to grow in scope when the local industrial fabric finds it hard either to convert information so as to deal with uncertainty and ambiguity, or to provide resources and social capital.

Many large North American cities unfortunately provide some striking examples of closed industrial structures, with their gated, overprotected neighbourhoods, some of which go so far as to demand standardized house decorations – for example, the same types and colours of curtains in the windows. This is bound to end up hindering imagination and innovation, and limiting the mindset of the future entrepreneurs and managers who live there. Neighbourhoods such as these are not so far removed from the ‘company villages’ that existed in the early twentieth century, for the precise purpose of blocking any initiatives that might be detrimental to the firm’s interests.⁴

A dynamic social capital speeds up the training of resources, especially human resources, and the sharing of new ideas. It also ends up attracting outside entrepreneurs who want to take advantage of these complex resources, available at a lower cost than in the large city, and stimulating cooperative initiatives between local firms. In this way, social capital increases the number of opportunities and the volume of innovation in the area (Burt, 1987). Social capital and networks, by increasing the quality and variety of information, mainly tacit information, thus allowing for the generation of new ideas and resources of all kinds, and by reducing reticence, actually facilitate the conversion of firms into gazelles. The contacts generated by social capital and networks increase the number of entrepreneurs able to take action by helping them to be different or distinctive. They also speed up intercommunication, including pre-action, and in doing so they create movement. At the same time, they help new products to penetrate the market in an ‘S’ curve (see the second curve in Figure 8.2). The locality is thus gradually transformed through the growing numbers of gazelles that export not only outside the territory but often internationally too.

Finally, jobs and community enthusiasm help keep a locality’s resources, especially its youth, in the area by creating a social and cultural environment

such that they have no desire to move to the city. This accentuates the virtuous spiral of development and stimulates the creation of proactive firms and service firms serving as economic motors, as they help one another to develop, thus consolidating the industrial fabric.

10.2 THE COMPLEMENTARY ROLE OF THE GOVERNMENT

The government plays a very important role in entrepreneurial contagion, through its local or regional satellites, which are more in tune with local needs, and through its central office, for more structural operations such as the development of labour training institutions and the introduction of effective infrastructures. The state's role can be summarized as five verbs, namely, targeting, connecting, supporting, stimulating and facilitating.

10.2.1 Targeting

The state's primary role is first to recognize (through detailed studies of the local industrial structure⁵) and then to target entrepreneurs, their firms and the other agents of change with whom they work and who can help both the locality and its production to stand out from the competition. Politically, it is often more difficult, because there may be many different demands. As we have said, we cannot, a priori, sort entrepreneurs into categories based on their general characteristics or traits; this is because it is not the entrepreneur or the firm alone that is of interest, but parts of the industrial fabric and its dynamism too. The choice must therefore be directed towards entrepreneurs in dynamic manufacturing and advanced service sectors. The quality of their projects and training, and the entrepreneurs' experience and contacts with outside networks, are all good factors for selecting the firms to be supported, either directly or indirectly.

Johannisson (2003), however, points out that it is difficult to establish all the criteria in advance, so some improvisation may be required. Indeed, if the rules are too strict, a support programme may be forced to reject a project with good potential because it is not in compliance, and to support others that are less promising but fall within the rules. It is here that the quality of individual civil servants comes into play; like 'champions' in firms, civil servants should be able to defend projects they believe have promise, for example by involving other actors in the evaluation.⁶

In the deep recession of the early 1990s, the Québec Order of Engineers launched a campaign aimed at small firms, encouraging them to hire newly graduated engineers who were finding it harder and harder to get jobs. However, the campaign did not achieve the anticipated results, and we were asked to help the Order to adjust its aim. To be targeted for the campaign, firms had (1) to have at least 40 employees, in other words, a certain level of infrastructure so that they could make effective use of an engineer's services; (2) to produce complex (engineered) goods, or at least goods with significant added value, illustrating their systematic product innovation capacities; and (3) export outside their region. Information on all these elements was easily available from the Department of Industry and Commerce databank. Subsequently, the campaign's managers began to pay more attention to recent or ongoing changes in the firms; if the changes were significant, it would be easier to convince the entrepreneur that an engineer could in fact be useful to the firm. With these various criteria as its basis, the campaign's success rate increased from 10 per cent to more than 30 per cent.

10.2.2 Connecting

The second role is to help develop rich and complex networks, beyond traditional networks, and to forge better connections between entrepreneurs and these rich networks. One way of doing this is to provide or help the firms to obtain technical and scientific resources, in the shape of information platforms or advanced information relay devices to foster exchanges of technological information (Hjalmarsson and Johansson, 2003). Some examples of this include the Technological Research and Innovation Networks in France, the Fraunhofer Institutes in Germany, the Kohsetsuchi Centres⁷ in Japan, the Business Links in Great Britain, the ALMI in Sweden, the College Technology Transfer Centres in Québec and some of the services provided by the American Small Business Administration.⁸ Another way is to support the creation of business incubators or nurseries and technology parks, to foster spin-offs.

Generally speaking, information interface and brokerage agencies should be able to connect people needing rich information with people producing it, such as the universities and colleges, which are some of the most important sources of new information and invention. These information agencies must become facilitators of the exchanges of advanced information to sustain innovation and distinction. In particular, the information

brokers must help to reduce the obstacles between the two worlds, with their differing visions, objectives and behaviours (Julien, 1993a; Shane, 2003).⁹ In the localities, this brokerage task can be performed partially by local leaders, and by civil servants and the permanent staff of entrepreneurship organizations, who maintain contacts with external advanced training and consulting firms and research and development centres (Bennett et al., 2000). It is important that the brokers are familiar with the behaviour of the informers and their language, as well as recognizing the complex and changing needs of entrepreneurs. They must be able to go beyond their own fields of interest or specialty fields to open new doors and connect entrepreneurs with informers able to meet their specific needs at the time, thus allowing them to go further and more quickly.¹⁰

This type of brokerage is absolutely necessary to high-tech industry enterprises, in order to sustain their development based on science. It is also easier because a significant part of the personnel comes from the university and has many contacts with former professors and staff from research centres. On the other hand, these industries are rarely responsible for more than 5 per cent to 10 per cent of employment, even if they are the motors of local development (Van Looy et al., 2003). More often, most enterprises in a locality will be in middle-high or middle-low technology, if not low technology industries, which also require new information; and it is important to create junctions between advanced information and the needs of these firms, for example by creating dense networks composed of entrepreneurs, researchers and public servants, as has been done in Sweden's industrial furniture district (Johannisson, 2000).

One problem is that many localities are located at some distance from universities and colleges. Brokerage is therefore needed to connect dynamic entrepreneurs with specialist informers wherever they are located, so that they can gradually get to know one another and form even more effective networks.¹¹ To increase the volume of innovation, it may be useful to convert local civil servants or other local support workers into information brokers whose task is to bring entrepreneurs looking for specialized information into contact with researchers or specialists who have, or know someone who has, access to that information (Hutchinson et al., 1997).

To be truly effective, however, the brokers should not be left to their own devices because their contacts are necessarily limited. They should be able to consult an up-to-date databank listing current research and experiments within the region and the country. A proactive databank such as this should be updated regularly and be maintained by the national government, since the information it contains should not be limited to the region only. This databank can be completed with an ideas electronic exchange system.

10.2.3 Supporting

The third role is that of supporting the locality's most distinctive or proactive firms or groups of firms by providing supplementary assistance such as risk financing (in addition to angel financing in the area), technical staff such as designers or engineers, modern equipment and advanced consulting services. In other words, where both potential and uncertainty appear to be significant, state support is necessary to start up a new industry or create a critical production mass within a territory (Laperche and Uzunidis, 2003). In this case, however, entrepreneurs must bear their share of the risk and give priority to growth over their need for independence and sustainability. There is no point helping reactive or conservative firms, or new imitator entrepreneurs, except perhaps in a period of intense recession when employment support, as recommended by Keynesian policies, may be vital in halting or attempting to reverse the trend. On the contrary, support should be aimed at firms that restructure or change the locality's manufacturing industrial fabric, or at technology parks, through financing for research resources and activities. Support or consulting, however, require dialogue in order to adapt programmes, tools or advice to real needs (Lambrecht and Pirnay, 2005; Robson and Bennett, 2000). In the service sector, it should also be directed at agents of change that are able to trigger exchanges with other localities or even internationally.

10.2.4 Stimulating

The state also has a role to play in stimulating the industrial fabric by systematically encouraging general innovation throughout the value chain or business logistics, both internally and externally, by offering additional support and R&D development locations and by fostering contacts between the locations and the region's firms. Brokerage between firms and research and development locations, if necessary by creating local subsidiaries of off-region research centres, is a good way of stimulating innovation. Similarly, allowing young entrepreneurs to visit modern firms or take part in industrial fairs piloted by local authorities can also foster new ideas and methods, and even the development of potential markets outside the area, through the effects of the mentoring system. Although stimulation support should be aimed first and foremost at manufacturing firms and economically important service sector firms, it can gradually be extended to other firms – for example, to allow small transportation companies to group together to improve their efficiency.

One example is the aid available to help to convert small *capacity* subcontractors with the high level of submissiveness to competition and

changing prices, into *specialty* subcontractors (involved in defining certain parts of the tender) and, finally, into *intelligence* subcontractors (involved in product development), hence reducing informational asymmetry and the ensuing weakness of many firms in the locality (Julien et al., 2003b).

Some limited aid could even be used to encourage high-quality restaurant firms, so that managerial and technical staff will feel more at home in the locality. In this latter case, the local state could support seasonal hotel and restaurant services and major cultural events, first by extending the concept of total quality to these services, and then by facilitating a supply of packages, thus fostering tourism. Initiatives such as this also help the locality's inhabitants to recognize their area's advantages and develop pride. Territorial optimism is generated by all kinds of activities and changes that ultimately lead to more extensive economic operations.

For example, the impacts of local annual festivals can extend far beyond the economic repercussions of tourist inflows, if they help create a sense of belonging and pride among local residents, thus fostering the sharing of local resources and local purchases, and even helping keep much needed workers in the area instead of migrating to the cities.

Once again, it is important to encourage opinion leaders and agents of change to take part in these innovative activities, by explaining the significant benefits of the change and even, if they are reluctant, pointing out that the change is inevitable. Once they are involved, it is equally important to reach the groups that are more likely to adopt the change, thus becoming models for others. At the same time, motivation must be maintained among other groups, so that they are able to embark quickly. Finally, once the movement is under way, the 'attitude' campaign needs to be decentralized by creating new networks to reach new business targets. The innovation stimulation operation can use the hierarchical structure of firms, or even order givers, as in the case of total quality practices.

10.2.5 Facilitating

The state must facilitate learning by actors, managers and employees, and must support the development of close links between innovators, in order to connect resources and skills and increase the number of ideas generated. The relationships between educational institutions and firms are especially important. For example, classroom visits by businesspeople to talk about

their experience is an effective way of implanting the idea of entrepreneurship as a career path. In return, contacts between entrepreneurs and teachers can help direct education so that it is more suited to the needs of the entrepreneurs, in addition to generating rich discussions that may trigger new ideas or methods.¹² Table 10.1 summarizes the five roles that the state should seek to fulfil in its interventions.

Firms in the plastic products sector were finding it very difficult to meet their labour needs. They therefore signed agreements with the region's high schools under which the schools would adjust their courses to meet the firms' needs. In return, the firms offered the schools machine time during slow periods, so that students could be trained on the most modern machines, thus reducing the adjustment time for new employees. The initiative was a success for both parties; today, most of the students in the programme know they will be hired when they graduate, and the firms are able to fill their labour needs so easily that other firms from outside the region have begun approaching them to meet their own needs.

In short, the local government should not only take part in the development of a dynamic industrial atmosphere that is open to change, but it must also support different resources and mobilize players to create an increasingly virtuous circle in a region that is able to learn and innovate.

10.3 TERRITORIES THAT INNOVATE AND LEARN

Many researchers have extended the notion of 'learning organization', originally developed for enterprises, to cover the localities. This follows on from the idea of knowledge economy and the resulting need to focus development on information and innovation (Florida, 1995; Maskell et al., 1996; Morgan, 1997). The authors explain that the dynamic links existing between an area's actors, with connections outside the territory via complex networks providing rich information, in fact constitute a very powerful group learning mechanism that stimulates entrepreneurial culture, enhances change, supports competitive capacity and improves the dynamics of the entire area. They point out that the embedding of firms and actors in the locality and, in many cases, systematic exchanges of information between members of the milieu, are the best ways of developing distinctive competencies in the territory

Table 10.1 The supplementary role of the state

Role of the state	Purpose	Condition	Additional actors	Impacts
Targeting	Starting or reinforcing high-potential channels	Obtaining complex information on the industrial structure	Experienced and proactive support workers in the locality	Increasing firms' chances of survival and development
Connecting	Dynamizing networks	Brokerage based on a complex bank of sources and an ideas electronic exchange system	Research centres, colleges and universities	Improving sharing of weak signals to support innovation
Supporting	Increasing sustainability and developing gazelles	Assistance must be multifunctional, complex and adjusted	Experienced support workers and other agents of change	Increasing exports
Stimulating	Compensating for significant deficiencies in the industrial fabric	Detailed knowledge of the fabric, beyond simple statistics	Network leaders and transfer centres	Making services more proactive
Facilitating	Improving collective learning capacities	Removing useless barriers	Support workers and champions	Enhancing the locality's distinctive nature

(immaterial comparative advantages) that enable it to face up to international competition.

Research suggests that a locality must meet at least the following seven conditions to become a learning territory:

1. Part of its industrial base must be composed of manufacturing firms and its products must require innovation leading to added value.
2. The locality must base its development on an educated workforce, trained in good schools, colleges and universities inside or outside the locality, and subsequently maintaining links with the educational and research community, among other things via continuous training.
3. The locality must have good infrastructure, both material (roads, railways, and so on) and immaterial (efficient Internet and extranet networks connecting suppliers, producers, customers, consultants, and so on), so to facilitate exchanges; it must also have access to numerous meeting places and leisure facilities, such as good cafés, restaurants, cultural institutions and sports facilities.
4. It must have relatively easy access to different sources of risk financing, including angel capital for new SMEs and other patient capital for larger investments.
5. It must have a set of open conventions and behavioural rules based on trust between companies and other private and public actors, in addition to the area's political rules of governance. These various conventions must promote decentralization, flexibility, a customer orientation, cooperative competition with suppliers and subcontractors, and above all excellence and exemplary practices, as well as a dynamic entrepreneurial culture within businesses.
6. It must be based on the presence of rich information networks connected to other weak signal networks outside the territory that increase the number of technical and technological exchanges and provide support for initiatives.
7. All this should foster ongoing learning and change at every level, among public leaders and business leaders as well as managers and employees. Learning is stimulated by information obtained from abroad through different connections, both direct (ongoing links via networking) and indirect (regular attendance of international fairs and links between R&D sources, such as local and foreign universities).

A learning region must systematically base its development on human knowledge and intelligence. It must achieve a balance between entrepreneurial mindset, quality resources, different skills and rich information. This should enable it to appropriate¹³ new knowledge and, where necessary,

take advantage of additional pools of information sources (potential information), to be able to face up to uncertainty and ambiguity and innovate constantly. As we said earlier, an innovation will be adopted all the more quickly if the communication channels talk about it and demonstrate its benefits (relative benefits, compatibility, limited complexity, the possibility of testing and observing), if the champions or agents of change are effective, and especially if the leaders, managers and employees of the firms concerned are educated and open to innovation. All this must be done in a flexible way, through different channels, allowing for oblique progression and even, where necessary, backtracking to get around obstacles (Lawson and Lorenz, 1999).

Clearly, in an innovative learning territory, triggers are required to speed up change, in the form of individuals or small groups of individuals who are able to grasp new ideas quickly, then adjust and adopt them. However, there is also a need for what Atlan (1979) referred to metaphorically (in the case of the social sciences) as pseudo-attractors¹⁴ – in other words, visible and attractive mechanisms to draw the attention of groups or individuals, causing them to accept the change. The pseudo-attractors will also foster change within businesses, leading to self-organization and self-development. They should help relations to be broken and re-made constantly, by forging loose contacts that encourage learning and allow the locality to change and adjust regularly to the global economy (Weick, 1976).

10.4 SURPASSING UNCERTAINTY AND AMBIGUITY

In short, endogenous territorial development depends first and foremost on the crucial role of the information (effective and potential) that is shared by complex networks, then on the training of human resources that are able to absorb and convert that information and, finally, on innovation and strategy to increase the distinction, not to mention the contacts or complicity required to support development. The information flow is maintained continually by the watch antenna set up by various players, in order to see or monitor market development, recognize technological and competitive change, and capture the weak signals that are conducive to systematic innovation.

The complications make up the dynamic milieu and generate the social capital required to stimulate new venture development and change in existing firms. It is this that, ultimately, allows for the creation of what are known as *economies of sphere* (or *atmosphere* to use Marshall's term), similar to the economies of scale enjoyed by large corporations and the

economies of agglomeration enjoyed by large cities, which reduce overheads and transaction costs, thus facilitating business. Economies of sphere reduce information and resource search costs. The result is a dwindling of the major obstacle presented by uncertainty and ambiguity, which tends to block the actions of potential entrepreneurs and ultimately prevent the multiplication or contagion required to create or develop firms of all kinds, including the gazelles that have such an important impact on endogenous entrepreneurship.

While all localities are able to become learning territories in order to stand out and become more competitive, the path they take to achieve that goal and the results they obtain will usually differ, because the actors and conditions are never the same. Only rarely will a locality start completely from scratch. Examples of those that did so include the Beauce region of Québec (discussed earlier) and the Alta-Vadaisa region of Italy, studied by Bagnasco and Trigilia (1988), where the pre-development economy was based mainly on farming. However, even localities that have always relied on natural resources or a cheap and plentiful workforce do not react in the same way when the industries that come to take advantage of those elements subsequently decide to leave, triggering the collapse of the local economy. If we look at examples such as Detroit, Pittsburg and Montreal (Conti, 1983; Lamonde and Martineau, 1992) as well as Turin and Milan (Regini and Sabel, 1989), they all reacted differently and their recoveries took very different paths. Other regions that began to recover more quickly after a period of very slow growth also based their development on very different industries.

Even the pace of recovery will differ, and only rarely will it follow a Rostow-like linear model. Some localities begin by specializing and diversify afterwards, while others take the opposite approach. There is no single model, and certainly no model that can be reproduced anywhere, anytime. This is especially true because all models change as they are applied, following the development of local skills along paths that cannot be predicted in advance. Every development takes its own special path, with some localities opening up quickly to exports, or more slowly if they prefer to ensure the long-term impacts of exporting. The players, resources, rules, conventions and national or international market opportunities end up by triggering very different and completely unpredictable development processes. In the knowledge economy, endogenous entrepreneurship has to adjust to its own state of development with the aid of the central government if it is to fit into what has become a complex and dynamic reality.

Sherlock Holmes, although extremely critical of the practices applied by Inspector Lestrade of Scotland Yard, the great British police organization, nevertheless agreed that Lestrade prepared or completed his major

investigations, and was happy to receive cooperation from other public organizations from time to time.

NOTES

1. This is often the case for banner traders and buying groups, which are limited to a certain percentage of local purchases in order to preserve the competitive strength of their group purchases. However, unlike the large chains, the individual members of these buying groups are embedded in the localities and can at least pressurize their authorities to purchase more local products.
2. See Mitchel (2006).
3. Change is not necessarily good. People may want to protect the environment and the natural and historical heritage of a given area, but might only be able to do one or the other.
4. In closed villages in the mining regions, the corporation was able to control even the social life of residents, and the policy worked because the communities were literally drowning in conservatism.
5. That are not concerned only with the number, sector distribution and size of firms in the area, but also seek specific information on the structure of each individual firm within the industrial fabric, and on their development, recent growth, markets, technological level, principal relations, and so on. National statistical institutions do not usually provide these data; there is therefore a need for in-depth surveys of firms, with additional information being collected from stakeholders who are aware of their strengths and weaknesses.
6. Many years ago, Chicha (1981) or more recently Bennett and Robson (1999) showed that the same state-run entrepreneurship programme worked very well in some regions and not at all in others, even though they were the same size and had similar dynamics. It all depended on the quality of the area's supporting actors and their knowledge of the local economy; for example, if turnover rates were high, these actors would obviously have less detailed knowledge of local players.
7. Interindustrial Networks for Technological Activities.
8. These networks seem to be particularly effective at developing new complex products, because they bring public laboratories into contact with firms of different sizes working on clearly established topics. See for example MIFE (2001), with respect to France, and Trépanier et al. (2004) with respect to Québec.
9. For example, the academic community uses scientific language whereas entrepreneurs use operational language. The former seeks the best or final solution whereas business-people simply want a satisfactory answer. Academicians want three or four months to carry out research whereas entrepreneurs want a much quicker answer. And so on.
10. At the same time, brokers provide the one-stop-advice need so often requested by entrepreneurs but virtually impossible to organize because of opposition from socio-economic needs, for example environmental protection and natural resource development. The single wicket thus becomes a civil servant or consultant who is known to the entrepreneurs and who is familiar with their firms, and is able to open the right doors quickly, rather than having to knock at lots of different doors before finding the right one.
11. There is nothing to say that a university researcher specialized in the type of problem encountered by an entrepreneur will necessarily live in the same region as the entrepreneur. For example, the researcher may live in another country but maintain contacts with another researcher in the entrepreneur's locality. Networking is a system that enables contacts to be built via intermediaries.
12. When we speak of facilitating entrepreneurship, we do not mean just eliminating bureaucratic and other barriers to business development; this has been discussed extensively elsewhere, including in the OECD publications. Many of these barriers are actually

necessary, either to meet other social needs or simply to protect SMEs from anti-competitive action by large corporations. In any case, as illustrated by the Bologna Process, 'there is no ideal entrepreneurial environment' for fostering entrepreneurship; every country must find its own balance between its various short-term and long-term economic and social needs (OECD, 2003: 310). See also Stevenson and Lundström (2001).

13. Or take that knowledge for itself – in other words, so that the knowledge becomes a natural part of itself.
14. These pseudo-attractors (which help the territory to keep their resources together in spite of competition from other, more dynamic territories) are significant virtualities developed within the movement in which they work (for example, the idea that it is easier to do business in the locality, without being able to explain why), and it is therefore impossible to say that they were there before the action since they are expressed at the same time as the action.

11. Conclusion: towards a new theory of entrepreneurship

In an island near the Orkneys, a child was born whose father was Aeolus, the god of the winds, and his mother a nymph of Caledonia. . . . During his travels he learned that gold glittered in every part of Betica . . . He judged it wise to go into all the cross-roads and cry continually in a hoarse voice, 'People of Betica, you think yourselves rich, because you have silver and gold! I pity your error. Be ruled by me: leave the land of the base metals; come into the empire of the imagination, and I promise you riches which astonish even you.'

(Montesquieu, 142nd *Persian Letter*)

Self-adapting entrepreneurship triggering new dynamics is a long way from the economic liberalism of Jeremy Bentham, who regarded entrepreneurs¹ as rational, egotistic beings seeking only 'gold and silver', and also from the concept of the firm working alone to stave off its competitors. Endogenous and dynamic entrepreneurship, going well beyond mundane small business such as the local garage, butcher or hairdressing salon, is first and foremost a product of scattered knowledge – ideas pulled from the air; in other words, an area's imagination, as suggested by the child from the Orkneys in the above quotation.² This imagination, and its impacts on the economy, must gradually be extended to the entire milieu, supplementing proactive social capital and complex human resources to create a stimulating entrepreneurial culture. In short, endogenous entrepreneurship is a social affair that needs an innovative milieu, where fast-growth and innovative small firms play a central role both as outcomes of and factors in local dynamics. The presence of gazelles provides clear evidence that the milieu is able to provide good quality human and social capital, multiply rich networking and shared learning and then create all kinds of other complementary firms and players, transforming itself into an environment conducive to entrepreneurship, where entrepreneurs also have the time they need to consolidate their foundations.

This would be another good time to return to our mystery novel metaphor in order to support our view of entrepreneurship as something that can only be developed if a very large number of players are involved, in a variety of different but complementary roles. Dr Watson,³ Sherlock Holmes's faithful assistant, gives a detailed description of the stages in

Holmes's investigation technique, consisting in a set of complex factors (his extraordinary observation and deduction skills to name but two) explaining the detective's outstanding success. These factors not only explain why the first Industrial Revolution took place in Great Britain, but also show how the country was able to prosper, especially in the late nineteenth century, with the emergence of thousands of new firms in its regions. In solving a murder in an isolated British village, Holmes and Watson were able to send telegrams, print advertisements in newspapers published just hours later, reserve seats on trains that left and arrived on time, were met by comfortable coaches that transported them to equally comfortable country hotels with luxurious rooms and good food – and so on. In other words, in spite of his personal genius, Holmes would never have achieved the success for which he became famous, and which attracted princely customers from abroad, without the support of an economy that was, let us say, as complex and effective as it could possibly be more than a hundred years ago.

Similarly, the entrepreneurs who were the driving force of the Industrial Revolution were all the more likely to succeed because they had access to services such as proper transportation, warehousing in which to store their raw materials or from which to ship their products, local financing and banks or angel capital to support their investments, intermediaries (including wholesalers) to distribute their products, along with all kinds of other actors and organizations with whom to enter into production and service transactions on national and international markets. On the contrary, although they are certainly just as capable as their Western counterparts, the best entrepreneurs in today's developing countries face problems of such scope that much of their energy is spent trying to obtain resources and to overcome such difficulties rather than improving their firms and developing their markets. Not only does their milieu not provide the support they need to succeed, but it actually places obstacles in their path.

This complex structure that gradually emerged in England in the eighteenth and nineteenth centuries, providing systematic support for entrepreneurship, forced researchers to ask serious questions about Max Weber's explanation of why the first Industrial Revolution took place in England as opposed to somewhere else. Much of Weber's analysis was based on the impact of the Puritan Protestant ethic, which he felt pressured people to work harder on business development.⁴ But if this had been the main reason, the revolution would probably have started in Switzerland or Holland, where Puritanism was even more widespread, rather than in England where the dominant Anglican Church tended to follow Catholic teachings to a large extent. It should be remembered that it was the disciples of the Puritan sects, persecuted by the official Church, who left Europe

to colonize much of what was to become the USA. If Puritanism had truly been the driving force behind the English Industrial Revolution, it would have spread when the Puritans left the country. Braudel, in his sweeping panorama of social and economic development between the fifteenth and eighteenth centuries, suggests that it was the cumulative impacts of the development of wealth, technology and modern public and para-public institutions, most of which had actually been conceived elsewhere,⁵ that caused the Industrial Revolution to take place first in England, rather than in Italy or Holland, which were much richer in terms of accumulated wealth in the former case and capital in the latter case.

Again, we will turn back to our mystery novel metaphor as a way of understanding what this means. Maigret, in his *Mémoires*,⁶ explains that in a real investigation, police officers from the local police station would work alongside inspectors from the Quai des Orfèvres, questioning witnesses, visiting thousands of homes and observing faces at railway stations, not to mention the role played by the numerous informers. In some cases, the entire national police force would be involved in gathering clues, and the general public would also be asked to provide information, for example, after publication of the suspect's photograph in newspapers. As Simenon pointed out, these thousands of players and hundreds of steps cannot be incorporated into a novel, because readers would become lost in a quagmire of detail. In the case of businesses, however, we know that success is achieved not by the firm's leader working alone, but by a team effort involving members of the organization, partner firms upstream and downstream, the information system and many different actors both inside and outside the territory, not to mention the general context and an element of luck.

We therefore need to move away from the single-track theories that have been so unsuccessful at explaining endogenous entrepreneurship, and towards a more complex approach that takes into account the ability to overcome the uncertainty and ambiguity generated by market globalization and the knowledge economy. We also need to step away from analyses of isolated firms and 'exceptional' entrepreneurs, and look instead at firms as members of complex networks that are built into cooperative and competitive systems, facilitating the sharing of ideas and creating a more dynamic milieu. We must also examine sociological variables such as trust and relationship structures that foster technological and innovative developments, thus supporting local dynamics. Table 11.1 presents some of the complex links between the major phases of territorial development discussed in Chapter 9, namely, networking, the most common types of firms and state support.

How, then, can we justify this shift from simplistic theories to a more complex approach that takes into account the five principal players in the

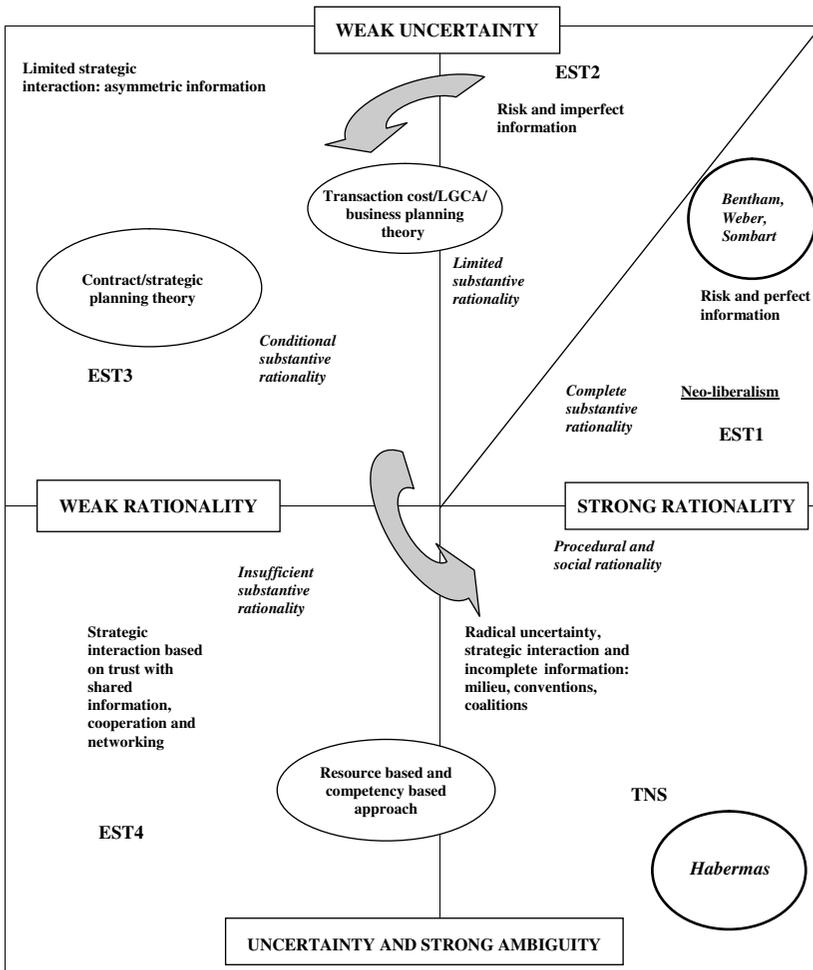
Table 11.1 Some relationships between the phases of endogenous development (from stagnation or decline to fast development) and other variables

Major development phases	Extent of networking	Most common firms	State contribution
<i>Dependency</i>			
1. Slowdown	Unconnected outside economic networks and social networks	Some large firms in traditional sectors and banal firms	Minimum state support, especially in infrastructures, and reactive, purely financial interventions
2. Waiting	Languishing networks		
3. Despondency or resignation			
<i>Endogenous development</i>			
4. Awareness of regional potential	Gradual shift from purely business networking to rich information networking	Some improver and adventurer entrepreneurs	Various support for venture start-up in new sectors
5. Emergence of innovative firms	Acceleration of the development of social capital and trust	More manufacturing SMEs and motor tertiary, SMEs serving as models	Development of rich information brokerage activities
6. Complex networks and stimulating structures	Growing numbers of internationally connected networks	More gazelles and exporting SMEs	Support for the most active firms to speed up technological penetration
7. Dynamic entrepreneurial culture	Creation of dense or hard technological networks	Emergence of exogenous entrepreneurs who move in to take advantage of local dynamics	Systematic stimulation of innovation and joint initiatives supporting competitive capacity

process, namely, the entrepreneur, the organization, the milieu, the environment and time, along with the three factors of dynamics, namely, information, networks and innovation? In this conclusion, we look at how the development of economic and management theory supports our cross-disciplinary approach. We end by returning to our mystery novel metaphor for evidence that local entrepreneurship depends on the development of a model that includes the social behaviours of the players – in other words, a collective entrepreneurial culture supported by environmental potential.

11.1 THEORY DEVELOPMENT

In looking at the development of theories that support our holistic approach, a good starting point is neoclassical economic theory, devised well before all the theories that subsequently addressed management and local development. Although this particular theory called into question many of the conclusions⁷ of the nineteenth century classical economists, including the French researcher Walras who settled in Switzerland, and the Vienna School, it nevertheless retained their basic foundations, namely, the rationality of economic agents, their quest to satisfy their own interests at any price, their purely selfish behaviour and the market's ability to provide all the necessary information. Many economists still defend this theory (now referred to as neo-liberal theory) even today, because it is relatively simple, coherent and, most importantly, safe for its supporters, in that it enables them to explain everything in a rational manner without raising too many questions about its realism⁸ and, above all, its capacity to incorporate systematic change and instability in the economic environment. Being somewhat static, the theory does not consider either the complex behaviours of entrepreneurs or the role of the organization, knowledge of which, as pointed out by McCloskey and Sandberg (1971), is derived from other sciences. Similarly, it does not consider the organization's black box, since it believes that the organization is bound to act rationally and seek profit at any price if it wishes to survive and face up to its competitors, as explained by Machlup (1967), for example. At the very most, the entrepreneur is considered to have a residual function with a marginal influence over business behaviour (Lucas, 1978), explaining why both the entrepreneur and the organization are virtually absent from most basic economics textbook. Baumol (1968) criticized harshly this situation, qualifying it as being the equivalent of Shakespeare omitting the Prince from *Hamlet*. If we look at it from the standpoint of our mystery novel metaphor, it would be like an author trying to solve a crime without input from an official or unofficial⁹ detective.



Source: Adapted from Billaudot (2001).

Figure 11.1 The development of the theoretical foundations of endogenous entrepreneurship

In the top part of the north-east quadrant of Figure 11.1, we see that the theory had to develop in order to move beyond these limitations. Simon (1976), for example, in the second part of this quadrant, questioned the idea of perfect information or non-existent uncertainty, pointing out that agents could not possibly foresee every eventuality and this would prevent them from entering into complete contracts covering every possible situation.

Their behaviours could therefore be satisfying at best, and not optimal, however rational they may be. However, information limitations are even greater than Simon suggested, since in a competitive market agents will retain information for as long as possible, or even release erroneous information. Not only that, but once information has been obtained, it must then be interpreted. This is no easy task and can often generate ambiguity. Mostly, however, information usually lags behind reality, which changes constantly. Another criticism of the neoclassical approach came from Coase in 1937, and was subsequently taken up by Williamson (1985). Both proposed the idea that the market, composed of thousands of small businesses and self-employed workers competing with one another to various extents, cannot explain everything, and the supplier's research costs, as well as costs relating to transaction follow-up, especially where this is done only sporadically, must also be taken into consideration along with prices, which are based on management and production costs. Where these latter costs are too high, it is better to produce goods within a hierarchical system – in other words, within a large corporation that uses its authority to limit opportunistic behaviour, especially among its employees.

Figure 11.1 shows that the theories evolved in two ways. Obviously, the figure is simplified in the extreme and by no means reflects the wealth or development of the theories. All it does is to illustrate their evolution towards greater complexity, in order to justify our holistic approach to endogenous entrepreneurship in a knowledge economy. The horizontal axis represents the shift from the strong rationality (complete and substantive, that is, based on knowledge of the substance of things) of the neo-classicists or neo-liberalists, on the right, to the weak rationality, dependent on the information the agents or actors agree to provide, on the left. The vertical axis represents the agents' grasp of the level of uncertainty with which they are faced. In neoclassical theory, substantive rationality is strong because the agents seek before all profit, and will voluntarily either comply with or defy market laws to obtain it;¹⁰ in addition, the market will provide a lot of information, thus diluting uncertainty and risk. This is the theory proposed in particular by the Chicago School, which Favereau (1989) referred to as the extended standard model EST1. It is the neoclassical model inherited from the classical theory of the eighteenth and nineteenth centuries (that is, from the ideas of Bentham, Weber and Sombart), to the effect that humans act rationally and selfishly. Simon and Coase, for their part, founded the EST2 model, creeping gradually into the north-west quadrant.

However, as we now know, agents do not act in isolation against their competitors, and may even tend to join forces. Some researchers go so far as to say that in many markets, it is not the demand that sets prices, but

rather the supply or the business itself, especially if it has a monopoly or is part of a cartel, with the support of increasingly complex advertising and marketing techniques. In many cases, competition exists in the long term only and often takes place between coalitions composed of hundreds if not thousands of firms along with order-givers, suppliers, equipment manufacturers, subcontractors, distributors and even the state, with ramifications that extend beyond national borders, as we see in the following pages. An example would be the competition that exists in the aeronautic industry between Airbus and Boeing, or between Bombardier Aeronautics and Embraer, which extends well beyond the principals' headquarters. Prices may also depend on public and parapublic institutions, or in the case of isolated firms, on an efficient organization based, for example, on Harvard Management School's LCAG model¹¹ or on strategic planning. This rationality is conditional on the adoption of non-opportunistic behaviour by agents having access to privileged information. If these agents are to agree to work together without opportunistic behaviours, the market or the organizations concerned must use contracts that stipulate the costs and gains of each party. For example, in addition to its purchasing contracts with suppliers and sales contracts with distributors, an organization also has a set of contracts between management and employees, who agree not to pursue their own personal interests, in return for compensation and fringe benefits. It will also have contracts with other agents, such as service suppliers, at least for the duration of the supply. It is therefore not simple rationality that pushes agents to act – or at least, the rationality is questionable and conditional, because the information is asymmetrical, with some people (those who have the power or who are the first to innovate) knowing more or better than others. Finally, as explained by Jensen and Meckling (1976), the firm can be regarded as a system or core of contracts with a large number of stakeholders, invited by the firm to play the game in exchange for clearly defined gains.

Contracts alone, however, are not enough. Some researchers have therefore examined the role of the organization, explaining that agents also need authority to act – in other words, the hierarchy and strategic planning imposed by the business owner or the shareholders' representatives. Indeed, there is no guarantee that contracts alone will eliminate opportunistic behaviours, especially in view of the fact that contracts are bound to be incomplete, given the opaque and asymmetric nature of economic information.¹² The desire to work together in a business also derives from incentives to follow the firm's main policies. This brings us to strategic planning and generic strategies, which, according to Porter (1981), can be used to influence if not control the market and set the conditions of competition, at least in the short term, for example by erecting entry barriers. In the end,

the firm has plenty of flexibility and the market is perhaps less questionable than the neo-liberals want to see it, as pointed out by Blaug (1982). This ultimately leads us to the EST3 model.

The firm's flexibility when faced with unexpected circumstances means that economists are able to go beyond the somewhat simplistic transaction cost theory to take into account intermediary or hybrid situations between hierarchy (integrated organization) and market, involving cooperation. Cooperation can take the form of capacity subcontracting or specialty and intelligence subcontracting, both formal (with relatively well-defined contracts) and informal (without contracts) in nature. As Richardson (1972) pointed out, most firms operate within cooperative arrangements or coalitions, with trust and trustworthiness, either upstream (with their raw material, service and equipment suppliers) or downstream (with their transporters, distributors and some customers). Their cooperation goes well beyond their contracts, which are often highly imperfect,¹³ and allows the firms not only to minimize their transaction costs, but also to obtain all kinds of strategic information when they find themselves in situations loaded with uncertainty and ambiguity. As we have shown, the development and success of a firm is dependent to a large extent on the support it obtains from its locality, if only in terms of access to qualified staff and services, or the contacts it establishes with other firms. Researchers have measured the benefits of proximity, for example in innovation (Audretsch and Feldman, 1996), thus going against the neoclassical view that information about innovation is automatically available and there is therefore no reason to concentrate activities in certain places, such as technology parks, to foster innovation. Yet, cooperation is often as beneficial for upstream firms as it is for downstream firms, since a functioning partnership speeds up the learning of those involved and facilitates the production of new information and innovation, thus enabling them to remain competitive.

As Mintzberg (1994) said, in a context of cooperation substantive rationality is insufficient and may be subject to all kinds of logical and rational, impulsive or intuitive behaviours when interests differ or opportunities arise. Information is generally asymmetrical, with some firms knowing more than others; for example, order-givers tend to know more than their subcontractors. In addition, uncertainty and ambiguity are greater for some firms than for others. Another mechanism in addition to that envisaged by the neoclassicists is therefore needed – namely, trust, a function of psychosociology. Trust, however limited it may be, is an additional element of authority and ownership in the organization and extends to personal, business and information networks to enable the firm to obtain the tacit information it needs to innovate, stand out from its competitors and support both its management and its production – in short, to commit itself

(Karpik, 1996). Trust mitigates information asymmetry and limits opportunistic behaviours. This brings us to the third transformation of the extended standard theory, namely, EST4, in the south-western quadrant.

This theoretical transformation goes beyond the school of planning, since planning is virtually impossible in a constantly changing environment (Brown and Eisenhardt, 1998), taking us to the resource-based and competency-based approach within which the firm and its partners can react quickly or adjust regularly to uncertainty and unforeseeable events, while learning collectively through trial and error and through experience.¹⁴ This approach goes beyond the idea of competition through price alone, introducing the notion of quality and exchanges of information (institution/organization-specific information, including norms and conventions, and information on quality) via the networks. Networking facilitates exchanges of information for consumers and organizations alike, enhancing their flexibility because they are no longer required to do everything and know everything. Networking becomes a way of coordinating a portion of their activities, especially at local level. Networking forms the backdrop to local governance, structuring many transactions between small businesses, especially the newer ones. Contrary to the precepts of neoclassical theory, which claims that firms can select any strategy they like, membership of networks and the flexibility it provides generates *trail effects* (Nelson and Winter, 1982), or choices that are limited by equipment, prior knowledge and contacts with partners. Obviously, the firm acts in a context marked by significant uncertainty and ambiguity, but it is able to react more effectively by forming coalitions, both internally with trusted, committed staff members, and externally with the business and information networks that also have an interest in the firm's survival. However, the 'trail' is not a coercive one; it allows for adjustments, changes and even ruptures, depending on the quality of the information obtained, the firm's flexibility with its partners, and their ability to innovate.

The last step is the involvement of the milieu and social capital which, when dynamic, motivate and provide resources and ideas, reputation, trust, and the conventions and rules deriving from coalitions created in order to address radical uncertainty and world competition in the knowledge economy. These rules and conventions may be general in nature, or specific to a handful of groups or coalitions. Rationality is procedural and social, not substantive; since it is impossible in any case to know whether the information obtained is true or valid, owing to the uncertainty deriving from the inherent nature of the economy. It is better to work (think and act) together, an approach that allows those concerned to behave as though the information were true,¹⁵ because their partners are doing the same. By joining forces, they believe things will work out, and take steps to ensure that this

is the case (Malecky, 1994). Moreover, this method allows for more effective action, since it is supported by collective consent, making it easier to obtain resources and ideas, and to generate enthusiasm. Strategies become interactive and respond to the group's need to share and seize ideas from the air. What differentiates a firm from its competitors is the way in which it combines the ideas it obtains from its networks with its resources and skills, using contributions from its partners. It is this internal and external combination that constitutes the foundation for competitive capacity in the knowledge economy.

This new approach therefore adopts another type of rationality, a strong but also procedural and social rationality based on collective circumstantial truth in the long term. Truth can only be written in time and in space; in other words, what is true in a country or a locality today is not necessarily true elsewhere, and will not necessarily be true in the same country or locality at a later time. This takes us from extended standard economic theory to a non-standard theory (NST), consistent with the thinking of philosophers such as Habermas in a collective rationality that is the opposite of the positivist approaches.

In the new economic theory, collective rationality is built by means of a seven-stage process. The stages take place more or less at the same time, and the approach can be initiated at any one of the stages.

1. Individual rationality, mainly Western, deriving mostly from Descartes, Hobbes, Rousseau, Comte and Weber, and based on the precept that there is a relationship between individual rationality and economic effectiveness (clearly illustrated by the invisible hand of capitalism), is a distorted conception of reality.
2. Rationality (tendencies and desires, emotions and moods, understanding of the world, justification for one's actions, and so on) is clearly subjective; it derives from heredity, family, friends, early education, meetings with people and desire – in other words, from what is innate, acquired or built by the entrepreneur in his or her milieu. It is therefore strongly influenced by the needs, knowledge and behaviours of the people around the entrepreneur.
3. It is through collective learning that individuals make this rationalization of world images – learning that serves to reduce uncertainty and ambiguity, and to support action, as Hodgson (1988), referring to Veblen, points out. Thus rationalization becomes a social construct, giving the approach its constructivist dimension.
4. Collective learning is achieved through interpersonal relations (in different types of more or less dense networks), supported by technical standards, social rules and conventions (or a shared language) and,

primarily, intercommunication. These norms and rules increase and go beyond the limitations set by contracts and the impacts of authority (power) to settle conflicts, generate support and foster coordination in organizations and institutions.

5. They evolve (especially technical norms supported by innovation, as opposed to institutional rules that are often inhibitive) and therefore require adjustments supported by collective learning, which explains the dynamism of institutions, organizations and regions.
6. The success of the entrepreneurial action depends on the actions of others and then on the exchange of information, suggesting that the firm will be able to bypass increasing uncertainty in the knowledge economy.
7. The success of the entrepreneurial action therefore depends on the quality and intensity of the cooperation and intercommunication within a milieu, as well as on the ability of the norms and conventions to promote technological and institutional change, and on a conducive environment providing systematic social capital, specific capacities able to support innovation, and a dynamic entrepreneurial culture.

Table 11.2 summarizes these various aspects and their impacts on entrepreneurship.

In the south-east quadrant is a theory based on subjective, collective, circumstantial rationality deriving from systematic sharing of information by all the stakeholders working with the entrepreneur and the organization to support innovation. This is clearly far removed from the image of an enterprise working alone against its competitors, whose functioning depends solely on its management. Although entrepreneurs seek independence, they will only be successful if they call on other actors to provide resources, information, ideas and opportunities to help them develop. This explains why entrepreneurship and venture creation models differ over time and in space; what is true today, here, will not necessarily be true later, or elsewhere.

In addition, even if entrepreneurs rely on the general ambiance for their actions, they themselves always have a certain influence over that ambiance, if only because they go ahead without knowing how other people will interpret the situation. Trust can never be full and complete, not only because opportunistic behaviours are always possible, but also because information is incomplete and some people may decide to work with other, more interesting actors in their own interests. Moreover, every time an entrepreneur converts a new idea into an innovation, he or she is, at the same time, driven by a desire to be the first, and faces the problem of explaining this to any partners, even if things are not entirely clear; all he or she can hope is that the partners will understand the various signs of the transformation

Table 11.2 Collective rationality and entrepreneurship

Rationality	Impacts on entrepreneurs	Consequences for entrepreneurship research
1. Purely individual rationality does not exist	Entrepreneurs are not exceptional, and are not very different from anyone else	Entrepreneurship should be regarded collectively
2. It is subjective and time-dependent	Every entrepreneur belongs to a milieu at a certain period	The milieu has an impact on entrepreneurship
3. It derives from collective learning	The emergence of an entrepreneur is triggered by the milieu	Dynamic localities are distinguished from other localities by their collective learning efficiency
4. It requires interpersonal relations, rules and conventions	Entrepreneurs are network creatures and their success is explained by their contacts and the actions taken by the networks	Network quality is one of the keys to slowing down or stimulating entrepreneurship
5. The rules and conventions are specific to the place and time	Conservative or dynamic rules and conventions distinguish between the most common types of entrepreneurs in a locality	Dynamic entrepreneurship must be based on open, changing rules and conventions
6. The success of the action depends on the actions of others	Entrepreneurs depend on the support and action of other entrepreneurs and actors	The quality of entrepreneurship depends on a set of actors and their level of dynamism
7. Entrepreneurial intensity depends on the level of cooperation and intercommunication in a milieu	Entrepreneurs should regard the firms with which they work as partners and join information networks to speed up their learning relating to technological changes and innovation and then to the knowledge economy	Local dynamism depends on the quality of the social capital and the presence of a proactive entrepreneurial culture

(purchasing new equipment, hiring new salespeople, market trials, and so on) and adjust to it.

It is this adjustment that generates flexibility, although it also increases uncertainty. Indeed, even entrepreneurs do not really know what they will be doing tomorrow, although they generally follow a routine and stay on the production and innovation trail available to them as a result of their existing resources and skills and the experience they gain through constant learning. They also do not know how their partners will react and adjust, and the partners themselves probably do not know either. As a result, procedural and social rationality means that the various parties must adjust gradually, without knowing where it will lead them, since the procedure itself is subject to change, as are the rules and conventions. This is clearly a long way from the trend towards a full or partial equilibrium between supply and demand, where the invisible hand forces everyone to adopt the minimum price.

11.2 THE TECHNICAL OR HOLISTIC APPROACH: CRIME, GANGSTERISM AND ENDOGENOUS ENTREPRENEURSHIP

The greater part of economic science has become so technical that it no longer understands reality. By shutting itself into a theory that is divorced from the real world, it has remained at the ‘Columbo’ level in its explanations, considering that venture creation in the localities depends solely on the distance from large urban centres and hence on specific needs or transportation requirements. When the market broadens, the firm can grow, gradually becoming a medium-sized or large firm that will ultimately move to the city, become a subsidiary or simply disappear because it is unable to deal with outside competition. The same applies to single discipline research in finance, marketing and socio-psychology, among others, which regard entrepreneurship solely in terms of its results, or in terms of available financing, a new demand or a social rupture – rather as though every murder that ever occurred had clear motives, such as hatred or a desire to steal someone’s money. Indeed, their homage to individualism or the ‘every man for himself’ approach perhaps allows them to divide and conquer; everyone knows that small, isolated firms are very easy to manipulate, as we can see in many capacity subcontracting systems.

At the very least, the ensuing neo-liberalism cannot deny the business contacts (including non-market relations, or unfortunately corruption and lobbying¹⁶) linking firms to their many stakeholders and other actors. On the contrary, because it merely analyses the irrational behaviours of a given

firm, it is completely unable to understand that firm's successes or failures. This is the danger that Sherlock Holmes managed to avoid, by considering not only the clues available at the crime scene, but also how the victim spent his or her time in the days preceding the murder, as well as his or her family and social contacts. Holmes's examination of the clues was extremely detailed. Researchers would say he performed complex statistical analyses, interpreting the results in light of his extreme sensitivity to the real world. Unfortunately, in far too many scientific journals, statistically perfect studies often tend to ignore the subtleties of the real world, considering only slight differences close to the mean,¹⁷ which ultimately results in low-order work.

As an example of this, a firm's history of success or failure is rarely explained by the decisions made in the last year of its existence. It is often necessary to look back to the choices it made at start-up, or in its early strategies. Other factors to be considered include the path taken by the entrepreneur¹⁸ and the firm's key employees, along with any unanticipated changes, the contacts forged by the firm throughout its history, the networks it has joined, the innovations it has introduced and whether or not they were successful. This is consistent with Maigret's approach to solving crimes. He would patiently review the victim's recent and less recent activities and try to put himself in the victim's shoes to understand how and why the victim did certain things. Indeed, Maigret was often highly critical of the 'new type' of police officers imposed by the public authorities, who tried to solve crimes from the comfort of their desks by collating and simplifying the information provided by their subordinates. In the case of entrepreneurship, many of the concepts relating to the firm or to the industrial economy are entirely artificial, since they were proposed by researchers who merely sorted through a limited supply of statistics from national institutes without ever setting foot in a real-world firm.

A *Statistics Canada* study conducted between 1999 and 2002 claims that Canadian firms with fewer than 20 employees lag way behind large corporations in terms of technology use. However, in reality these findings are meaningless. First, many very small firms simply do not need technology; and second, the study fails to consider the special relationships small firms maintain with their customers to compensate for their technical deficiencies, and the other behaviours they adopt to earn specific benefits. For example, tailoring requires very little leading-edge technology and proximity often compensates for so-called technological delays.

Finally, the milieu and its broader environment play a very important and active role in entrepreneurship by providing an atmosphere conducive to the strengthening of existing firms and the creation of new firms, and by furnishing shared information to decrease uncertainty and ambiguity in the knowledge economy. For example, economic science finds it extremely difficult to understand the entrepreneurial space. By taking the view that everything is global, it disregards the importance of what is local. At least 95 per cent of firms are first and foremost local entities, and their local roots are crucial in providing the basic resources they need to survive and develop. This is a curious paradox: virtually everything is local or territorialized, even though the economy has become global, competition has become international and networks have become enmeshed, joining the four corners of the planet (Conti, 2002; Schmitt, 2003). In accepting this, we are stepping well beyond the entrepreneur and the firm, into the collective factors that not only support innovation but also foster entrepreneurial contagion to stimulate the development of the entire locality. This is crucial to understanding the entrepreneurial pyramid, with its elements that affect local development as a whole (the quality and quantity of entrepreneurs and firms, types of industrial sectors, the dynamism of supplementary public and private services, the quality of infrastructures and institutions), as well as more complex issues such as networking, the vitality of the milieu and social capital, openness to the outside world, and the social norms and conventions on which the entrepreneurial culture is built.

To return to our mystery novel metaphor, William of Baskerville considered the political situation and religious beliefs of his time, especially in Austria just between the Germany where lived the Emperor and the Italy where lived the Pope, allowing him to make connections between the clues he found inside and outside the abbey, as well as the latent conflicts in the community which reflected the conventions of Western society even though the community was not necessarily in contact with its counterparts elsewhere.

Table 11.3 summarizes the links between these various elements and entrepreneurship, based on the three types of understanding described in the novel *The Name of the Rose* (column 2). They correspond to the behaviourist, interpretationist and constructivist approaches, the latter going beyond the individual crime to try to explain why certain societies have higher crime rates than others. For example, anyone wanting to understand gangsterism (criminal networks) would have to look beyond individual criminal behaviours. Because every society is capable of creating marginal and violent people, it is necessary, in explaining higher criminal numbers, to consider social disparities and exclusions. However, limiting one's analysis to these aspects would suggest that the per capita crime rate would be higher in India, for example, where the caste system which goes on in the

Table 11.3 Crimes, gangsterism and endogenous entrepreneurship: three types of approaches

Type of approach	<i>The Name of the Rose</i>	Criminal networks	Endogenous entrepreneurship
Positivist or behaviourist approach (Columbo)	Crimes of passion or the monks' interests	Criminal behaviours and gangsterism	Entrepreneurs and their organizations
Post-positivist or interpretationist approach (Holmes and Maigret)	Conflict between the Pope and the Emperor and their representatives (Benedictines or Franciscans)	Poverty and exclusion, ostentatious wealth, and so on	Relatively organized, innovative networks, associations and milieus
Constructivist approach (de Baskerville)	Importance of the quest for truth by inhabitants	Permissiveness and social delinquency	Rules, conventions, spirit of innovation, and then a conservative or dynamic entrepreneurial culture

Indian society, in spite of its suppression, fosters exclusion, than in the USA, where it is actually the highest of all the industrial countries.¹⁹ It is therefore necessary to move on to the third level of understanding, to see just how permissive society is,²⁰ how far it encourages a certain level of social delinquency or how it ends up trivializing many kinds of crimes.²¹ For example, modern Russia, which has long closed its eyes to the existence of a flourishing economy based on bribes and denunciations alongside its highly centralized official system, is now finding it extremely hard to eradicate gangsterism.

To understand endogenous entrepreneurship and how to generate dynamism within a locality, it is important to understand the interdependency between the microeconomic, macroeconomic and sociological variables. The former cannot be analysed without taking the latter into account. Figure 11.2 shows the links between the various elements, illustrating their complexity and showing that imagination, initiative, networking and innovation are the variables that facilitate the links between entrepreneurs, firms, the milieu, networks, social norms and entrepreneurial culture to generate

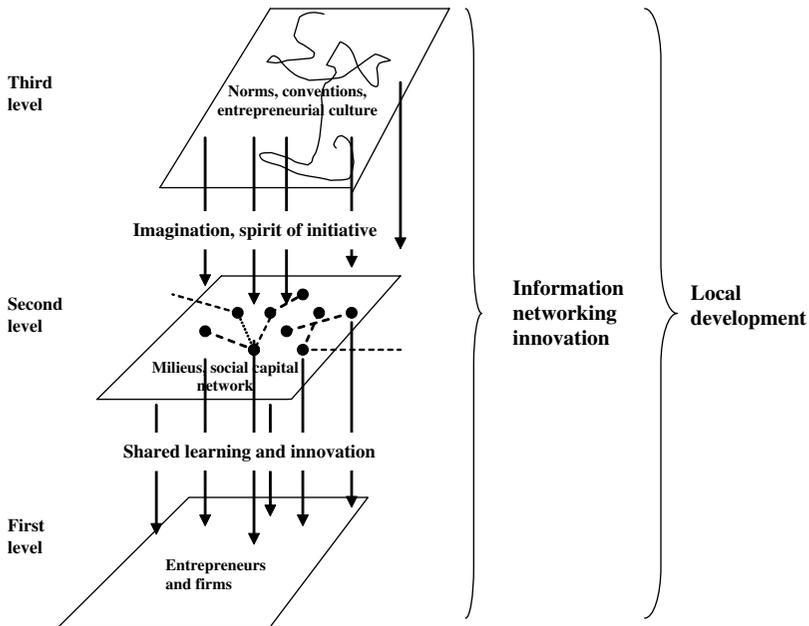


Figure 11.2 Levels of analysis for local endogenous entrepreneurship

rich information, distinction and local development. There is, of course, no generic model for the promotion of entrepreneurship, since all the elements can be combined in an infinite number of ways, rather like a recipe reinvented over the years to reflect changing tastes. A model implemented in its original form in a territory other than the one for which it was created will always be poorly adjusted to its new environment, and will almost certainly not work.

Doing what others do will always lead to a certain level of hybridization that will prevent a locality from being as good as the others. Every area must find its own model; it can borrow compatible elements from other localities, provided it adjusts them to its own context. This is consistent with the resource and competency-based approach, where every locality must have access to a specific combination of entrepreneurs, firms and actors of all kinds, forming a milieu focused on development, that is capable of learning and innovating and that establishes conventions and networks conducive to innovation – in short, it must create a true entrepreneurial culture. A good example of this ‘specific combination’ is the differing capacity of areas, over time, to integrate immigrants (there are usually more entrepreneurs per capita among immigrant populations than

among the host population in general); for example, Marseilles was well able to integrate the Italian Piedmontish in the early twentieth century, but is finding it much harder to integrate the Maghrebians today.

Endogenous entrepreneurship in the knowledge economy is a collective undertaking that requires a specific social structure of resources, competencies and productions in each locality. The structure must take into account differing values, dynamic or conservative behaviours and the institutions that encourage them (Jones and Wadhvani, 2006). Endogenous entrepreneurship therefore depends on social motivation, which will be slow at first, during start-up, and then will speed up when local identity and dynamic actors begin to lure others into the process. Motivation occurs first and foremost in the mind, through imagination, as suggested by Montesquieu in the citation at the beginning of this chapter. People have to believe something is possible. They will then gradually spread their belief from circle to circle and from network to network, ultimately moving beyond uncertainty and ambiguity to take definitive action.

In the end, the process is one of creating collective values, acknowledged first by stakeholders who agree to share the challenge and the risks of the new venture in spite of more uncertainty and ambiguity, and subsequently accepted by the local market, then by the milieu and, finally, by or in relation to the outside world. In the new knowledge economy, the product is more than ever before a *human* work, mainly because the share of services and immaterial elements is increasingly important. Fundamentally, the process is based on information, and is therefore collective in nature because information, in facilitating the development of opportunities and links with resources, allows the area to stand apart from others.

To come back to our mystery novel metaphor for one last time, the best mystery novels are often those that, as Simenon pointed out, go beyond the issue of the crime to examine the underlying human relations and the connections between the criminal and the victim, as well as the society that supported, facilitated or restricted those links. Great mystery novels, like great science fiction, are modern fables that describe the human condition by replacing the animals of Aesop, Phedra and La Fontaine with crime in the former case and representations of other worlds in the latter. Entrepreneurship, too, is a fundamentally human act starring an individual entrepreneur who is part of a milieu and who is connected to networks that provide support and stimulation – in other words, an amalgamation of elements that can, when encouraged to do so, accumulate the information and resources needed to speed up regional development.

Like every development process, entrepreneurship is simply the collective history of human beings (within a separate territory) seeking their own identity in order to find out who they are, and then seeking recognition for

what they do (the noble results of their work through creation and innovation). And the humans in question share this experience with all the members of their firms, their networks and their milieu. It is therefore true that every individual story also belongs to the people who endorse and give that story a value in terms of recognition, well beyond its monetary value, thus giving humanity its real meaning and the power to change the course of its own history.

It is natural for mankind to set a higher value upon courage than timidity, on activity than prudence, on strength than counsel.

(Montesquieu, *The Spirit of Laws*, book XI, chapter 6)

NOTES

1. Or the 'rational fools' as criticized by Amartya Sen (1977), for example, always act to obtain as much as possible at the least possible price, leaving aside any other preoccupations such as habits, laziness, ignorance, friendship, carefree attitudes, and so on.
2. With this sentence, Montesquieu already presaged the negative effect of Peru and Mexico's gold and silver on the Spanish economy, which collapsed when the American riches ran out.
3. Or, clearly, author Conan Doyle (1859–1930).
4. In his book entitled *The Protestant Ethic and the Spirit of Capitalism*, published in 1904. Braudel (1979: 506) points out however that, contrary to what his disciples including Sombart and Offenbacher said later, Weber believed this relationship was more of a coincidence than an admitted fact.
5. Most modern commercial institutions and practices actually emerged in the Southern European countries. The first bank appears to have been the Venice Rialto bank; the stock exchange was created in Portugal (first cited in 1294) and then spread to Lucca, Pisa, Venice and Barcelona well before being adopted by the Northern European countries; book-keeping and accounting were first used by the Arabs, who got these from the Indians, and were later adopted by the Italians (dual-entry accounting is described in detail in the 1494 book by Luca Pacioli), and brought to Britain much later by the Dutch (Braudel, 1979: vol. 2).
6. Obviously, these were written by Simenon (2003: 1419–20), based on an ironic and affectionate confrontation between the creator and his character, to explain the mechanisms of his creation and denounce his fictional nature.
7. For example, value and price mechanisms based on market alone, perfect competition, information that is fully available, neutral currency, and so on.
8. Milton Friedman, one of the creators of the neoliberal approach, who died in 2006, once said, probably as a joke, but repeating a similar assertion by George Stigler, that if the real world could not be explained by the theory, then the real world must be wrong!
9. Many mystery novels are centred around highly observant private citizens, such as Miss Marple, the character created by Agatha Christie, who worked alongside the police to solve crimes. Neither Sherlock Holmes nor William of Baskerville were official police officers.
10. In economic science and managerial science, there are heavy trends rather than laws as such – although, in the eighteenth and nineteenth centuries, so-called laws were established by economists hoping to be as rational as researchers in the natural sciences. They believed that, just as an understanding of nature enabled scientists to explain the behaviours of bodies in terms of physical laws, it should also be possible to identify natural laws to explain the behaviours of economic actors.

11. From the name of its principal authors, Learned, Christensen, Andrews and Guth, all professors at Harvard. There is also the SWOT model that balances strengths and weaknesses within the organization, along with opportunities and threats in the environment.
12. Lorino (1989) points out that, within the firm, everyone has access to a quantum of information that they transmit only partially, because they cannot (due to lack of time or lack of formalization capacity) or do not want to transmit it in its entirety. In other words, every person within the firm protects his or her own interests in different ways. Foray (1990) also states that, outside the firm, the availability of information is poor because resources tend to be increasingly specific. In other words, Walras's town crier is often either absent or ineffective because he prevents potential purchasers from talking to one another.
13. A contract that attempts to cover everything usually limits change and prevents the parties from seizing opportunities. Especially given that complex contracts can lead to contestation and high legal fees.
14. Pascale (Pascale and Athos, 1981) gives the example of Honda, who managed to penetrate the American market by learning from its mistakes, to show that the flexibility provided by a variety of good quality resources and competences within the firm and its partners is a good way of facing up to uncertainty and ambiguity.
15. Procedural rationality, however limited it may be, takes into account decision-making processes and how to define problems and learn (Quinet, 1994).
16. Examples of such recent practices include Elf, in France, and its systematic use of bribes, or the accounting scandals of Enron, Worldcom and Tyco in the USA, Hollinger and Nortel in Canada, Adecco in Switzerland, Parmalat in Italy, or the current stock options scandal affecting more than 25 per cent of large American firms. But these practices are not new, as we know in the American oil industry at the beginning of the twentieth centuries, as analysed by Ansiaux (1926: 242).
17. For example, the results of a survey composed of responses to semi-open questions on a scale of 1 to 5, with average values of 2.8 or 3.3, does not mean very much even if those results are statistically significant. Bygrave (1989) continues along these lines, saying that an R^2 of 0.60 or more does not give any indication of the causality between the two variables.
18. Including failures in his or her personal or family life.
19. For example, the American Department of Justice admits that the number of people imprisoned per capita is higher in the USA than in any other industrialized country. As of 30 June 2005, American prisons contained 2 207 570 prisoners – 55 per cent more than in 1991 – for a rate of 738 prisoners per 100 000 adults, compared with 137 in Great Britain, 134 in Canada and 88 in France. But the figures differ between states. For example, Louisiana, Georgia, Texas, Mississippi and Oklahoma have nearly 1 per cent of their population in jail, whereas, Maine, Minnesota, Rhode Island, Vermont and New Hampshire have a much lower rate. It is probably not surprising that these differences are more or less the same as those between entrepreneurship rates, as we saw in Table 2.1, in Chapter 2.
20. For example, by preventing blocks on the free trade of firearms to satisfy powerful lobbies and the large number of Americans who invoke the libertarian philosophy of the Far West in support of their right to bear arms.
21. In his history of the mystery novel, Dubois (2003) explains that this delinquency makes it fairly easy to go beyond social barriers. However, this does not mean that transgression is without limits in the business community. For example, tax fraud is tolerated provided it remains below a certain, fairly low threshold. Even so, permissiveness of this nature is dangerous, since it always leads to more serious offences, such as the financial manipulations of large corporations that we discussed in the introduction.

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