

Entrepreneurship in the Netherlands

New economy: new entrepreneurs!



Ministry of Economic Affairs



EIM
Business & Policy Research

Entrepreneurship in the Netherlands

New economy: new entrepreneurs!

Colophon

This publication forms part of a series relating to entrepreneurship and small businesses.

January 2001

Copies can be ordered from: EIM
Mailing address: P.O. Box 7001
2701 AA Zoetermeer
Telephone: +31 079 341 3634
Facsimile: +31 079 341 5024
Internet: info@eim.nl
A 0014

or from: Ministry of Economic Affairs
Information and Press Department
Mailing address: P.O. Box 20101
2500 EC Den Haag
Telephone: +31 070 379 8820 (during office hours)
Facsimile: +31 070 379 7287
Internet: <http://www.ez.nl/>
VOS-nr. 11R32

Graphic design and layout:
Ministry of Economic Affairs

Printing:
EIM Business & Policy Research

ISBN 90-371-0803-2

Table of contents

	The Netherlands: a country of entrepreneurs	5
	Gerrit Ybema, State Secretary of Economic Affairs	
	The organic economy of the 21st century	7
	Peter van Hoesel, Director General of EIM	
1	Introduction by the editors	9
	Jacqueline Snijders, EIM and Sander Baljé, Ministry of Economic Affairs	
2	Business dynamics in a new economy	11
	Joris Meijaard, EIM and Erasmus University	
3	Entrepreneurship in the 21st century	29
	Sander Baljé and Pieter Waasdorp, Ministry of Economic Affairs	
4	Knowledge-based enterprise in a new economy	51
	Elizabeth Garnsey, Cambridge University	
	Earlier publications in the series	71

The Netherlands: a country of entrepreneurs

The Netherlands is a country of entrepreneurs. This is reflected in countless developments. The prospect of starting an independent business is becoming increasingly popular, and it won't be long before the annual number of start-up companies tops the 60,000 mark. Students now regard entrepreneurship as a serious option, either for the future or as an activity to be pursued alongside their studies. And finally, more and more employees are familiarising themselves with aspects of entrepreneurship, if only because their employers are increasingly regarding them as fellow entrepreneurs.

These developments are gratifying. Entrepreneurship is the foundation on which prosperity, and – for very many people – welfare are built. It is crucial that we keep these foundations solid. The government has a major responsibility in doing so.

This booklet – which is published jointly by the Ministry of Economic Affairs and the EIM – outlines the importance of existing and new businesses for Dutch society. This importance is immense. Those entrepreneurs who will be starting new businesses over the next five years will between them have created at least 360,000 jobs by 2005. And by that time they will also have generated a combined added value of at least NLG 21 billion.

I believe that entrepreneurs are entitled to a government that provides incentives. A government that removes existing obstacles. And one which thinks hard about the future. After all, economic realities are changing very rapidly and are constantly imposing new demands. No entrepreneur can afford to ignore these changes. At the same time, all kinds of new opportunities are arising, especially for small, specialist firms. Not just in ICT, but also in other sectors.

A sound government policy will therefore not concentrate too much on the current situation, but will instead try to create openings for future gain. By relaxing rules and encouraging innovation. By strengthening the interface between education and entrepreneurship. And by consolidating networks – the binding agent in the economy of the 21st century.

This booklet summarises ongoing actions and presents a number of priority points for a new government policy. After all, an innovative and dynamic private sector deserves an innovative and dynamic government. The start of 2001 will mark the launch of the project 'The economy of the 21st century', the purpose of which is to draw up a strategic policy agenda for the longer term. Much of this agenda is still open. Yet innovative entrepreneurship will continue to occupy an important place in that agenda – that much is clear.

Gerrit Ybema
State Secretary of Economic Affairs

The organic economy of the 21st century

Ever since the internet started to operate world-wide, the economy has been developing a neural system. Communication between the various parts of the economic structure is now as fast as the transfer of messages in the neural systems of living creatures. The anorganic stage of the economic structure is now behind us and we have reached the early organic stage. Perhaps this new system has not yet achieved the full reflective powers of the human brain, but compared to the anorganic stage, its power is growing very rapidly.

I use this metaphor to explain, to some extent, the acceleration of economic growth in the last ten years. The effective communication system we now have at our disposal allows better coordination between companies, transparent markets, direct interaction with consumers, new products and services and the higher productivity of employees. These improvements may be considered to be the normal results of such a new system. And, as this system continues to develop the more the total economic performance will benefit.

In my view the crux of the new economy lies in the development of the economic structure into an organic system. It is more the process of the transformation of the old structure rather than the genesis of a new structure which tries to over-ride the existing one. The impact of this shift is comparable to that resulting from the introduction of electricity. Electricity gradually became an integral part of the entire economic structure and after a few decades it became indispensable in all economic sectors and it had laid the foundation for new products that would have never been invented without it (computers, for example!). And this gradual implementation resulted in significant economic growth. The major impact of the internet revolution (or is it evolution?) has yet to become effective, so continuing growth of the world economy may be expected in the next decades. Since the internet is easily accessible its benefits will be available world wide. This does not mean, however, that the economies of poor regions will overtake those of the rich regions within a short period of time.

In the anorganic stage poor regions apparently did not create a solid structure for the (classic) economy. A good communication structure only is not enough to ensure good economic performance. Communication between weak parts will produce weak results. Therefore it is necessary for those poor regions to build two systems. This is a huge task, but it also offers the opportunity to build the two systems at the same time, from scratch, in an integral way. It may be assumed that, in the coming decades, rich regions will profit more from the new system than poor regions. The investment potential of rich regions is incomparably higher. This requires a new vision concerning development programmes. The question is whether the present development aid will be sufficient to allow poor regions to profit from the new circumstances. As The Netherlands is one of the big investors in development programmes this calls for action from the Dutch government.

The best possible world development programme would be to set minimum prices for the main product streams issuing from those poorer regions and at the same time set a policy of minimum wages for the workers producing these products. Only then will poor regions be able to create the financial power that is needed for the double development described above. The resulting economic development will then give an extra impulse to the world economy as a whole.

Peter van Hoesel,
Director General EIM

1 Introduction by the editors

Entrepreneurship in the Netherlands is flourishing. Over the past year, some 55,000 people have started a new business, compared with only 40,000 in the early 1990s. Recognition of the value of the enterprise spirit has also risen substantially. Nearly 90 per cent of the population has a positive attitude to it. This favourable development has been accompanied by a substantial improvement in economic performance. The Dutch economy has grown in the past decade by an average of 3 per cent. And during this same period, approximately 1.3 million jobs have been created. It is therefore not surprising that in the Netherlands - as in the United States and other Western orientated economies - a discussion has arisen concerning the so-called new economy. The concept of entrepreneurship generally plays a crucial role in these discussions. The general view is that exploiting the potential of entrepreneurship is of an enormous importance for the success of the new economy.

Entrepreneurs are - in line with the view taken by Schumpeter - the economic players who dare to create *Neue Kombinationen*. This innovative approach to entrepreneurship is crucial, especially in a period characterised by a large measure of technological dynamism. Entrepreneurship plays a key role in the transition from a largely factor-driven economic growth to a more innovation-driven economic growth.

In order to benefit to the full from the potential inherent in entrepreneurship we must carefully think through the existing institutional arrangements and introduce new ones where necessary in order to maximise our investments in the new economy. In other words, we must give economic players, including the (pre) entrepreneurs, the right incentives and tools to optimally exploit the new technological opportunities that are arising. Therefore we stress the need for a proactive approach to the new economy and for the policy implications of this approach to be identified.

The contributions to this new edition of "Entrepreneurship in the Netherlands" confirm the here-above presented picture. They present the relationship between entrepreneurship and the new economy from three different perspectives. These three perspectives bring us a step further in our deliberations about how entrepreneurship should be encouraged in the new economy.

In the next chapter, Joris Meijaard of EIM and the Erasmus University describes the effects of information and communication technologies (ICTs) on the economic process in general. Due to the rapid advance in ICTs, changes are taking place that create new rules for productivity, employment and economic growth. ICTs affect transaction costs, information processing costs and returns to scale for a range of economic processes. And therefore they will have an effect on small and medium-sized enterprises and on the entry and exit of enterprises.

In the third chapter, Sander Baljé and Pieter Waasdorp of the Ministry of Economic Affairs consider whether the 21st century will become a new Golden Age for entrepreneurship. They show that trends such as demography, internationalisation, individualisation and information technology are creating more opportunities for innovative entrepreneurship. After discussing the role and functions of entrepreneurship, Baljé and Waasdorp elaborate on some new entrepreneurship trends and forms of entrepreneurship. They forecast that some of these forms of dynamic entrepreneurship will result in at least NLG 21 billion in value added in the

period 2000-2005. They also summarise current policy aimed at removing obstacles to entrepreneurship and describe a number of specific policy proposals in more detail. Baljé and Waasdorp end with a series of priority points which must be addressed more fully by public policy if entrepreneurship is to develop in a way that prepares the Netherlands for the challenges of the future.

In the fourth chapter, Elizabeth Garnsey of the University of Cambridge focuses on the role of knowledge-based enterprises in the new economy from a microeconomic point of view. Garnsey explains why some enterprises are particularly active in producing innovations that have an impact on the economy, why these innovative enterprises concentrate around centres of knowledge and why some innovative enterprises grow, create jobs and shape new industries and others don't. Knowledge of the typical growth paths of innovative enterprises can help policy-makers in developing effective policy instruments aimed at the stimulation of innovation, the growth of enterprises and business dynamics.

Jacqueline Snijders and Sander Baljé
January 2001

2 Business dynamics in the Netherlands

Joris Meijaard

2.1 New economy...

2.1.1 Introduction

This chapter discusses the economic system in the Netherlands, with special reference to small and medium-sized enterprises (SMEs). First, the chapter covers the key features of what is often referred to as 'the new economy', and then the chapter reflects on the state of Dutch entrepreneurship and business dynamics in relation to these key features.

Point of departure is the observation that series of innovations based on information and communication technologies (ICTs) can (potentially) alter some of the key processes in the economic system. Although in most Dutch industries the increasing investment in product, process and service improvements based on ICTs cannot be found to benefit productivity as yet¹, some of the optimal solutions for the efficiency and flexibility of firms do seem to be changing already². There are indications that fewer resources are used unproductively, that shocks in demand and supply are more easily corrected, and, that products are made in more (flexible) varieties. In time, overall production capacity may improve (through flexibility) and typical consumer satisfaction may also improve (through the quality of products and services).

This chapter analyses the state of Dutch entrepreneurship in light of recent national and international discussions on the possibility that the nature of the economic system is changing in terms of products, organisational forms, competition and real growth. The OECD (in the July 2000 report entitled "*A New Economy?*"³) posits that innovation and technological change have become more central to economic performance. Technology cycles have shortened⁴, while small start-up firms are becoming more critical to economic growth⁵. The recent EIM research report "*Making Sense of the New Economy*"⁶ concludes that growing numbers of scholarly economists are convinced that developments in information and communication technologies (ICTs) may improve the innovative capacity of the economic system for years to come. In due time, the rules for further economic growth may even undergo change, in particular in relation to firm size and the incentives for entrepreneurship.

At present, it seems reasonable, at the least, to assume that *the advances in information and communication technologies (ICTs) have a considerable potential to directly and indirectly impact economic growth*, possibly together with (self-enforcing) changes in the optimal organisation of capital markets, corporate cooperation and international trade. The developments in networked computing, electronic exchange of data and cellular telephony could be crucial. They influence the available opportunities to interact and learn, and therefore, to organise the internal and external processes of firms. Specifically, the leeway for flexibility, cooperation and speed is changing. According to leading economists and management gurus, the latter features are quickly becoming the key to economic survival. This is quite likely to make SMEs more competitive in one range of businesses (and less competitive in others).

2.1.2 Overview

This chapter features the related topics *new economy*, *business dynamics* and *entrepreneurship* with special reference to the Netherlands. Based on theoretical considerations and recent empirical data, we highlight ICT-innovation and the (possible) consequences for economic growth. Inference on the state of these complex affairs is inherently circumstantial. In a recent study of national e-business readiness by EIU (the Intelligence Unit of *The Economist*) the Dutch *business environment* was ranked first for the period 2000-2004⁷. Although the Dutch connectivity still appears to be lagging somewhat, the potential to become a leading nation in adopting and integrating electronic business appears to be very real.

Illustrating this, recent statistics from EIM show that, in the year 2000, the proportion of SMEs with electronic business activities rose from 8% in January to 22% in July. Internet access is booming (about 50% of the Dutch population access the Internet at least once a month⁸), and mobile telephony has rocketed (In July 2000 55% of the Dutch population own a mobile telephone (which includes my great-aunt of 98 and the 9 year-old twins next-door)).

First, I present a short overview of what defines and what could be driving the “new economy”. This overview is based on the recent EIM-research report “*Making Sense of the New Economy*”⁹. Based on other recent EIM studies, section 2 focuses on the developments in entrepreneurship, business dynamics and (ICT-induced) innovation in the Netherlands. Section 3, then concludes with some final remarks, which are of direct relevance to entrepreneurs and policymakers.

2.1.3 Theory of the ‘New’ Economy

In academic and popular publications, ‘new economy’ is applied as a collective term for the recent changes in the economic system, which may be changing the rules for productivity, employment and economic growth. Central to the argument of “the new economy” is that the rapid advances in information and communication technologies (ICTs) function as a platform for series of applied innovations across industries. These innovations may substantially impact the costs of interaction, transaction and information processing for many economic activities. Also, they may systematically alter the returns to scale for many activities. New opportunities and subsequent optimal solutions for the efficiency of organisations, markets and innovation as a process can have complex, compound and radical consequences on the structure and dynamics of the economy, possibly (temporarily) including the frequently mentioned ‘flatter’ business cycles and ‘minimal’ inflation.

Here, firstly, I elaborate on the logic in the link between ICTs, changes in the economic system and new economic growth. I start from the position that “*there is a reasonable and relevant chance that core features of the economic system will change due to the widespread adoption and incorporation of new information and communication technologies*”¹⁰.

In order to understand the essence of what may be new about the ‘new’ economy, it helps to separate five key mechanisms (‘logical chains’).

These mechanisms are discussed below. They feature ICTs as a source of *recombinant growth*¹¹, and, as a (potential) *general-purpose technology*¹². As such, in essence, the ICTs are capable of creating (snowballing) spurts of growth *across all sectors of the economy*.

Product features

To understand the relevance of specific product features, two types of products should be distinguished: (1) new products from ICT-sectors and (2) 'renewed' products from 'old' sectors. The 'new' products (e.g. hardware, software and flat e-commerce) can be seen as innovative intermediate goods or components. They are applied throughout the economy, mostly as investments in process innovation. The 'renewed' products (e.g. information products and 'enhanced' services) can be seen as product innovations that create new (niche) markets and close substitutes for 'adjacent' existing products.

Essentially, two features of both the 'new' and the 'renewed' products are important in relation to the 'rules' for economic performance¹³. Firstly, information-intensive products have very low marginal costs. This calls for arguments and considerations that are new to many managers and decision-makers, especially inter-temporal judgements on the complex and uncertain ranges of opportunity. The relatively low marginal costs of information-intensive products make them attractive to 'versioning' (varying their service, image and quality). Secondly, increasing returns to scale are a source of growth, especially in relation to 'new' and 'renewed' products and services that are related to networks. The larger the network is, the higher the pay-offs to its users are (so-called 'network effects')¹⁴.

The features of the 'new' and 'renewed' products as described here mean that their markets are likely to become natural monopolies in the end. In turn, this means that there may be fierce battles for dominance with a substantial waste of capital and time. The monopolist will be able to skim consumer surplus, for instance by offering limited versions and package deals. In this context, from a policy perspective, antitrust issues are increasingly important, in paradox with the arguments for efficiency in the scale of production and service (especially where the network effects are critical).

The key feature of many of the 'renewed' products concerns the added value generated by customised information-content¹⁵. For this 'information' as an input factor, the adapted 'old' products become subject to changing economies of scale (as well). One can easily imagine that in a fully-fledged new economy the new variations of physical, functional and emotional product-service combinations create a practically infinite set of opportunities to differentiate products, that is, as long as the significant groups of customers can be identified and reached.

SMEs may have competitive advantages in the creation of both 'new' and 'renewed' products and services. Especially in cooperative networks, SMEs can be very efficient in supplying specific competences. They can also be flexible and efficient niche players. On the other hand, reputation will be increasingly critical, which may be a barrier preventing many SMEs from competing. Overall, strategic cooperation appears to be critical. Aggressive marketing can be a winning strategy but if (and as the year 2000 has shown: *only if*) 'old' firms with a large head start in reputation (and brand name) are distant. Using or buying brand names that already exist can obviously be a shortcut here, possibly even into *any* market.

Organisational processes

The opportunities to use improved information processing and communication tools affect the critical conditions for business processes, especially the key management processes: *strategy*

formation, coordination and communication. The potential costs of interaction within and across the organisational boundaries change, creating new opportunities for efficiency, flexibility and agility in the market place (and for *learning*, see below). To capitalise on these new opportunities, organisational boundaries must be reconsidered, which, in turn, requires *strategic repositioning*.

In the evaluation and implementation of new organisational forms (networks, alliances, intermediaries) the governance of costly and specific assets (both material and immaterial assets) is a key issue. This involves decision-making on individual and collective investment, decision making on knowledge and learning, and, decision making on the management of opportunities. Much of this may require a different mindset in the face of uncertainty (e.g. 'real options' thinking¹⁶), especially since systematic uncertainty seems to be an important side effect of the new economy.

The dark sides of organisational innovation and restructuring are often forgotten in the discussions of the new economy. Adjustment costs, hidden costs and uncertain content and quality of decision-making information may result in substantial efficiency losses. It is not at all certain that, in the short run, total productivity, efficiency or economic performance will improve. Rather efficient old 'tools' to limit information requirements are in danger, especially if people make hasty decisions on the adoption of the new technologies. New mechanisms may 'fix things that cannot break'.

For start-ups and SMEs, the traditional trade-off between markets and hierarchies may become less and less relevant. This will really take flight if the challenges to effectively organise learning and information sharing within groups of SMEs are met. A 'truly' entrepreneurial economy may grow, where, as a rule, temporary constellations of competence units produce both the direct and indirect goods and services. As stated, reputation, experience and knowledge are critical elements in this system. Innovation and efficiency could both be cultivated if the (threat of) competition through substitution remains.

Market processes

New and improved tools of communication and information processing are likely to have an impact on the mechanisms of markets and thus on the allocation of goods and services. There are ample opportunities for demand and supply to meet each other better, faster and cheaper. Market imperfections may be alleviated, transaction costs may be reduced, and, the inertia in the responsiveness of firms is likely to reduce, in close interaction with the above-mentioned improvements in the organisation of value chains and business processes.

Regrettably, once again, new problems arise, most importantly involving signaling the quality of products and trusting the quality of information. A number of 'classic' microeconomic issues (e.g. transparency, price dispersion and asymmetric information) are central liabilities in the new market mechanisms. They are sources of transaction costs that were previously less relevant.

Increasingly, firms will have to discriminate their pricing and bargaining strategies and tactics between groups of customers (suppliers). And, as a result, some customers and suppliers will be seriously tempted to waste time and effort in (extensive) search processes.

Given the immense opportunities for intermediaries, new solutions, but also new and unpredictable inertia will occur, at least temporarily. In an information-intensive world in particular, transition processes are a potentially costly business.

The alleviation of market imperfections may take shape in many ways¹⁷. The principle behind the reduction of transaction costs in (electronic) markets is closely related to the changes in organisational processes as explained above. Blurring market boundaries can greatly improve market efficiency, but if and only if the information processing capability of firms structurally improves. This is especially true for infrequent transactions¹⁸.

The definition of many relevant markets evolves to depend less on geography and more on features of product and service. Outsourcing organisational functions and some of the new consumer services are key trends in relation to this¹⁹. The borders between markets become more vague and debatable at first. Soon, however, consumers should become more 'picky'. That is, their willingness to switch to substitute products/services should soon reduce.

The most important dark side in relation to markets concerns the potential miscalculation by suppliers, customers and new intermediaries alike. These miscalculations may relate to search costs, adjustment costs, costs of trust-building and costs of signalling the quality of information²⁰. Furthermore, in markets where the willingness (i.e. incentives) of consumers to look for substitutes declines, considerable moral hazards are created on the side of the suppliers of products and services. The incumbent firms may have strong incentives to make their markets less transparent and capitalise on the asymmetry of information. The challenge from a policy perspective is to keep markets contestable in order to avoid excesses here.

In principle, the new market mechanisms create great opportunities for start-ups and SMEs. There are many opportunities to become the new information and product intermediaries or to become a specialised supplier of content or substance in one or more 'value chains'. Management capabilities and reputation will be critical. New industry structures are likely to arise in many product-service categories, creating new balances in terms of efficiency, in turn (again) impacting the organisation of primary activities (incl. marketing) and support functions (incl. management).

Socio-cultural processes

Information and communication technologies are an important facilitator ('catalyst') for a number of social and cultural trends, most importantly globalisation and 'consumer empowerment'. Both processes are probably generic social and cultural desires²¹.

The past decade has shown a strong trend towards economic, social and cultural globalisation. The examples of McDonald's and Coca-Cola are typical, but the European Union, EEA, NAFTA and the end of the Warschau Pact are symbols as well. This trend can be seen as autonomous but given the timing it is very hard to believe in independence from the developments in the ICTs. At the least, the opportunities created by the ICT developments have facilitated internationalisation and the breakdown of barriers.

In addition to this, the end of the 20th century has also shown a substantial trend towards increased empowerment of workers and consumers. The ICTs have certainly facilitated the

process behind the trend as well. Opportunities for the mass-customisation of products and the mass-individualisation of demand are clearly ICT-driven.

Increased communication and information-processing capacity generate all sorts of incentives for renewed social and cultural change. At a slower pace, similar change processes have been working for centuries (e.g. through colonial trade, immigration and air travel). The pace has just been boosted.

Globalisation makes organisations more open to activities and partners across national borders and vice versa. As a result, globalisation feeds back into the efficiency of organisations, markets (see above) and learning (below).

Similarly, in relation to empowerment, the power distribution between customers and suppliers/producers changes, affecting the optimal organisation of value chains, the optimal market mechanism and the optimal process of learning and innovation.

At first sight, a trend towards globalisation seems to be a trend towards larger firms. However, SMEs will remain crucial on a local level, especially in transactions where 'soft information' is crucial. Within large organisations, 'soft information' does not travel easily, therefore specialised small businesses may be typically more effective²². Furthermore, as explained, SMEs can be global niche players if they manage to create a strong reputation. They can operate in strategic alliances, either temporarily or on a regular basis, and SMEs can be critical in the empowerment of consumers by mediating in the collection of information about preferences and translating this information into product deals for the 'busy consumer'. The other way around, SMEs can also function as seller agents for other 'specialised' SMEs, matching the products to the consumers. It is clear that the relational component of doing business as an SME remains crucial²³.

Innovation and learning

This is probably the most important mechanism in the potential of the 'new' economy. New tools to communicate and process information could trigger and facilitate the incentives for innovators and entrepreneurs to communicate and share information (especially at the pre-competitive stage). This may fuel technological progress, in particular if the information can easily be found and exchanged. Partly due the problems to protect information effectively, individual and 'collective' processes of innovation and learning appear to be under change, especially in the ICT-sector.

Effective management of knowledge within and between organisations can improve by the application of ICTs. Within and across the boundaries of the firm, if information becomes cheaper, the allocation of entrepreneurial and innovative capabilities can benefit. This means that entrepreneurial initiatives may, in principle, find their way more easily to the most productive use.

In a global, ICT-enhanced and cooperative world, the clock-speed of technological progress can improve greatly. This may even create opportunities for a rise in permanent economic growth. The changing efficiencies of value chain structures mentioned may create a trend towards smaller and more competence-driven units of operation²⁴, which could foster innovation and

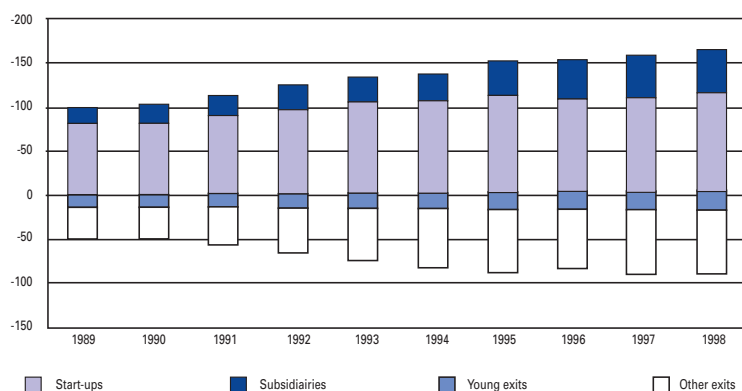
positive entrepreneurial dynamics, improving opportunities and incentives for learning within and between organisations. Globalisation and consumer empowerment could strengthen the incentives to share information. New forms of entrepreneurship and innovation as can be seen in ICT-clusters anywhere illustrate the potential shake-up of the 'competitive' process of learning and innovation. Incentives to entrepreneurship are gaining strength. The returns on innovations are increasingly hard to appropriate though secrecy or patents, but the opportunities to capitalise on innovations in a short lead-time are growing.

2.2 ... in the Netherlands

The Dutch economy is doing well. The Dutch planning agency CPB even expects the 3.5 % real growth in 1999 to improve over the next several years²⁵. Small and medium-sized enterprises are expected to raise their real sales by 5% in 2000 and 4.25% in 2001²⁶. In the Netherlands, exports are booming (almost 10% in real terms), while domestic expenditure growth is expected to peak in 2001 (partly due to considerable tax reforms). Labour shortages at all levels are a cause of anxiety, especially since present opportunities to make successful use of ICTs in organisational and product innovation are still relatively labour intensive²⁷. On the other hand, the labour shortages are an incentive to replace labour inputs in business processes at an accelerating pace, which, in due course, is bound to create competitive advantages for Dutch firms, especially if wages are kept under control.

Over the last decade, the numbers of firms entering and exiting the business population in the Netherlands have been rising consistently (both doubled between 1989 and 1998), as can be seen in the figure below.

Figure 1: Changes in the number of firms: startups, subsidiaries and exits (1989=100 for total number of entries)



Source: EIM, 2000, *Kleinschalig ondernemen in 2000*

Closer investigation teaches us that this does not mean that the 'turbulence' in the number of firms (entry + exit) is increasing. The total number of firms has grown at an average annual rate of about 5%, the total 'turbulence' has remained constant at around 15-16% of the total number of firms. In other countries the level and range for this rate is larger (USA 18-22%, UK 23-27% and Germany 21-22%)²⁸. Although one might think otherwise, the average firm size is not decreasing significantly. The growing total number of firms is being compensated by the relative growth of the larger firms (balancing the average firm size).

Since 1995 total employment in the Netherlands has been rising strongly (mostly due to the large enterprises, net about 50%). In previous years (when large companies had to shrink) small companies were still consistently creating jobs. Focusing on job creation only, 52% of new jobs between 1993 and 1997 were created by young firms (less than 5 years of existence). Most job destruction also took place in the same group of firms (33%). In 1999, overall job creation was, for the first time, higher in SMEs than in large firms²⁹. Size class comparisons with respect to sales, turnover and employment growth typically show patterns in which the large companies grow stronger than the small and medium-sized ones³⁰.

Noteworthy trends concern the changing growth and investment patterns of SMEs. Firstly, the share of fast growth firms is relatively large in the service sectors. The fast growth service firms have typically grown to a medium or large size quite quickly. In other sectors, patterns are much less clear. It is interesting to note that growth patterns typically fluctuate rather strongly. Almost 40% of the fast growers in the period 1992-1997 exhibited at least one year of shrinkage in terms of employment in that period³¹.

Secondly, the investment ratio (investments in fixed assets / gross value added) has risen to almost 20%. Investments in immaterial assets (like software) have risen particularly strongly. In SMEs, investment growth in buildings, machinery and transport has kept pace with the similar investments in large firms. This is important, since they would usually lag behind, especially in periods of high growth.

This might say something about the shifting capital intensity of a substantial part of the SMEs in the economic core. The ICT-induced innovation patterns discussed below (section 2.2.2, Table 2) may be related since, overall, the margins for SMEs appear to be decreasing³².

2.2.1 Products

Worldwide, the developments in Internet, computer and telecommunication sectors ('new' products) have a substantial share in economic growth. In the Netherlands, the ICT sectors account for 25% of annual growth. The major part of the (modest) labour productivity growth in the Dutch economy is also the result of the developments in these sectors³³.

The rapid technical developments in hardware products are obviously largely responsible for this. The Netherlands are not a significant producer of computer and Internet hardware. The fact, though, that Cisco Systems and other hardware manufacturing firms chose the Netherlands as their European headquarters does illustrate the attractiveness as a region (infrastructure, capabilities). The Netherlands are not attractive as a manufacturing base. In close correlation with this, the Dutch software sector has grown rapidly (in terms of number of firms and total sales). The region around Amsterdam, in particular, appears to be developing as one of the European competence centres in ICT. Service, ICT-skills, distribution know-how and a good business climate attract companies to the Netherlands and provoke entrepreneurial initiatives. The number of ICT-related startups has rocketed.

The year 2000 has brought a wave of e-commerce activities across all sectors in the Dutch economy. In the second half of 2000, almost half of all TV commercials appear to be related to the Internet. Many of these are firms that advertise to offer Internet and e-business solutions (B2B). Consumer behaviour i.e. buying on the Internet still seems to be rather reserved, but as a provider of information the Internet has taken a central position, especially in regard to pre-sale information. In some areas the adoption is progressing very swiftly (e.g. the job market).

Many firms (old and new) are experimenting with new product and service varieties that contain digital information, or, that are 'enhanced' with Internet services ('renewed' products). Especially the sectors of traditional information products (newspapers, television, music) have been very active in improving their products and providing (complementary) services over the Internet. The trend that many of these products experience considerable economies of scale and scope is easily recognised in the wave of mergers and acquisitions and in the growing number of joint ventures in these areas. The opportunities to discriminate prices and offer versions and varieties are not used much (as yet). To date, software, stock information and pornography seem to be some of the few sectors that are able to exploit a number of the obvious opportunities to skim the user surplus.

Other products are becoming more information-intensive as well ('renewed' products). In the provision of these, smaller businesses in particular seem to exhibit the flexibility and creativity to deliver successful innovations. The larger firms appear uncomfortable about altering their product concepts. This inertness provides many opportunities for SMEs. One problem for the SMEs, however, is the fact that once the large firms do decide to enter the (niche) markets, they are tough to compete with. Late entry into e-commerce is not really a problem if there is a solid 'bricks'-reputation (e.g. 'D-reizen' in the travel business, 'Free Record Shop' in the CD-business).

The network effects (increasing returns to scale) are most prominent in the telecom and cable services. From a government perspective the paradox between scale economies, effective competition and socially optimal levels of innovation is clear. In mobile and long distance telecom services competition and innovation seem to be reasonable, despite the fact that local telephony and the governance of the fixed network are in the hands of one and the same firm. In relation to this, Dutch local telephony is among the most expensive in the world. The complaints regarding the innovativeness of the recently merged Dutch cable networks are not inconsiderable either. Apparently, the current threat of competing cable services is limited and the technical requirements of the networks are a serious obstacle. Nevertheless, to a monopolist, the limited progress seems to be an illustration of the limited innovative incentives. Effective policy measures stimulating innovation in these sectors are a true challenge.

2.2.2 Organisational processes

The ICT technologies are triggering change in many business processes across the various sectors of the Dutch economy³⁴. There are clear variations in the order and intensity of these changes. The adoption of ICT-induced innovations has surged in the past two years. Developments in software applications have provoked repeated investments in hardware. Developments in hardware prices have provoked widespread adoption and renewal of information processing and communication products (and services). A recent EIM-survey using a large representative panel of Dutch SMEs³⁵ shows that the ICTs provoked innovations of many kinds in all sectors of the economy³⁶. The financial service sector seems to be leading the pack in terms of realised ICT-induced innovations.

Table 1 ICT-induced innovations by Dutch SMEs, realised in the last two years (combinations double count)

Sector	Products/ services	Innovations		
		Process/ operations	Purchasing/ sales*	Customer groups
- Percentage of total number of firms in the sector adopting ICT-innovations -				
Manufacturing	31	42	48	21
Construction	18	24	46	12
Trade & repair	28	23	54	19
Meals & food services	12	14	25	19
Transport	24	36	37	22
Business services	36	39	33	11
Financial services	56	41	65	37
Personal services	31	30	33	18
Non-private	48	39	37	18
Total	35	33	45	17
* Proxy based on ICT-adoption. This concerns either purchasing (inputs) or sales (outputs).				
Adapted from: Bruins, A. and De Jong J.P.J., (2000), Wat betekent ICT voor vernieuwingen in het MKB?, EIM: Zoetermeer				

Across sectors, the business processes ‘financial administration’ and ‘handling financial transactions’ appear to be changing the most (compared to the other core and supporting business functions). The fact that across sectors 41% of sales and after-sales are facilitated by ICT-applications is also noteworthy.

As is shown in Table 2, there is considerable variation across sectors in the adoption of ICT-applications. Obviously, for specific sectors some of the business functions are simply not as relevant, which explains their low adoption rates.

It is interesting to note that the construction industry is a leading adopter in handling the financial transactions electronically, while transport leads in adopting order and financial administration. Both sectors are typically considered to be slow in adopting any kind of innovation. They are mature industries, but apparently this makes them susceptible to the low risk, cost-saving innovations involved in these areas.

Trade and repair businesses are the only sector that reaches an average of over 50% in the adoption of ICTs in purchasing and this sector also leads in electronic sales and after sales service (together with the financial services), which seems consistent. Manufacturing and business service SMEs tend to use the ICT-applications relatively often in their ‘production processes’, construction firms are clearly lagging here. One may expect that once mobile hardware matures, construction and the other ‘moving’ services can quickly catch up.

In addition to the changes in the business operations of SMEs as discussed above, the importance of alliances, joint ventures and other forms of corporate cooperation is growing. To cut costs and to improve the likelihood of investment success, companies increasingly choose to ally with competitors, suppliers and clients³⁷. Also, it appears that companies increasingly

outsource and subcontract business processes in which the internal competences are not sufficiently 'specialised'. Typically, the market is considered a better incentive mechanism, also making it simpler to switch to other suppliers.

Table 2 Recent adoption (over the last 2 years) of ICT-applications by SMEs in ten business functions

Business function	% of firms adopting ICT-innovations Range across sectors:	All SMEs	ICT-adoption leading	ICT-adoption lagging
Order administration	44% - 82%	62%	manufacturing, transport	food services, business services
Handling financial transactions	61% - 84%	72%	construction, financial services	food services, personal services
Financial administration	72% - 92%	83%	Transport	food services, non-private firms
Personnel administration	31% - 39%	36%	-	-
Purchasing / ordering inputs	19% - 54%	35%	Trade & repair, construction, manufacturing	business services, financial services
Management of stocks	11% - 57%	32%	trade&repair	business services, transport
Sales & after sales service	24% - 65%	41%	Financial services, trade & repair	food services
Research and development	11% - 45%	29%	Business services, non-private firms	food services, transport, construction
Production process	14% - 49%	34%	Manufacturing, business services, non-private firms	construction, food services
Customer registration	57% - 96%	73%	Financial services	food services
<i>Adapted from: Bruins, A. and De Jong J.P.J., (2000), Wat betekent ICT voor vernieuwingen in het MKB?, EIM: Zoetermeer</i>				

The improved ICT-induced opportunities for effective business-to-business communication and commerce facilitate such kinds of changes in value chain organisation (restructuring). New economies of scale and scope arise, while existing synergies within diversified firms quickly lose their gloss. As discussed above, about 40% of Dutch SMEs is already starting to utilize these opportunities³⁸.

As mentioned in section 2.1.3, the opportunities of organisational innovation affect the critical conditions for strategy formation. New organisational forms are becoming attractive in terms of governance and coordination costs (e.g. The Vision Web). Existing companies are also rethinking their organisational structures. Entrepreneurship and intrapreneurship are receiving increased attention. Companies recognise the possibilities of lower coordination and communication costs, but also the necessity to organise some of the most innovative efforts in new ventures³⁹. In particular, a range of business processes is becoming increasingly attractive for outsourcing and joint initiatives. Most notably, cooperation in product development is common in the software sector and several service sectors (see 2.2.5, below). The booming number of startups in the Netherlands is, to say the least a reflection of the confidence of entrepreneurs in the opportunities offered by these new forms of cooperation, and particularly their chances of creating competitive advantages compared to larger businesses (despite disadvantages, for instance in terms of reputation).

2.2.3 Market processes

The developments in the last couple of years also indicate that market processes are undergoing considerable change⁴⁰. The Internet has created a range of opportunities for consumers to compare product prices and product qualities at minimal costs. Many consumers perhaps do not use these opportunities as yet, but the threat that they might do so and the threat that the media will publish such information are serious incentives for companies to keep qualities and prices at competitive levels. Negative publicity typically has stronger effects on demand than positive publicity. The track record of the 'Consumentenbond' (Consumer Association) in the pre-Internet era has clearly shown this. Now, there are a number of such platforms available to the consumers (and the media).

Furthermore, for a number of sectors the direct competitive threat of e-commerce has created a rather different market: a different arena for product pricing, introduction of product varieties and other competitive strategies. The consequences are particularly marked in the sectors where e-commerce appears to be working (like travel, music and real estate (all B2C)). In addition to this, in many B2B markets the potential threat of substitution by Internet (-enhanced) services has created significant dynamics. This particularly concerns the market structures for intermediary goods in trade and repair, construction and manufacturing industries (see also Table 2). Subsequent to this, the wholesale of all industrial and consumer products is likely to undergo rather drastic restructuring, as some industrial products and, for instance, the trans-shipment of goods already appear to have done so during the last few years.

Beyond these changes in market structures and value chains, in general terms, the incentives to break existing tacit collusion are probably gaining strength. The potential threat of new entrants is growing (also from abroad) and the tools allowing the government to detect collusive behaviour are improving. The European ban to pre-publish oil price changes, however, is an example of the sharp edges on both sides of the market mechanism:

transparency of prices is good, but it may breed tacit collusion in markets with an inelastic demand. It is likely that the demand for information and network services will eventually become rather inelastic, due to the considerable opportunities for customer lock-in⁴¹ (e.g. Microsoft, KPN, UPC). The more opportunities that are available to pre-publish price changes (Internet etc.), the stronger the incentives for monopolistic producers of close substitutes to collude (locally and globally). The challenge (need) for international regulation appears urgent⁴².

Furthermore, some of the specific Internet-based trade mechanisms appear to be explicit improvements in the efficient allocation of goods. Business to business, financial markets and electronic markets for bulk products (e.g. oil and chemicals) appear to be more efficient than regular markets⁴³. The (bartering) markets between consumers for second-hand goods and other tradables appear to be rather successful as well, although research is still lacking. The reduction of inertia and the increases in price dynamics described in this section have clear potential efficiency effects. Increased speed of communication and information processing can shrink market imperfections. Although the ICTs enable us to handle the corresponding increased uncertainties, some caution is due, since individuals and firms easily make miscalculations in this uncertain and dynamic world. The quality of products and quality of information are also very important issues now, and especially so under such new rules of uncertainty and dynamics. The existing electronic markets are competing for solutions in this respect, but we do not have clarity with respect to the direction of the overall effects. In any case, targets by companies like Philips and Siemens that state that 50% of their sales should be Internet-based in 2002, illustrate the importance of the new market mechanisms (impacting the relevant markets for many SMEs).

As such, reductions in stock and improvements in capacity utilisation may reflect improved (market) allocation mechanisms. Data from Statistics Netherlands show these trends. Capacity utilisation has risen to almost 85% in May 2000. Average warehouse stocks have been shrinking consistently over the last few years⁴⁴. Apparently, companies are increasingly able to trust the perfections of the market and therefore trade any surplus or stock while it is still 'in the air' (or pipeline).

2.2.4 Socio-cultural processes

If anything, the Netherlands are susceptible to the major trends that are summarised under the heading 'socio-cultural processes'. The Netherlands are a trading nation, strongly service-oriented. Dutch trade has been rising by double figures over the last few years. Globalisation and the corresponding mindset of pursuing specialisation and global comparative advantages are a must to keep in pace with international trade. It may well be in our genes.

The share of exporting Dutch SMEs, which rose from 14% in 1999 to 16% in 2000, to some extent illustrates the local impact of these globalisation trends⁴⁵. Due to the Internet, it has become substantially more easy to trade and communicate with far away places. Obviously, the competitive advantages of particular regions have always been recognised, but the competence to identify the most attractive sources of inputs and products is of increasing relevance. In many areas Dutch firms seem to have a considerable competitive advantage in their inclination to cooperate across borders. This competitive advantage feeds back and reinforces itself in the attraction of American and other subsidiaries to the Netherlands.

Likewise, the other key socio-cultural trend 'consumer empowerment' is catalysed by the opportunities of ICT-applications. The ICTs create opportunities to 'mass-individualise' products and services. The solutions to marketing such principally desirable products appear to be critical in order to maximise revenues in an information-intensive service economy. More specifically, the changes are critical in business processes and value chains to actually create, market and sell products and services in an individually tailored package and manner.

For entrepreneurs in the 'new economy', long-term opportunities seem to lie in the further (or *final*) adaptation of products and services to meet the total requirements of the consumer (or business client). This final adaptation may well be the most 'lucrative' part of the sale, it is the optimisation of the 'experience', which can be associated with the 'consumption' of a product-service combination⁴⁶. Perhaps, in the long run, this is the activity that adds most value, but also the activity that is most suitable for SMEs to perform. It requires the most creativity and that information which is most difficult to codify. Some strategies of medium-sized Dutch firms illustrate this, since they increasingly target tailoring product and service specifications to meet customer needs. The importance of these issues can also be illustrated by the inventive solutions to price differentiation in many sectors of the Dutch economy. Solutions provided by temp agencies for so-called 'flex-workers' are a good example: for these workers an almost unlimited variety of conditions is offered, aided by innovative labour conditions⁴⁷.

2.2.5 Innovation and entrepreneurship

The Dutch government has been facilitating the innovativeness of small businesses and the sectoral and regional processes of innovation for a number of years. This seems to be increasingly effective, as is shown in the next chapter. Performance, cooperation and overall activity in innovation are rising⁴⁸. Obviously, this is being facilitated by the opportunities provided by the Internet and other information-sharing technologies. The nation-wide innovation-brokering network Syntens (for instance) directly encourages SMEs to trade on the Internet in innovative ways and it stimulates (pre-competitive) cooperation.

The ICTs, the global knowledge infrastructure and the increasing empowerment of consumers (*and entrepreneurs*) create an environment that breeds innovation.

There are many opportunities to organise learning and information processing in new, innovative ways, more particularly across organisational and national borders. The cancelled Twinning project is an excellent example. Coupling talented Dutch firms to American siblings creates global cross-fertilisation of innovation and learning processes. These efforts are in principle sufficiently attractive to leave to the market.

Learning and knowledge accumulation are processes that exhibit increasing returns to scale. If information processing is relatively cheap, there is always synergy in combining knowledge. Especially in sectors where speed of innovation is more important than secrecy, the benefits of joint research and product development are multiplied as a result of the opportunities created by the ICTs. Both the radically improved capacity to process information and the radically improved opportunity to communicate across organisational and national borders have triggered enormous efforts by 'communities' of entrepreneurs. This is a trend that is unlikely to stop. The computing power of (networked) computers is still expected to grow rapidly⁴⁹.

On top of this, it appears that the 'power' of these knowledge-sharing networks is also

increasing⁵⁰. The communities of scientist and developers coordinating work in their efforts to solve similar problems are still growing (some following 'concerted' action plans like the human genome project). Gnutella is a key example and possibly a key element in the future of innovation and learning. Invented at AOL's Nullsoft, but killed as a project by this company, the program was further developed in the open-source. Its power is to search efficiently for relevant information in 'families of networked computers'. At the end of the year 2000, many startups all over the globe are building commercial applications of Gnutella, and the programmers are still optimising and improving it.

Together with these global technical developments, like-minded ICT-entrepreneurs⁵¹ and venture capitalists meet on a regular, informal basis at regional level to exchange knowledge and search for contacts to innovate (e.g. Silicon Valley, but also the Amsterdam multimedia cluster). These 'networks' of entrepreneurs may be a model for service innovation in the future. If the benefits (in terms of learning and knowledge accumulation) outweigh the costs and risks, these gatherings are an effective way to trigger and progress innovation. Nevertheless, some 'institutional' conditions should still improve.

In summary, the circumstances for innovative entrepreneurship are clearly improving, due to the adoption of ICTs and particularly the Internet, and also due to other influences that may be particular to the Netherlands. Most 'institutional' conditions seem to be in place to move learning and innovation up some gears.

Firstly, the *access to finance* is still limited for SMEs. In 2000, the Netherlands are ranked seventh in the share of venture capital investments in total investments⁵². Dutch investments financed through venture capital rose by 60% (compared to 1999), which obviously is a good trend. However, knowledge of appropriate success factors is lacking at banks and venture capital providers. Second, their competence to value options and uncertain pay-offs is improving only slowly. Entrepreneurs that seek financing still face substantial difficulties in the bureaucracy involved in proving themselves, especially to bankers.

Secondly, *access to information* should also still improve substantially. Active government policies, an improved information infrastructure, and the above mentioned access to capital for innovative firms⁵³ have enhanced the opportunities. These improved opportunities are reflected in the fact that nowadays many of the large intermediation and consultancy firms have small and medium-sized business as a targeted customer group. Nevertheless, the administrative, financial and emotional barriers for SMEs remain high.

Furthermore, a number of *barriers to industry dynamics* (entry, exit, turbulence etc.) are fading, but not really rapidly. Also, specialised and small-scale production and service facilities can become increasingly competitive. The Dutch numbers of firms are still rising more strongly than the natural rate. As mentioned, there are probably various trends behind this. One of these trends is that operations and services organised in smaller units and in systems of independent firms are gaining efficiency. In relation to this, the regulatory barriers to cooperation are decreasing. This increasing interdependence of firms makes strategy an ever-important part of successful business: flexibility and speed are critical, specialisation is required for firms and contestability is an absolutely crucial argument for policy-making.

2.3 Concluding remarks

Given the economic boom that the Netherlands are going through, it is hard to judge whether things are changing fundamentally in the process of innovation and economic growth. However, there are strong indications to this effect. The statistics indicate that entrepreneurship and business dynamics are critical themes, innovation is central to most corporate and entrepreneurial decision-making, possibly even more so than in earlier periods of economic growth. Yet, it is still too early to make definite judgements. Dutch decision-making culture may help us perform new Dutch miracles, as its features include tolerance of ambiguity, cooperative attitudes and preferences for controlled flexibility⁵⁴.

For entrepreneurs it is important to keep the appropriate information on the direct *and indirect* context of the corporate activities up-to-date. Competition may come from areas least expected, organisational change that conflicts with previous best practice may be required. Economic theory and systematic thought about the threats and opportunities of ICTs in relation to products, organisational processes, market processes, socio-cultural processes and most importantly processes of innovation and learning can aid in understanding developments in the medium run. Changes in corporate organisation and behaviour are important (pricing, business models, management practice, information management, corporate intelligence etc.). The new entrepreneur probably needs to be agile (responsive and flexible), cooperative and innovative, but also street-smart in economics and management.

For policy-makers, it is important to recognise the potential threats to social welfare due to product features, organisational processes, market processes, socio-cultural processes and processes of innovation and learning in relation to the development and adoption of ICT-innovations in the economy. Despite the obvious benefits of ICTs as a source of (snowballing) spurts of growth across all sectors of the economy, there are both long- and short-term adverse effects. These should be evaluated and monitored for active policy-making. Among these potential negative effects are those related to natural monopolies, hidden costs, miscalculations, uncertainty, increased inequality and higher entry barriers due to information asymmetries. These effects are explicitly worth taking into account when forecasting developments and considering policy measures. Many of the potential measures can probably not be executed effectively on a national or even a European level. They demand regulatory efforts on a global scale, which, at present, would probably be impossible to implement.

1. Van der Wiel, H. (2000), *"ICT Important for Growth"*, CPB report, 00/2. www.cpb.nl
2. E.g. various contributions in: Soete, L. (2000), *ICT en de nieuwe economie*, Koninklijke vereniging voor de Staatshuishoudkunde: Preadviezen 2000, Lemma, Utrecht
3. OECD (2000), *A new economy? The changing role of innovation and information technology in growth*, OECD, Paris, page 27.
4. Ibid., page 32.
5. Ibid., page 42.
6. Meijaard, J. (2001), *Making Sense of the New Economy* (De tabak van de nieuwe economie), Research Report A0016, EIM, Zoetermeer.
7. The Economist's Intelligence Unit, March 2000, www.ebusinessforum.com.
8. Pro Active International, Internet Monitor, September 2000, www.proactive.nl.
9. Ibid., page 42
10. This issue is dealt with in the Economist almost every week. Most chapters in the influential book by Brynjolfsson and Kahin (2000) provide good insights. Brynjolfsson, E. and B. Kahin (2000), *Understanding the digital economy*, MIT Press Boston, MA..
11. Varian, H.R. (2000), *The Law of Recombinant Growth*, in: The Industry Standard, 28-2-2000
<http://www.thestandard.com/article/display/0,1151,11884,00.html> (based on Kauffman (Santa Fé Institute) and Martin Weitzman (Harvard University))
12. Nelson, R. R. (1995) in: Bresnahan and Trajtenberg (1995).
13. See, for example, Shapiro, C. and H. Varian (1998), *Information Rules*, Harvard Business School Press, Cambridge, MA
14. Early users of networks initially achieve low pay-offs relative to their investment. Late adopters get an increasingly better deal, simultaneously improving the deal for the 'incumbent' users (the latter effect is (unjustly) often neglected).
15. Many of the adapted 'old' products also concern shifting travel, search or other transaction costs either out of or into some product variations. These products mostly transfer activities into and out of the market economy. Like the so-called amusement and experience goods, they just add to people's enjoyment.
16. e.g. Venkatraman, N. and N. Kulatilaka (1999), *Are you preparing to compete in the new economy*. Use a real options navigator, www.bu.edu.
17. Internet auctions; market making intermediaries; various forms of brokering; destination-less shipping et ceteras.
18. For frequent transactions, the new ICTs and specifically the Internet provide excellent opportunities to create efficient long term relationships.
19. e.g. Hulshoff, H. et al. (1998), *New Services*, EIM Strategic Study, Zoetermeer
20. e.g. Tirole, J. (1988), *The Theory of Industrial Organisation*, MIT Press, Cambridge, MA
21. They have been 'culturally resident' at least since the Romans (globalisation) and Eve (consumer empowerment).
22. Stein, J.C. (2000), *Information Production and Capital Allocation: Decentralised vs. Hierarchical Firms*, NBER, Working paper 7705
23. Andersen Consulting / EIM (2000), *Detailhandel in de E-economie*, HBD, Den Haag.
24. Audretsch and Thurik (1999), *The Knowledge Society*, EIM Research Report 9801, Zoetermeer.
25. CPB (2000), *The Dutch Economy*, CPB report 00/2, The Hague, pp.7-11
26. EIM, *Ondernemen in 2001* (Business in 2001), Zoetermeer.
27. Both OECD and IMF note the risks of an overheating Dutch economy. Both the investment part and the service part of new opportunities are typically labour intensive. There may still be considerable flexibility in both the hours worked and the labour participation.
28. EIM (1999), *Benchmark Ondernemerschap* (Entrepreneurship benchmark). Data concern 1992-1997. It is important to note that over this period the net growth of firms is 1.6% in the USA, 1.3% in the UK and 4.6% in Germany. There may be some sort of trade off. The latest data for the Netherlands show that turbulence is 15.6% and net growth 5.1% (July 99-June 00). Source: EIM (2000), *Ondernemen in 2001*.
29. Sources: EIM (2000), *Kleinschalig Ondernemen 2000*, Zoetermeer and Ministry of Economic Affairs, *Ondernemerschapsmonitor najaar 2000*, The Hague.
30. This may be due to the fact that new entrants are often still not measured, while exiting firms are. Additionally, good medium-sized firms gradually shift to the large size-class, while poorly performing large firms do the opposite...
31. EIM (2000), *Groeipatronen van bedrijven* (Corporate growth patterns), Zoetermeer
32. EIM (2000). *Kleinschalig ondernemen 2000* (Small-scale Business), Zoetermeer
33. Van der Wiel, H. (2000), *ICT Important for Growth*, in CPB report 00/2, pp.17-23.
34. See e.g. already: Jansen, A.M. (1998), *De Betekenis van Electronic Commerce voor partijen in ketens van consumptiegoederen* (The significance of E-commerce for firms in value chains of consumer goods), B9709, EIM, Zoetermeer
35. SMEs defined as independent enterprises with less than 100 employees.
36. Innovation defined as products, processes and organisational concepts that are new for the organisation.

37. This year, Dutch parliament will probably approve raising the limit for reporting a merger. This is largely to enable the competition authority NMa to look better into critical formal and informal cooperative agreements, instead of wasting time on the smaller mergers and acquisitions, which are less likely to be harmful from a welfare perspective.
38. EIM is currently engaged in an extensive study on this topic.
39. Idem.
40. Bernardt, Y. (1999), *Marktwerving: Kansen en bedreigingen voor het MKB* (Market mechanisms: Opportunities and threats to SMEs), A9906, EIM, Zoetermeer
41. Shapiro, C. and H.R. Varian (1998), *Information Rules*, Harvard BS Press.
42. As also noted, for instance, in Red Herring Magazine, 4-12-2000, www.redherring.com.
43. Most industries already have quite a few electronic markets, of which it is likely that only a few will survive (e.g. Forrester Research (4-9-2000)). Companies typically choose to participate in several electronic markets. Many of the markets will drop out in the next few years, and the firms want a clear presence in at least one of the 'winning' markets.
44. Statistics Netherlands (2000), www.cbs.nl.
45. Ibid.
46. Pine III, J. and J. Gilmore (1999), *The Experience Economy*, Harvard BS Press
47. The full package of services offered by many of the ICT companies in the Netherlands (as well as in Silicon Valley) are in line with this. Many of the new services studied by Hulshoff et al. (1999) also react to these mass-individualisation issues.
48. Bernardt, Y. (2000), *De Innovativiteit van de Nederlandse Dienstensector* (The Innovativeness of the Dutch Services Sector), A9919, EIM, Zoetermeer. See also: CBS (1999), *Kennis in Economie* (Knowledge in the Economy), Voorburg.
49. Distributed computing ("the Grid") is projected to be the most important development (partly replacing the Internet) for the next few years, by sources like The Economist (8-12-2000), Red Herring (4-12-2000), and Deutsche Bank (Investment report 14/7/2000)
50. Red Herring, Trend No. 1 for 2001 (4-12-2000), p.92 of the paper version.
51. EIM is currently conducting research into characteristics and behaviour of these entrepreneurs. They probably share features (e.g. growth targets) with the successful 'techno-nascent' in: Gelderen, M.W. van (1999), *Ontluikend Ondernemerschap* (Nascent Entrepreneurship), Strategische Verkenning B9807, EIM, Zoetermeer
52. EVCA Yearbook 2000, www.evca.com. (executed by PricewaterhouseCoopers and 3i).
53. Banks and venture capitalists often explicitly help (and push) management to gather all the relevant information.
54. Meijaard, J. (2001), *Decision-making on Innovative Issues: Multinationals from the Netherlands and the US*, mimeo, Erasmus University.

3. *Entrepreneurship in the 21st century*

The role of public policy

S.H. Baljé and P.M. Waasdorp*

3.1 Introduction

In the novel “De eeuw van mijn vader” [My Father’s Century], Geert Mak describes his grandfather’s traditional sailmaker’s business at the end of the 19th century. Mak’s grandfather was in many ways still a 17th century entrepreneur who drew up his profit and loss account once a year on New Year’s Eve, spent the rest of the year keeping his accounts on bits of paper and knew all his customers by name. The Netherlands at this time stood on the threshold of a major economic overhaul. Within just a few years, entrepreneurs like Mak would be swept away in the wake of the mechanisation and industrialisation that would begin their march across the Netherlands at the beginning of the 20th century. New and above all different types of entrepreneurs now emerged. Today, at the start of the 21st century, The Netherlands is again on the eve of a structural economic revolution. Economic and social trends such as individualisation and the role of ICT are accelerating, and deeply influencing the structure of the Dutch economy. In this analysis, we shall be focusing on the role of entrepreneurship in the economy of the 21st century. Will entrepreneurship undergo a similar change to that in Geert Mak’s grandfather’s day? And if so, what are the implications of this for policy-makers?

The structure of this chapter is as follows. In the second paragraph, we describe the role that entrepreneurship most likely will play in the 21st century. In the third paragraph, we outline the benefits and costs of new entrepreneurship. In the fourth paragraph, we describe a number of entrepreneurship trends and new forms of entrepreneurship. In the fifth paragraph, we summarise current policy aimed at removing obstacles to entrepreneurship, and describe a number of specific policy proposals in more detail. The paragraph ends with a series of priority points which we must address more fully if entrepreneurship in the Netherlands is to develop in a way that prepares us for the challenges of the future. We end this chapter with a brief summary and conclusions.

3.2 The role of entrepreneurship in the 21st century

3.2.1 Functions of entrepreneurship

Entrepreneurship is the driving force behind the economy of the 21st century. An entrepreneurial society in all its facets is necessary in order to realise the growth potential of the so-called new economy.¹ For the Netherlands, entrepreneurship is crucial for the transition from factor-driven growth from the last decade to a more innovation-driven growth in the next century.²

Entrepreneurship contributes to flexibility and innovation, acts as a jobs engine in the economy, is a means for individual development, and provides a vehicle for emancipation and integration. Private businesses can also make a positive contribution to resolving social issues and problems.

Flexibility and innovation

Entrepreneurs are the discoverers and innovators in the Dutch economy. For example, high

growth companies invest 40 per cent more in R&D than other companies.³ Start-up and rapidly growing businesses in particular do not rely on established practices or techniques but instead think of new products and new ways of acquiring their market share. They occupy a key role in the innovation process.⁴

Jobs engine

Entrepreneurship is a source of new employment. Much of the success of the Netherlands' 'jobs machine' is attributable to entrepreneurs in start-up and high growth companies: between 1994 and 1998, they generated more than 80 per cent of new jobs.⁵

Individual development

The reasons for becoming an entrepreneur are often highly individual. Entrepreneurship is a way of expressing creativity, personal growth and self-reliance and is thus also one of the main forms of social participation. In this sense, entrepreneurship does not substantially differ from employeeship. Neither form of labour is simply a means for acquiring income. They are both increasingly an end in themselves.

Emancipation and integration

Entrepreneurship is a way of encouraging the economic participation and integration of women and ethnic minorities. 34 per cent of all the starters who set up their own companies in 1998 were women. Six years ago this was just 26 per cent. Ethnic entrepreneurship has more than doubled since 1986: whereas in 1986 3.3 per cent of the non-indigenous working population were entrepreneurs, this is now 7.4 per cent.

Socially responsible enterprise

Social enterprise means that in their activities, companies make a conscious effort to promote social welfare and social development. There are an increasing number of initiatives in which companies are supporting ideological projects through the provision of their expertise and organisational talents. In this way, entrepreneurs can make a contribution to solving social problems.

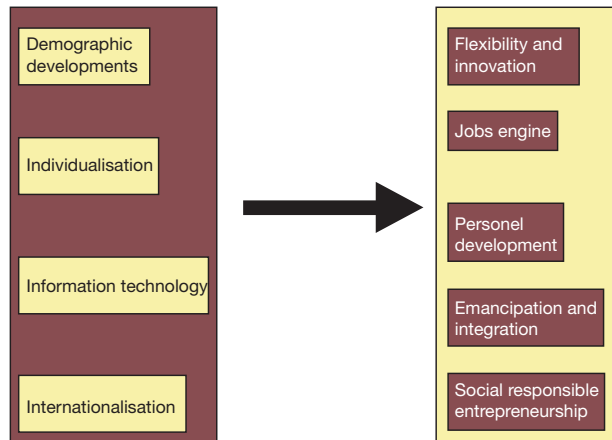
3.2.2 Major trends in the 21st century

Basically, the 21st century in the Netherlands will be defined by four major trends: demographic developments, internationalisation, individualisation and information technology. Some of these trends have already been visible in our economy for some time (such as individualisation), while others have now speeded up (such as information technology).^{6, 7}

The information technology trend is playing an especially important role here. Knowledge (having information and being able to use it effectively) is a decisive factor in the competitiveness of companies, countries and individual employees. However, the availability of knowledge and information alone is not enough. The knowledge available must also be able to be disseminated and applied efficiently and effectively. ICT plays a crucial role in this process. Given that ICT is exerting an influence on the economy as a whole, the dynamism of knowledge production and dissemination has been given a substantial boost. ICT is a breakthrough technology and many of the current changes that have occurred in society are attributable to information technology and ICT developments.⁸

These four trends strengthen the aforementioned functions which entrepreneurship fulfils in the economy (see figure 1). For instance, demographic trends such as rising labour participation among women has also led to an increase in female entrepreneurship. Individualisation has caused many people to want to develop and validate themselves by setting up their own businesses. However, individualisation also influences flexibility and innovation. Information technology is creating more and more opportunities for start-up companies and forms of innovative entrepreneurship. Internationalisation

Figure 1: The four trends influence the roles of entrepreneurship

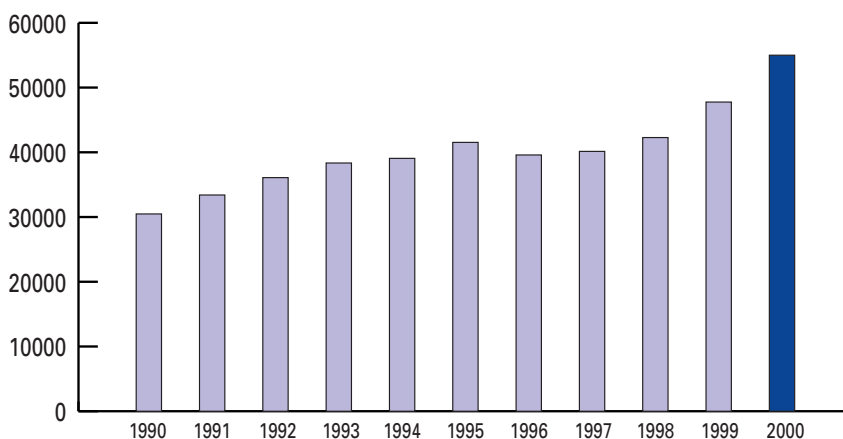


3.3 The benefits of new entrepreneurship

The four major trends that have a defining influence on the economy of the 21st century also have consequences for the different forms of entrepreneurship. Entrepreneurship will become more dynamic in future. This growing dynamism is reflected in the rise of new forms of entrepreneurship such as the development of serial entrepreneurship and the increasing importance of intrapreneurship and socially responsible enterprise. These new forms of entrepreneurship also impose new demands on the entrepreneur himself. The ability to handle complexity, maintaining collaborative relationships, the creation of networks, the use of information and knowledge and the ability to exploit market potential are becoming increasingly important.

Entrepreneurship is doing well in the Netherlands.⁹ The number of starters in 1999 rose sharply to almost 48,000, and in view of the growth that has occurred during the first half of 2000 it seems quite likely that this number will have reached 55,000 during the course of the year 2000 (see figure 2).¹⁰ The largest number of starters is in the services sector, and especially in the business services sector.

Figure 2: Number of start-up companies in the 1990-2000 period*



* The figure for the year 2000 is an estimate

Do all these start-up companies add value to society or have most of them failed within a couple of years and do they therefore impose high costs on society? Some discussions focus unilaterally on the cost side of start-up companies: starters, it is sometimes argued, are ill-prepared and therefore go bankrupt quickly. This strikes us as too one-sided. For a balanced analysis of rising entrepreneurship in the Netherlands not only the social costs of failing start-ups should be taken into account, but one should also take the social benefits of start-ups into consideration. The social benefits of start-up companies have been enumerated in paragraph 3.2.1. In this paragraph we outline for the first time the benefits and costs of "starting entrepreneurship" in terms of value added and job creation. In our calculations we only pay attention to the direct effects of start-up companies. The positive direct effects are self-evident: how many jobs and value added do start-up companies create? The negative direct effects, the costs, are defined as the sum of the unpaid debts of start-up companies which did go bankrupt and the capital loss of companies which stopped their activities (a so-called "normal cessation").¹¹

On balance, the calculation of the direct benefits and costs shows a positive picture. In table 1 we illustrate the company dynamics for the 1994-1998 period. In figure 3 and 4 we present the net benefits of start-up companies in the period 1994-1998. Starters contribute to sustainable job creation. Start-up companies which were established in the 1994-1998 period and were still in business in 1998 had created 278,000 jobs by the end of 1998 (this is the net job creation).¹² At the end of 1998, the value added provided by these starters was almost NLG 13 billion. This is equal to a share of more than 3% in the total gross value added of the private sector as a whole.

The net benefits are calculated as the gross benefits minus the costs. The gross direct benefits of start-up companies are more than NLG 14 billion, and the costs, on the other hand, NLG 1,4 billion. This means that in the period 1994-1998 the total costs are by about 10% of the gross benefits. Basically, then, the benefits of start-up companies far exceed their costs.

Table 1: Business dynamics in the 1994-1998 period

Period	1994	1998
Starters	39,000	42,000
New subsidiaries	11,000	18,000
Cessation of activities	27,000	34,000
Bankruptcies	5,000	4,000
Net entry (starters plus new subsidiaries minus cessations)	23,000	26,000
Turbulence (Starters plus new subsidiaries plus cessations)	77,000	94,000

Figure 3: Net benefits of start-up companies in the 1994-1998 period and an outlook for the period 2001-2005, expressed in jobs

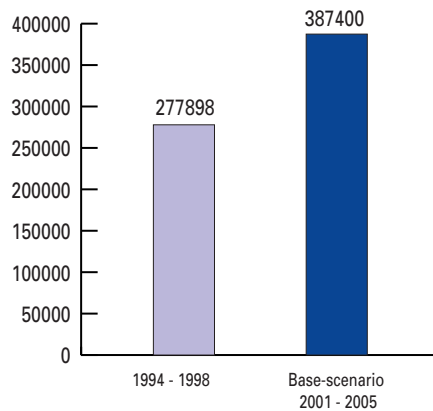
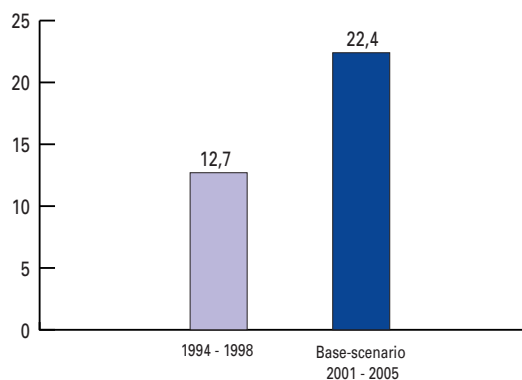


Figure 4: Net benefits of start-up companies in the 1994-1998 period and an outlook for the 2001-2005 period, expressed in guilders of value added



In table 2 we outline the provisional forecasts for the business dynamics in the period 2001-2005. This forecast is based on the development of the trend in the period 1987-1998.¹³

Table 2: Outlook for the business dynamics in the 2001-2005 period

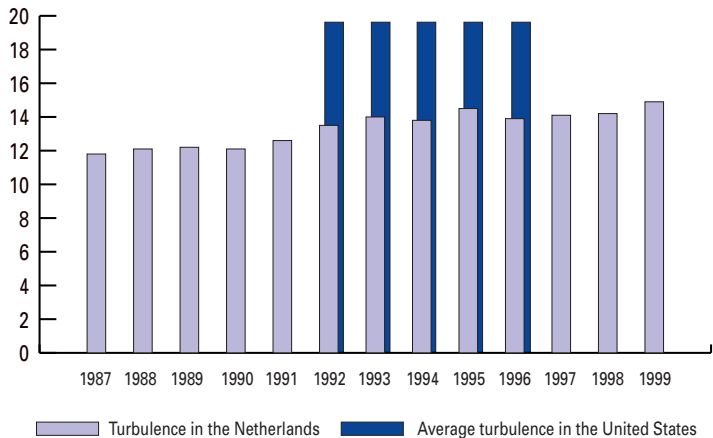
Period	Base-scenario (Based on the trend 1987-1998)	
	2001	2005
Starters	54,400	53,600
New subsidiaries	22,100	27,900
Cessation of activities	41,800	45,100
Bankruptcies	5,200	5,500
Net entry (starters plus new subsidiaries minus cessations)	34,700	36,400
Turbulence (Starters plus new subsidiaries plus cessations)	118,300	126,600

In the base-scenario the companies which will be established in the 2001-2005 period and which will still be trading in 2005 will, according to these forecasts, have created almost 390,000 jobs by the end of 2005 (see figure 3). The value added generated will have increased by 22,4 billion (see figure 4). That is a rise of almost 80 percent in comparison with the 1994-1998 period!

The base-scenario also shows that the benefits far exceed the costs: the total costs are by about 8 per cent of the gross benefits. That is a decline with 2 percent-point compared with the period 1994-1998! It therefore seems to be justified to conclude that start-up companies are nowadays important and in the future will be more important for the performance of the Dutch economy.

The here-above presented outcomes are supported by recent research which shows that an increase in turbulence, which is the case in the above presented scenarios for the period 2001-2005, is accompanied by a higher growth in productivity. Figure 5 reflects the fact that turbulence in the Netherlands has risen sharply over the past 10 years. Even so, this dynamism appears to be at a structurally lower level than it is in the US.¹⁴ If the turbulence in the services sector in the Netherlands reaches the level it has in the US, then a 1% increase in productivity growth will be possible after two years.^{15 16}

*Figure 5: Turbulence in the Netherlands and the United States in the 1987-1999 period (in percentages)**

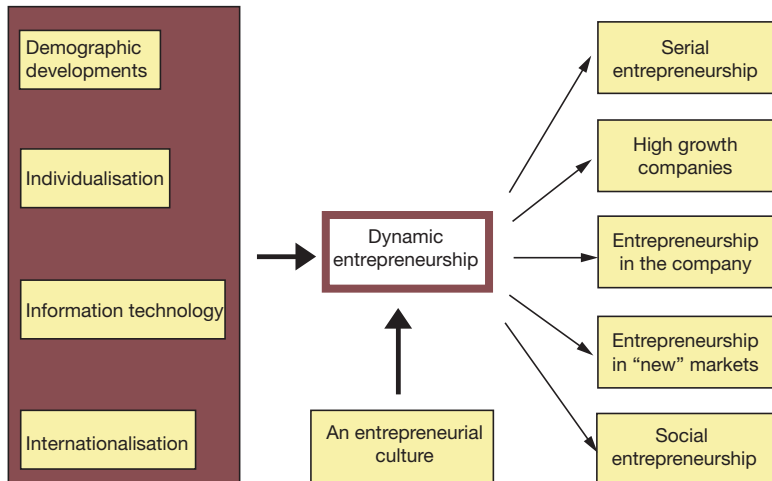


* Turbulence is defined as the sum of the number of companies entering and exiting the market as a percentage of the total number of companies in the period in question.

3.4 What ‘new’ entrepreneurship trends are visible?

One of the main preconditions for optimally exploiting the prosperity effect of “dynamic entrepreneurship” is the existence of an enterprise culture. In the next paragraph, we will describe two ingredients required for such an enterprise culture. In the subsequent paragraphs, we will present new forms of entrepreneurship. These forms of entrepreneurship are examples of what dynamic entrepreneurship will look like in the future. We do not intend this to be exhaustive. However, we believe that we can provide an overview of some of the main trends. What we have discussed above is again briefly shown in diagrammatic form in figure 6.

Figure 6: An entrepreneurial society



3.4.1 An entrepreneurial culture

The stigma of failure

Obviously not all starters do succeed. Of those that survive, once again only a small percentage actually go bankrupt: in 1999, such companies represented 7% of the total number of company cessations. Labour and capital that has been invested in the 'failed' companies must quickly be transferred either to the successful company or to a new company. In order to be able to succeed in the economy of the 21st century, a rapid throughput of production factors such as labour and capital is required, in addition to entrepreneurship. Whether or not this happens depends partly on how society views business failures. The University of Nijmegen has indicated that in the Netherlands, failures are still too rarely seen as a learning process.¹⁷ Over 50% of failed entrepreneurs claim it is difficult to start up a new company.¹⁸ This percentage is much higher than it is for non-failed restarters. There is still a stigma on failure. In the Netherlands, that stigma is also more onerous than it is in the US. It is indicative that the number of entrepreneurs restarting a company in the US after failing is much higher than it is in the Netherlands, namely 47% compared with 31%.¹⁹

Risk-bearing financiers in the US tend to see a previous business failure as a learning experience. Anecdotal evidence suggests that US venture capital companies even make explicit use of the expertise and learning experiences of failed entrepreneurs.²⁰ It is relatively easier to start and restart a company in the US. In the Netherlands, there is usually a stigma attached to the person of the entrepreneur himself, rather than to the legal entity.²¹ Financiers generally ask a start-up entrepreneur/majority shareholder for a personal guarantee. Credit rating agencies tend to attach a negative score to a company failure on the basis of econometric research. This makes it more difficult for these companies to attract finance. There is also the problem of obtaining a ministerial declaration of non-objection for the establishment of a private limited liability company. In the Netherlands, this is also dependent on earlier bankruptcies. This can present an extra hurdle for restarting entrepreneurs (see box 1).²²

Box 1: Setting up a private limited liability company²³

In the Netherlands, setting up a private limited liability company takes three to four times as long as it does in the United Kingdom or the United States. These disparities can to some extent be explained by differences between Anglo-Saxon and Dutch Law systems. But apart from this, a study of international laws and regulations reveals a number of differences which in the Netherlands present bigger obstacles to entrepreneurs wanting to start a new company. For example, the Netherlands requires a mandatory minimum capital of NLG 40,000. Countries such as Australia, Ireland and the United Kingdom only apply a symbolic amount. In the US, there is no minimum capital requirement at all. It is striking that some branch organisations in the Netherlands impose added requirements with regard to operational activities. In the transport sector, for example, this NLG 40,000 is imposed per existing truck rather than per new private limited liability company.

Such a stigma attached to failure presents a real obstacle to genuinely succeeding in the 'new economy'.²⁴ A truly entrepreneurial society learns from failure by giving people a second chance.²⁵

Entrepreneurship in education

The boundaries between employee and entrepreneurship are gradually dissolving. Employees will in the future alternate between training and the performance of care tasks, working for an employer and being self-employed. An entrepreneurial attitude will be one of the core skills for each worker. The question we must ask here is whether Dutch students are being properly prepared for a (possible) career as an entrepreneur? Today's college benches contain the entrepreneurs of tomorrow. The throughflow from the education system to entrepreneurship is not as good as it could be. For example, only 7 per cent of Dutch students want to begin their own company within three years of graduating. In the US this percentage is almost three times as high.²⁶ Two out of every three entrepreneurs claim that they were not prepared during their studies to become independent entrepreneurs.

The fact that stimulating entrepreneurship skills is important is illustrated by research conducted by the University of Nyenrode into the characteristics of successful entrepreneurs among more than 200 entrepreneurs. This revealed that daring, reflection, a strategic approach and management and communication skills are especially important for success.²⁷ Other factors which also play a role are primarily creativity, goal-orientation, empathy and determination. However, the development of these personality traits and skills has generally so far been under-examined in the standard education curriculum.

3.4.2 Serial entrepreneurship

Will there be more opportunities for start-ups in the 21st century? On the one hand the minimum efficient scale for economic activities may be lower because of the use of ICT. The OECD, for example, has pointed out that in new product-market segments where demand patterns are unclear and the risks are great, small companies have an advantage over existing companies.²⁸ On the other hand, there is also a tendency of an increasing minimum scale. In some product-market segments the production process is characterised by high investments,

negligible (re)production and distribution costs and strong network effects. The challenge for the entrepreneur will be to earn back his high investments for example by rapidly increasing the size of the company and thus making optimum use of network effects.²⁹ One may expect to find a broad spectrum of innovative entrepreneurship ranging from first-time start-ups to techno-start-ups to serial entrepreneurs.

Serial or habitual entrepreneurs are entrepreneurs who sell or exit their companies and then set up, manage or invest in a new company. This type of entrepreneurship appears to be playing an increasingly important role.³⁰ Serial entrepreneurship is after all one of the consequences of the changing way in which people approach the notion of employment and entrepreneurship. Flexibility with no fixed patterns are the characteristics of the new worker. This not only covers the crossover between employeeship and entrepreneurship, but also the crossover from entrepreneurship to entrepreneurship (only this time in a new company) or the crossover between entrepreneurship and “informal investor”-ship.

Serial entrepreneurs often call to mind relatively young and ambitious people who obtain capital through a stock market flotation with the aim of setting up a new company. This generally happens in sectors such as information and communications technology. Yet entrepreneurs in entirely other sectors can also move to a completely different sector as serial entrepreneurs: either as new entrepreneurs or as informal investors or as coaches for start-up entrepreneurs. In the US, this trend is already quite well developed. For instance, a survey among US high growth companies shows that these individuals have often set up a business before: almost 50% more often than they have in the Netherlands (see also box 2).

Box 2: Succession in family-owned businesses³¹

Family-owned businesses play an important place in our economy. In the Netherlands there are a fair number of family-owned businesses which will have to face the question of succession over the next few years. Only 17 per cent of the family-run companies is actively engaged in considering the question of succession. Almost half the entrepreneurs who are doing so or are thinking about doing so have one or more major problems, of which finding a suitable successor is the most serious. A study by the European Commission shows that around 10% of company failures are caused by the inability to find a successor to manage the company in time. If a successor is found, this often improves the performance of a family-owned company. For example, research showed that the succession of a new generation of entrepreneurs often creates a higher growth path for the company. Moreover, the effective organisation of a successor creates more scope for serial entrepreneurship.

3.4.3 High growth companies

In the economy of the 21st century, speed is the key to success.³² In a turbulent economic environment, there may be more market opportunities, but there is also greater uncertainty about the yields and hence the risks involved. Entrepreneurs are thus forced to act more quickly in order to exploit the best market opportunities.³³ A particularly good example of decisive companies are the high growth companies. The number of high growth companies is an indicator of the adaptability and innovative capacity of the Dutch economy.³⁴

The number of high growth companies as a percentage of the total private sector was in the

period 1994-1998 by about 8,5%. That is 2%-point more than the period 1993-1997.³⁵ For many high growth companies, their growth path is interrupted by the so-called "glass ceilings".³⁶ High growth companies in the Netherlands take on average around 20 month to break through such a ceiling. This is more than 50% longer than for a comparable US entrepreneur.³⁷ What is the reason for this? Not only do his individual qualities decide whether an entrepreneur will genuinely break through the 'glass ceiling'. Coaching and support from other high growth companies can also play an important role. However, due to the high search costs involved, such networks of high growth companies do not always find it easy to get off the ground in the Netherlands. This seems to contrast with the situation in the US, where 63% of the high growth companies are members of a network of high growth companies. In the Netherlands this only applies to 27%.³⁸

3.4.4 Entrepreneurship in the company

Intrapreneurship

The economy of the 21st century is also above all about new organisational structures.³⁹ Almost all the different functions of a company are changing in the economy of the 21st century. The entrepreneurs of the 21st century want nothing to do with soul-destroying company structures. A central concept in the change of company functions is the transition from a company organisation geared towards production to an organisation geared towards managing knowledge.

A company must be innovative in all aspects of company policy in order to keep its head above water and to continue to grow. The degree to which this is the case depends on the type of company involved (industry or services, small or large). For example, the corner bakery will probably be less influenced by ICT than a globally operating multimedia company. Yet in the future there will be almost no entrepreneur left who will not be in some way affected in the exercise of his business by developments in the economy of the 21st century.

One of the ways of incorporating entrepreneurship into the company is to stimulate intrapreneurship. Various studies by McKinsey & Company show that large companies, if they want to remain successful in the future, will need to create more scope for this form of entrepreneurship.⁴⁰ Research from the University of Nyenrode has also indicated that intrapreneurship is a potentially effective way of bring about the creation of value.⁴¹

Approximately 45 per cent of the companies with more than 100 employees appears already to have heard of the concept of intrapreneurship. Almost a quarter of the companies has helped employees to set up their own company in the past five years. If we look only at companies which are currently engaging in intrapreneurship, this percentage falls to just over 8 per cent.

More than three-quarters of the companies states that the importance of intrapreneurship will at least increase in the future. Seven out of 10 companies are consequently (highly) positive about intrapreneurship. However, the parent company hardly ever actively encourages employees to set up their own company. The initiative generally lies with the employee himself (75 per cent). 40 per cent of the new companies is innovative: either they are investing in new products/services, or they are investing in R&D or both.⁴²

Intrapreneurship cannot simply be imposed from the top down. A stimulating company organisation in all its facets is crucial here. Good organisational conditions must formulate the right incentives and remuneration structures. Rapid decision-making procedures and a second chance for rejected proposals are the most obvious examples.⁴³

Corporate venturing

Another way in which large companies use the speed and innovative capacity of small companies is in corporate venturing. Corporate venturing takes the form of strategic alliances into which a large company enters with a small company. In this way, corporate venturing offers large companies access to new markets and new technological areas and thus helps them to create opportunities for technologies which do not belong directly to their core business. An increasing number of large companies appear to be engaging in corporate venturing.⁴⁴ Corporate venturing can also have positive effects for smaller companies. For instance, it can make it easier for small companies to obtain external financing and it can also offer support when obtaining access to new markets and technologies. In the Netherlands, around 30 large companies take part in corporate venturing. The incidence of corporate venturing has risen sharply in Europe. However, Europe is still lagging a long way behind the United States. In the Netherlands, there is a substantial volume of unutilised potential within large companies which could be engaged in corporate venturing⁴⁵

3.4.5 Entrepreneurship in “new” markets

Entrepreneurship in the market for information

In addition to traditional production factors such as labour and capital, knowledge is of crucial importance in the economy of the 21st century.⁴⁶ Knowledge is a key competitive weapon for the entrepreneur. This not only includes knowledge that is used to develop new products, but knowledge in all areas: for example, management and organisational methods up to and including knowledge about how to maintain relations with customers. The creation, exchange and application of new knowledge is after all strongly facilitated by ICT.

However for many, especially the slightly smaller entrepreneurs, it appears to be difficult to apply the abundantly available knowledge. Many smaller companies can no longer see the wood for the trees. This so-called information paradox for SMEs is visible in many areas, such as export, finance, social security etc.

Entrepreneurial networks can play an important role in narrowing these information gaps. And this can in turn make a positive contribution to the performance of a company. The chances of survival of starters can for example increase if they are members of a network. It is likely that (new) entrepreneurs will begin to focus on removing this information disparity. Some forms of information disparity will probably not be resolved by the market. Occasionally they will continue to exist, and sometime the government will be able to help reduce the information disparity, and sometimes branch organisations will be able to do this.

Entrepreneurship in “new” service provision sectors

The four trends which we outlined in the second paragraph also influence the way in which “household” tasks are carried out. Until recently, almost all domestic duties were done within the family itself. However, the rise of a service-minded, the blurring of the distinction between work and leisure time and the changes in family composition are making it increasingly

difficult for many people to combine work and domestic chores. The result of this trend is that household tasks are increasingly becoming commercialised and contracted out.⁴⁷ Many “new” entrepreneurs are entering this personal services market, with or without the use of new ICT provisions.⁴⁸ For instance, there are service bureaux in Amsterdam which provide domestic assistance to individual households. The service offered varies from doing the shopping, letting in the plumber and providing cleaning services, up to and including arranging meals and tickets for theatre performances. An increasing number of employers are offering their employees such facilities.

3.4.6 Social entrepreneurship

Social entrepreneurship means that companies must consciously take co-responsibility for social welfare and social development. They do this in cooperation with other companies, interest groups or governments. Social entrepreneurship will become a prerequisite for survival for companies in the 21st century. 65% of existing entrepreneurs says that socially responsible entrepreneurship will be a generally accepted phenomenon within five years.⁴⁹ Companies are after all producing goods and services for critical, well educated and increasingly better informed customers, who make both individual and social demands. Companies can use ‘social entrepreneurship’ or ‘socially-orientated enterprise’ to build up trust. In addition to having a reassuring ‘brand image’, companies try to use social entrepreneurship to manage a (turbulent) social environment.⁵⁰ One core element in this is to provide the correct information, with which companies can establish a solid reputation among consumer and other social stakeholders.

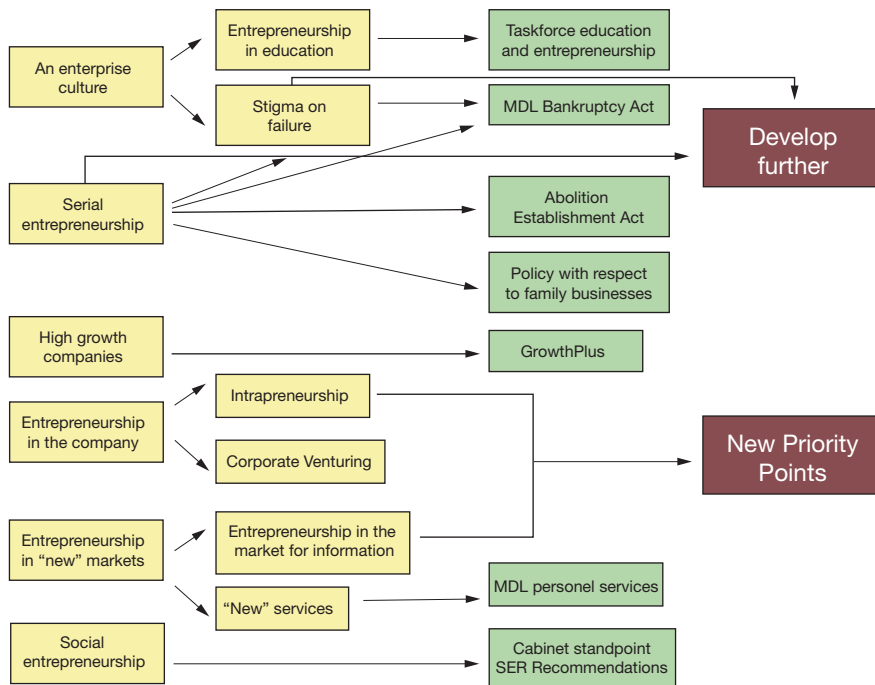
The practical interpretation of social entrepreneurship will differ for each company and will depend on the sector, the region and the scale of the company. The social context in which for example a multinational like Shell operates is entirely different to that of a regionally orientated company. In both cases, however, these companies will be asked to exercise their social responsibility.⁵¹

A study of the Nyenrode University and PriceWaterhouseCoopers shows that one third of the 2,500 biggest companies in the Netherlands applies a code of conduct. Over half say they are currently working on the development of a code of conduct.⁵²

3.5 What does this mean for public policy?

In this paragraph, we indicate how our analysis can be translated into concrete policy actions. We have based this discussion on the policy document *The entrepreneurial society: more opportunities and fewer obstacles for entrepreneurship*. We cover a number of the policy studies presented in this policy document. We conclude this paragraph with a number of “new” priority points for future public policy. We are not claiming to present a comprehensive overview of all public policy aimed at reducing obstacles to entrepreneurship.⁵³ The subdivision between new priority points and existing ones is shown in figure 8.

Figure 8: Trends and new priority points to be developed in public policy



3.5.1 The entrepreneurial society

The policy lines in the policy document "The entrepreneurial society" are designed to reduce obstacles and to create opportunities for entrepreneurship. These policy lines cover three priority areas: market structure, regulation and public service provision and the creation of a productive climate (see box 3).

Considerable progress has been made in the implementation of these policy lines since the publication of The Entrepreneurial Society in september 1999. For example the scope of Establishment Act has been substantially reduced as of January 2001 and the new tax system contains a special package with fiscal incentives for entrepreneurs. We highlight the progress made on three elements of the policy on entrepreneurship, the reform of the Bankruptcy Law, stimulation of entrepreneurship in education and high growth companies.

- Reduce scope of the Establishment Law as of 1 January 2001 and abolition as of 1 January 2006 at latest
- Reforming the Bankruptcy Act
- Deregulation in the context of the Market Function, Deregulation and Legislative Quality project II
- Reducing administrative costs, especially for the first employee
- Setting up one-stop shops in Drenthe, Groningen and North West Holland
- Organising simpler and more accessible incentive and subsidy schemes
- Package of fiscal incentives for entrepreneurs
- Increasing the guarantee budget of the SME Guarantee Scheme
- Including entrepreneurship in education for young people and offering opportunities for them to prepare for entrepreneurship
- Attention for entrepreneurship in the context of the major urban centres policy
- Advice and support for exporting entrepreneurs
- Setting up a network of high growth companies
- Improving the climate for technostarters at provincial level

Reforming the Dutch Bankruptcy Act

The Dutch Bankruptcy Act dates from 1893 and has some serious shortcomings. The vast majority of requests for a moratorium on payments ultimately results in a bankruptcy. Moreover, bankruptcy procedures often take a long time and the recovery rates (i.e. the percentage of claims that creditors are repaid) are low. Apart from the bankrupt entrepreneur, the supplying companies, which are often small SMEs, tend to come off worst in a bankruptcy.⁵⁴ These non-secured creditors only tend to see between 2% and 6% of their claims repaid. An initial Bill for a new Bankruptcy Act was presented to parliament in the summer of 1999. The new Act makes a sharper distinction between viable companies which have been granted a moratorium on payments following assessment by a court and non-viable companies for which a bankruptcy is the most appropriate course. The cooling off period has also been extended to up to four months, the receiver is given more powers, preferential creditors such as the tax authorities and social insurers will lose part of their preferential position to 'ordinary' creditors, and utility companies are obliged to continue supplying. The MDL working group has discussed new proposals for a further review of the Bankruptcy Act (see also box 4).

Whenever a reduction of the preferred position of secured creditors would lead to a tightening of loans policy because these creditors fear that they will recover less of their claim if the company goes bust, this could have a negative effect on a large section of the private sector. Yet this need not be the case. In the Bill that has been presented to parliament, for example, a sharper distinction is made between viable companies which have been given a moratorium on payments following an assessment by a court and non-viable companies for which a bankruptcy is the most appropriate course. This is an important guarantee for capital providers who fear for the value of their collateral. It is also important to realise that as a result of the total system effects (better procedures, a sharper selection for access to a moratorium, more room for manoeuvre for the receiver, a moratorium with regard to preferential creditors as well), the social efficiency of the bankruptcy scheme will be increased. The position of creditors (i.e. financiers) can thus be strengthened on balance, so that no negative effect on the credit provision need result. Good procedures will increase the amount that all the creditors can recover. Key creditors such as banks often take priority, so this is certainly favourable for them. However, fairer and more transparent procedures will ensure that in informal procedures, banks as direct stakeholders do not simply act in their own interests and against those of the other creditors. This could in itself be a bad thing for the banks (but a good thing for the other creditors). The overall effect can however be positive.

Encouraging entrepreneurship in education

Although for many people lifelong employment is no longer a given, the education system does not adequately reflect this. The Dutch education system is generally only geared towards preparing people for employment and less towards preparing them for entrepreneurship. In order to encourage a reversal of this trend, the State Secretary for Economic Affairs, Gerrit Ybema, has introduced the Subsidy Scheme on Entrepreneurship on behalf of the Minister of Education. A sum of more than NLG 10 million has been set aside for projects to stimulate entrepreneurship in education in the period leading up to 2002. The subsidy scheme is designed to finance projects or publicly financed education establishments which are geared towards giving entrepreneurship skills a fully-fledged status in the education curriculum.

In recent years, however, there have been some changes in education in this regard. For instance, one-third of all universities now has its own chair in commercial enterprise. A number of HBO courses also includes entrepreneurship, as do an increasing number of MBO courses.⁵⁶

Boosting the number of high growth companies

High growth companies in the Netherlands are finding it difficult to break through glass ceilings. As a result potential high growth companies remain on a lower growth path. In order to boost the number of high growth companies, the Ministry of Economic Affairs and the Confederation of Netherlands Industry and Employers VNO-NCW have supported GrowthPlus Netherlands.⁵⁷ This provides for a programme for network formation aimed at high growth companies. GrowthPlus is also involved in the organisation of masterclasses for ambitious entrepreneurs. Another element of the high growth policy is the programme "Maak Kennis

Met..." which at the initiative of the Ministry of Economic Affairs will from 2000 onwards be more closely focused on high growth companies. Via "Maak Kennis Met...", which is being implemented by Syntens, participants will be given the opportunity to look at each other's companies and hence to learn from each other's tips and from the mistakes they have made.

3.5.2 Priority points for new public policy

Our analysis also reveals a number of new policy challenges. Entrepreneurship is in essence all about taking risks. The degree to which entrepreneurship can flourish is a function of the willingness of the population to accept risk (and the spread of risk) and the social and economic gains. In general, public policy should be geared towards rewarding the taking of risks wherever possible. The policy mix which the government has at its disposal consists of, among things: ensuring an efficient functioning of markets and institutions through the adjustment of legislation and regulations, the provision of information and advice and the award of subsidies and tax incentives. In the entrepreneurship policy for the 21st century, this policy mix will presumably remain very similar. However, other accents will need to be made and certain elements will be given a different practical form. To give two examples, entrepreneurship in education will be a continuing priority area. The way in which this is interpreted in practice can however involve a mix consisting of institutional reform, public information and subsidisation. It may very well be that somewhere along the line a stronger emphasis will be given to institutional reform. Another example is the provision of information and advice which has in recent years increasingly been targeted at making information for entrepreneurs more transparent. Perhaps an increasingly important element in this mix may be facilitating the coaching of entrepreneurs.

With this broad policy line in view, we suggest below some of the possible themes for entrepreneurship policy over the coming years. It should be pointed out that this is only a tentative inventory of possible policy challenges. Prioritising these themes and initial policy responses will need to be worked out in more detail.

Stigma of failure

The stigma on failure is still evident in the Netherlands. Obstacles to the start and restart of companies will need to be reduced. The coaching of entrepreneurs can play a significant role here. Improvements can for example be made in coaching entrepreneurs in financial difficulties. During this initial phase of a company getting in financial difficulty, entrepreneurs can benefit from advice from an experienced entrepreneur who can protect them from pitfalls. In the US, for example, the SCORE initiative has been established; this is a form of mediation via the Internet between coaches and entrepreneurs.⁵⁸ Separate attention should also be given to reducing the costs of setting up a private limited liability company, and in particular to the way in which previous failures of the entrepreneur are heavily taken into account. Efforts should be made to see whether this approach requires adjustment.

Serial entrepreneurship

Encouraging serial entrepreneurship has a positive effect on the utilisation of the available informal capital in the Netherlands, on the provision of coaching and advice by (ex) entrepreneurs and finally on efforts to boost the number of starters. Priority points to address here are the exit opportunities for investors and entrepreneurs, the transparency of the market

for the sale of companies and again the stigma on failure. Government policy is already geared towards reducing bottlenecks in relation to successors for family-owned businesses so that this potential source of serial entrepreneurs can also be more effectively utilised.⁵⁹

Entrepreneurship within the company

New forms of entrepreneurship are arising. Some of these involve the ability to encourage entrepreneurship within the company. For many larger companies, this is one of the main challenges for the future. And this challenge also makes other demands of the entrepreneur himself. In recent years, there have been various attempts to develop knowledge but at present it is still unclear what consequences this development is having on policy governing entrepreneurship.

Crossover between employment and entrepreneurship

Lifelong employment is no longer self-evident. Pursuing one's own success and developing one's own skills and creativity are becoming progressively more important and also more accepted. Many people are doing this within the context of employment. A growing number of people will however work as a entrepreneur at sometimes during their working lives. It is vital that the crossover between employment and entrepreneurship is placed more emphatically on the policy agenda. Linked to this is the question to what extent the existing collective arrangements tie in with the wishes and needs of modern employees.

Knowledge gaps among SMEs

We have identified gaps in knowledge among SMEs. However, what is less clear is whether and by whom they can be filled. Often the entrepreneur can do this by himself. Sometimes the government can also play a role. And in other cases, branch organisations can resolve the problem. This will need to be dealt with on a case-by-case basis. In this context, the development of knowledge regarding the division of tasks between branch organisations and the government is crucial.

Entrepreneurship in "new" service provision sectors

Entrepreneurs are very keen to get into the market for personal services. However, it is unclear to what extent there are institutional obstacles in these markets. Related to this is the question of how the various tasks are to be shared between the public and private sectors. Existing government policy appears to be unclear on this. For example, the government is trying to withdraw from the classic public spheres of labour, working hours, labour relations and working conditions. Yet at the same time, it is entering previously private sector domains such as child-care and training. The MDL "personal services" project, which will be concluded in mid-2001, will study the opportunities and obstacles for this market.

Socially responsible entrepreneurship

Social entrepreneurship will become an important element of doing business in the coming years. In December 2000, the Socio-Economic Council (SER) issued recommendations to the cabinet on the division of tasks between the government and the private sector within the

context of socially responsible entrepreneurship. In the year 2001, a start will be made on formulating a cabinet standpoint on these SER recommendations.

Box 5: The effects of public policy

In paragraph 3.3. we introduced a model which made the direct costs and benefits of companies younger than 5 years visible. This model can also be helpful to calculate the effects of public entrepreneurship policy. The calculations show that the repeal of the Establishment Act, the introduction of more entrepreneurship in education, the changes in the Bankruptcy Law, the lowering of the stigma on failure and finally the lowering of the administrative burden on hiring the first employee could result in an extra 67,000 jobs (+ 17 per cent) and NLG 4,6 billion (+ 20 per cent) value added. In table 3 we show the gains of entrepreneurship policy.

Table 3: Effects of public policy (for the period 2001-2005)

	Jobs	Value added
Gross benefits	+ 67,100	+ 4,4
Unpaid debts of bankruptcies		- 0,1
Capital loss of cessations		- 0,1
Total effect	+ 67,100	+ 4,6

3.6 Summary and conclusions

Will the economy of the 21st century become a new Golden Age for entrepreneurship? All the opportunities and parameters seem to be in place for such a scenario. Trends such as demography, internationalisation, individualisation and information technology are creating more opportunities for innovative entrepreneurship. The contours of new forms of dynamic entrepreneurship are beginning to reveal themselves. Serial entrepreneurship, intrapreneurship and new forms of personal service provision are just a few examples. In our analysis, we have tried to outline these new developments. The risks of entrepreneurship and of economic turbulence will probably increase as a result. Government policy can most effectively exploit this by continuing to remove institutional obstacles to entrepreneurship and by creating an incentive-based economic climate. We have indicated a number of possible areas in which public policy can be applied. To conclude, in our view, rewarding rather than penalising entrepreneurship and the taking of risks should be the guiding principle of entrepreneurship policy.

- * Both authors work at the Entrepreneurship and SME Department of the Ministry of Economic Affairs. They are writing in a personal capacity.
1. See e.g. OECD (2000), *A new economy? The changing role of innovation and information technology in growth*, Paris.
 2. ING (2000), *MKB Miljoenennota 2000*, Amsterdam, SBA (2000), *The third millennium: small business and entrepreneurship in the 21st century*, Washington, National Governors' Association (2000), *Nurturing entrepreneurial growth in state economies*, Washington, Ministry of Economic Affairs (2000), *The entrepreneurial society* (Parliamentary Papers 1998/1999, 26736, no. 1), The Hague, Oosterwijk, J.W. (2001), *Nieuwe bronnen voor welvaartsgroei*, Economisch Statistische Berichten, pp 4-7.
 3. Wijers, G.J. (2000). *De aalbaarheid voorbij: de kenniseconomie vraagt om fundamenteel andere inrichting van de samenleving*, Den Uyl-lezing 2000.
 4. Ministry of Economic Affairs (1998), *High growth companies in the Netherlands*, The Hague.
 5. OECD (2000), *A new economy, the changing role of innovation and information technology in growth*, Paris.
 6. Progressive Policy Institute (1999), *The state new economy index - benchmarking economic transformations in the states*, Washington.
 7. EIM (2000), *Het belang van bedrijfstypen voor de werkgelegenheidsontwikkeling*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 8. Ministry of Economic Affairs (2000), *De economie van de 21e eeuw: bloei door kennis en keuze*, The Hague.
 9. For a more detailed account of the long-term trends, see Schnabel, P. (2000), *Een sociale en culturele verkenning voor de lange termijn*, pp. 11-28, in: CPB and SCP, *Trends, dilemma's en beleid: essays over ontwikkelingen op langere termijn*, The Hague.
 10. CPB (2000), *Centraal Economisch Plan*, The Hague.
 11. Despite this, entrepreneurship in the Netherlands is lagging behind in some regards. For instance, the number of potential entrepreneurs in the Netherlands is lower than it is in the US, the number of innovative starters is limited, starters often remain small and the Netherlands has very few high growth companies. For a more detailed discussion, see the policy document: The Ministry of Economic Affairs (2000), *The entrepreneurial society* (Parliamentary Papers 1998/1999, 26736, no. 1), The Hague.
 12. EIM (2000), *Het belang van bedrijfstypen voor de werkgelegenheidsontwikkelingen*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 13. Nota that we left more difficult to measure effects, such as an increased uncertainty for economic actors including employers, out of our calculations. We have to mention that the direct effects tell only a part of the story. Start-ups also have influence on the performance of existing firms. On the one hand start-ups induce existing firms to innovate and perform better. On the other hand, start-ups may actually gain market-share at the expense of some of the existing companies. Further research is necessary to obtain accurate insight into the size of these indirect effects.
 14. EIM (2000), *Baten en lasten van starters*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 15. EZ (2000), *Ondernemerschapsmeter juni 2000* (Themaspecial over intrapreneurship in het Nederlandse bedrijfsleven), Den Haag.
 16. It should be noted that the percentages for the Netherlands and the United States in figure 5 are not fully comparable.
 17. EIM (1999), *Bedrijvendynamiek en economische prestaties*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 18. One or two studies suggest that the application of ICT appears to exert a positive influence on turbulence and hence on growth and innovation. The study on the relation between ICT and turbulence is however still in its infancy. EIM (2000), *De invloed van ICT op het bedrijfsdynamiek*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 19. University of Nyenrode (2000), *Succesvol ondernemerschap: eerder een kwestie van karakter dan van kennis*, Breukelen (study commissioned by the Ministry of Economic Affairs and the NVP).
 20. B&A Groep (1998), *Klaar voor de herstart?*, The Hague (study commissioned by the Ministry of Economic Affairs and the ING).
 21. EIM (1998), *Business failures and entrepreneurship in international perspective*, Zoetermeer.
 22. Another indication of the different way in which the US approaches company failures is the legislation under which credit rating firms are obliged after a period of 10 years to remove all information relating to the failure from their files.
 23. The Debt Restructuring for Natural Entities Act has abolished unlimited personal liability for debts.
 24. In order to get round this potential problem some entrepreneurs purchase an empty company titles.
 25. This box is based on: Deloitte & Touche (2000), *De Besloten Vennootschap in ondernemend Nederland*, Haarlem (study commissioned by the Ministry of Economic Affairs).
 26. Sahlman, W.A. (1999), *The new economy is stronger than you think*, Harvard Business Review, pp. 99-106.
 27. See e.g. Leadbeater, C. (1999), *Living on thin air*, London.
 28. Universum (1998), *Examining students' attitudes towards entrepreneurship*, Stockholm.
 29. University of Nyenrode (2000), *Succesvol ondernemerschap: eerder een kwestie van karakter dan van kennis*, Breukelen.
 30. OECD (2000), *Differences in economic growth across the OECD in the 1990s: the role of innovation and information*

- technologies, OECD Growth project, Paris.
29. Ybema, G. and S.H. Baljé, (1999), Snel groeien in de informatie-economie, *Economisch Statistische Berichten*, pp. 904-907.
 30. IESE and Europe's 500 (1997), *A formula for successful growth*, Barcelona and Brussels.
 31. Sources which were used for this box are: Ministry of Economic Affairs (2000), *Ondernemersmonitor March 2000*, The Hague; EIM (2000), *Groei patronen van bedrijven*, Zoetermeer (study commissioned by the Ministry of Economic Affairs) and: EIM (2000), *Het belang van bedrijfstypen voor de werkgelegenheidsontwikkelingen*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 32. Wind, J.Y. and J. Main (1998), *Driving change. How the best companies are preparing for the 21st century*, London.
 33. McGrath, R.G. (1999), *Falling forward: real options reasoning and entrepreneurial failure*, Academy of Management Review, pp. 13-30
 34. Baljé, S.H. and P.M. Waasdorp (1998), Ontdekkers en vernieuwers, *Economisch Statistische Berichten*, pp. 924-926.
 35. EIM (2000), *Het belang van bedrijfstypen voor de werkgelegenheidsontwikkeling*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 36. Ministry of Economic Affairs (1998), *High growth companies in the Netherlands*, The Hague.
 37. EIM (1999), *Snelgroeiende ondernemingen in Nederland en de VS*, Zoetermeer (study commissioned by the Ministry of Economic Affairs).
 38. Ybema, G. and S.H. Baljé (1999), Snel groeien in de informatie-economie, *Economisch Statistische Berichten*, pp. 904-907.
 39. Progressive Policy Institute (1999), *The state new economy index - benchmarking economic transformation in states*, Washington.
 40. McKinsey & Company (1998), *The new economics of organisation*, New York.
 41. University of Nyenrode (2000), *Succesvol ondernemerschap: eerder een kwestie van karakter dan van kennis*, Breukelen (study commissioned by Ministry of Economic Affairs and the NVP).
 42. Ministry of Economic Affairs (2000), *Ondernemersmonitor June 2000*, The Hague.
 43. Elfring, T. (2000), *Innovatief ondernemerschap*, Management Briefing, Schoonhoven.
 44. OECD (2000), *A new economy, the changing role of innovation and information technology in growth*, Paris.
 45. Berenschot (2000), *Eindrapport onderzoek corporate venturing*, Utrecht (study commissioned by the Ministry of Economic Affairs).
 46. Ministry of Economic Affairs (2000), *Kabinetsnota "De kenniseconomie in zicht"*, The Hague (Parliamentary Papers 2000-2001, 27 406 nos. 1-2).
 47. This may represent a return to earlier times when the higher income groups in particular contracted out these domestic chores.
 48. EIM (1999), *New Services*, Zoetermeer.
 49. University of Nyenrode and PriceWaterhouseCoopers (2000), *Sociale en ethische verantwoording: keurslijf of lijfsbehoud?*, Breukelen.
 50. Ministry of Economic Affairs (2001), *Ondernemersmonitor winter 2000 -2001*, The Hague.
 51. Ministry of Economic Affairs (2001), *Ondernemersmonitor winter 2000 -2001*, The Hague.
 52. University of Nyenrode and PriceWaterhouseCoopers (2000), *Sociale en ethische verantwoording: keurslijf of lijfsbehoud?*, Breukelen.
 53. For example, in 1999 and 2000 a number of other policy documents were published by the Ministry of Economic Affairs which require attention for aspects of the business environment. The policy document "*Ruimte voor industriële innovatie*" [Room for industrial innovation] describes the government's industry and services policy. The policy documents "*De digitale delta*" and "*De Digitale Delta: e-Europa voorbij*" devote attention to information and communications technology. And, finally, the policy document "*Ruimtelijk economisch beleid*" discusses the policy relating to company premises and infrastructure.
 54. Boot, A.W.A. and J. E. Ligterink (2000), *De efficiëntie van de Nederlandse Faillissementswetgeving*, *Topics in Corporate Finance*, Amsterdam.
 55. Boot, A.W.A. and J. E. Ligterink (2000), Banken en de Faillissementswet, *Economisch Statistische Berichten*, pp. 876-878.
 56. Ministry of Economic Affairs (2000), *Ondernemersmonitor October 2000*, The Hague and Ministry of Economic Affairs (2000), *Ondernemersmonitor March 2000*, The Hague.
 57. GrowthPlus is a pan-European association which represents the interests of high growth companies and is designed to encourage entrepreneurship in Europe.
 58. See www.sba.gov and www.score.org for this initiative. In the Netherlands, the Entrepreneur Supervisory Unit plays a key role in this area.
 59. Ybema, G., (2000), *Familiebedrijven en beleid*, *Economisch Statistische Berichten*, pp. 761-762.

4 *Knowledge-based enterprise in a new economy*

Elizabeth Garnsey

4.1 Introduction

Enterprise and entrepreneurs have received widespread attention in recent years, with increasing focus on enterprise involving information technologies. Interest is linked to the notion that these have a key role to play in securing the rewards offered by the 'new economy'. But understanding of the wider role of technology-based enterprise plays in inducing change in the economy is still hazy. Why have some enterprises been particularly active in producing innovations that impact on the economy? Why has this occurred in particular places? Why do some innovative enterprises grow, create jobs and shape new industries while others fail early or have little impact? This report addresses questions of this kind. It begins with a summary of the extent to which new economic developments are associated with the primacy of knowledge and the new opportunities for enterprise this provides. It goes on to review the way in which extensive investment in science and technology have given rise to opportunities for innovation taken up by new enterprises. These have been particularly active in the rise of new information-based industries. The report draws on work on evolutionary processes in industries to show why new opportunities for enterprise arise as industries emerge, consolidate and mature. Whether or not opportunities are taken up, however, depend on entrepreneurial behaviour in an economy and the way in which new enterprises are managed. This is reflected in the typical growth paths of new innovative firms, examined in the second part of the report. It is argued that an understanding of causal processes underlying business dynamics at various levels is the most effective tool of the policy maker. This knowledge can be used to interpret current developments and base decisions on understanding of driving factors at the micro-level.

4.2 New Economy, Knowledge Economy

What has become known as the New Economy can also be described as a Knowledge Economy?¹ The term New Economy encompasses the globalisation of business, the increasing importance and pervasiveness of knowledge, manifest in the expansion of information and communication technologies (ICTs), together with the rise of new information-intensive industries, stimulated by new forms of enterprise.² Since 1995 these developments in the US economy have been accompanied by a favourable combination of indicators of economic growth, productivity, employment and inflation. In the US, these occurred together with a stock market boom, above all in technology-based enterprise. The massive market capitalisation of certain high tech companies by the year 2000 points to the critical importance of intellectual property in key technologies and of business competence as a source of value.

Information technologies promote new knowledge and new specialisations. The most prominent manifestation of information technology, the Internet, is not only altering distribution and marketing but provides a basis for change in production and consumption relations.³ These new economic conditions provide new opportunities for enterprise.⁴ Because knowledge is more easily shared through close interaction in local networks, proximity and locality feature prominently in a knowledge economy, with regions of knowledge-intensity operating as centres of new activity. At the same time, the more immediate availability of knowledge resulting from information technology has increased the speed and span of

interactions, accelerating the pace and range of developments.⁵

Although information and communications technologies have received particular attention, other technologies also have transformative potential. These include biotechnology, new materials, instrumentation and new environmental technologies. What marks all these technologies is that they are emerging and early diffusing technologies which change the way in which their users operate. The firms that produce such technologies are those known as high tech enterprises. They are knowledge intensive, often engage heavily in R&D and have high proportions of scientific and technical personnel. They often spin out from universities or research institutes and cluster around centres of knowledge.⁶ An economy that has a high proportion of new firms in these sectors, and particularly of growing firms of this type, is building the knowledge and expertise required for the future when these technologies will spread and impact on other industries. These firms may be able to benefit from early entry into new markets and establish technological leadership. This is the principal reason why the encouragement of high tech enterprise should be a policy objective, in addition to the propensity of such firms for above average growth⁷. In the Netherlands 6% of new businesses are in high tech sectors, a lower figure than in some other advanced countries.⁸

In the emergence of new forms of economic activity, entrepreneurs can be viewed as key agents of micro-diversity. They realise opportunities for specialisation provided by change. But the activities of entrepreneurs are not captured by aggregate statistics:

*"The more we aggregate, the more we hide, by averaging away the essential micro-diversity on which the process of evolutionary change depends."*⁹

Indicators at the national level are revealing of structural change in the economy.¹⁰ However there is increasing awareness that aggregate data on the 'new economy' are insufficient to reveal the dynamic processes at work:

*"One cannot understand the growth and development of the system from a macro perspective. We can measure high level aggregates [economic growth, productivity, employment] but we cannot comprehend the economic process from which they are generated at this level..."*¹¹

To understand the contribution of such underlying factors as the founding and expansion of entrepreneurial businesses to the operation of a new kind of economy, we need causal models of industrial and business evolution which explore emerging processes rather than taking cross-sectional snapshots of aggregate data. Evidence must be assimilated and analysed at a variety of levels, including the level of the firm and of the network of firms, at the level of the emerging industry and its developmental phases. These data have yet to be collected and analysed systematically, but we already know enough to detect critical evolutionary processes that show up in the aggregate statistics.

4.3 New Opportunities

Enterprise can be defined as the matching of opportunities and resources to create value through new activity. The role of entrepreneurs is particularly important in an economy in transition, where a new information and communications infrastructure has been created but not yet completed or exploited. Established companies often lack the incentive to be active in new and unproven technologies and industries. Unexploited opportunities that arise under changing conditions are sighted and realised by entrepreneurs.¹² The New Economy in the US

is associated with over thirty years of investment in science and technologies which have come to fruition and set off an unprecedented wave of opportunities for innovation through enterprise.

4.4 Underlying the New Economy – Extensive Investment in the Science Base

A change of phase in economies can occur when new technological systems emerge, creating new resources and new opportunities in many other sectors of the economy.¹³

Transformations have been seen before with the advent of new technological systems: steam power, electricity and chemicals. But the transformation effected by information technology out-innovates any predecessors in the depth and extensiveness of its impact. Because information feeds knowledge, it has the potential to enter into almost all aspects of exchange.

Early information technologies were promoted by US military funding which represented massive government investment in new information technologies and the Internet.¹⁴ Revolutions in technology require private funding if they are to diffuse into the economy. Financial institutions often lag behind in adapting to new requirements. The emergence of venture capital in the United States was a key development making possible the funding of the new knowledge-intensive technologies and industries, backing new companies that had no existing markets to protect. Over the past 25 years, almost 3000 new US companies financed by venture capital have gone public, and show a much higher propensity to produce active patents than established companies, an indication of their innovativeness.¹⁵

By the time innovations reach the marketplace it may be too late to be in at the start of the race for technological leadership. The importance of current funding for high tech enterprise by well informed investors is clear. But because of the gestation period before opportunities for enterprise are generated, a national skills base for the innovations of the future must be nurtured today by public investment in the science base and the schools.

4.5 Opportunities for Enterprise as Industries Evolve

New Entry: threats and opportunities

New firm entries and firm exits in an industry are measured by churn rates. Further research is required on the beneficial and detrimental effects of churn rates on the economy, which differ by sector. It is clear that at the level of micro-diversity, a high churn rate entails both costs and benefits. There are costs, for example, when the teamwork and collective knowledge built up in a new firm are prematurely dispersed and destroyed. However, if collective knowledge is shared within a wider business community and new teams are rapidly reconstituted through other new firm formation, early failure may operate as a form of natural selection without undue costs. If we take the hand-held (palm) computer industry as an example, many early firms failed.¹⁶ However, they all contributed to the creation of new technological knowledge through trial and error. Many employees of failed firms went to work for other hand-held computer enterprises, including the successful Palm Computers. In areas like Silicon Valley, entrepreneurial failure is viewed less as a stigma than an indicator of experience.¹⁷ In localities where knowledge is shared through networks of firms and entrepreneurs, a high churn rate of new enterprises may not be to the detriment of the economy. Not all the new entrants will succeed, there may indeed be a high rate of closure, but the most successful will displace

established firms in existing industries, or help create new industries. New firms in new industries face both threats and opportunities. Uncertainty is the greatest threat, to which many succumb, but when enterprises are able to take advantage of opportunities that arise as a result of change within industries they set off significant cumulative changes.

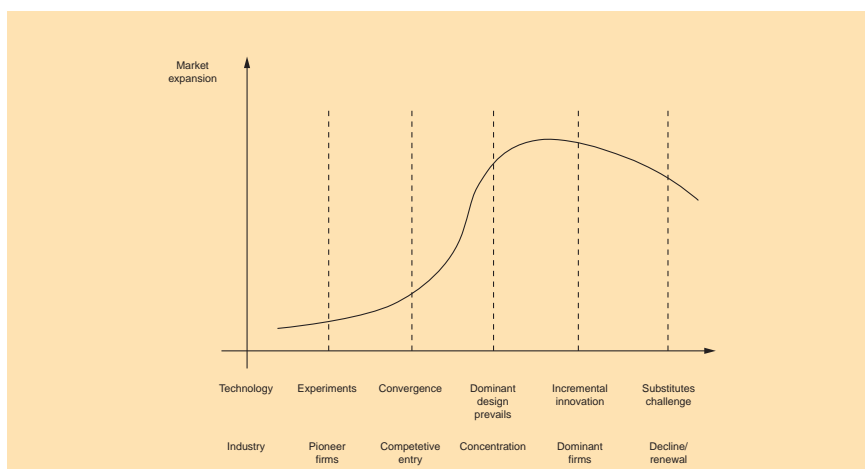
Industries can be completely transformed by the entry of new firms and closure of old ones. A comprehensive analysis of the sources of productivity in North American manufacturing industry was carried out by Baldwin, whose calculations indicate that: "Entry serves to increase productivity. It boosts efficiency. It is part of the dynamic process that serves to renew industries and facilitate technical progress and innovation."¹⁸ This occurs as new firms with competitive new output enter the industry and raise their productivity levels as they grow, while less competitive firms close. Dutch studies show one third of the productivity gains in Dutch business and industry in recent years as attributable to the turnover of firms.¹⁹

Moreover, new firms tend to be the generators of completely new industries, as the rise of the micro-computing industry and biotechnology testify.²⁰ Firms active in emerging and early diffusing technologies can have a significant impact on competition and innovation elsewhere in the economy.²¹

How is the argument that high tech enterprise has a special role to play in the renewal of the economy to be reconciled with evidence that successful enterprise is to be found in all sectors, including declining sectors of the economy? This evidence was taken in the past to suggest that there is no particular advantage in high tech enterprise over enterprise in more established sectors of the economy and no reason to prioritise measures in favour of high tech enterprise. This view, implicitly held by policy makers in Europe, has changed recently as high tech firms and their industries have matured and become highly profitable in the US. But to move from reactive to anticipatory mode, policy makers need to be alert to industry evolution. High tech is a dynamic category; the railways and petroleum were once high technology sectors. There will be new high tech sectors in the future. New and expanding industries provide major growth opportunities for a larger number of new firms and less initial competition than older industries.²²

Nevertheless, certain enterprises are successful even in declining industries and sectors where average profit margins are low. This is because in all sectors, new and old, firms can achieve profitability by improved management and making better use of opportunities. Innovative enterprise in established industry can have a renewing effect in the economy.²³ The typical features of opportunity structure in industries at different stages of maturity reveal the basis for many significant openings for new enterprise. Figure 1 provides a stylised illustration of industry evolution for industries with a major product. The actual duration of these phases varies greatly by industry and historical period.

Figure 1: Industry evolution in major product industries



A general pattern is for industries to develop from numerous diverse units to increasing concentration of market power in fewer companies as the market grows and opportunities for economies of scale are exploited (figure One). The new firms that grow to become industry leaders in new industries have the maximum impact in terms of job generation. In industries which constitute inter-related systems,²⁴ dominant designs and standards are promoted by new industry leaders. The successful Information and communications enterprises have been imposing their standards and protocols on new industries and the early emergence of these firms in the US is an important factor in the US dominance of global IT industries. Increasingly in the ICT industries, product lives are shortening, to the point where there may be no declining phase; as a product reaches maturity it is displaced by a new product generation. This reflects continual opportunities for new enterprise.

Policy makers should be aware of the sectors in which new enterprises are active and not merely of the numbers of enterprises across the whole economy. They should be encouraging activity in new growth industries through provision of appropriate education and training and making available information on technological and market trends in these sectors. Though ITC technologies are prominent they should not receive exclusive attention: biotechnology, new materials and new technologies beneficial to the environment are no less important.

In what follows, we examine the opportunities for enterprise as industries arise, mature and decline. From the demand perspective, industries mature as demand shifts, reflecting new needs or new ways to meet old needs. Many constant human needs, for food, clothing, personal services etc remain to be met, but are provided for over time by modernised substitute products and services. In other cases, new developments in one industry give rise to new needs in others, as where improved transport and travel increased the need for communication devices. As demand and ways of meeting demand shift, industries are transformed over time, a key source of new opportunities for enterprise. In the case of quite new industries which arise because technologies allow of new ways of meeting needs, the transition from many experimental new firms to consolidation with fewer established firms is often in evidence. However the consolidation of industries over time is not universal. We will begin by examining the case of established industries which continue to be made up of many smaller firms.

Industries with multiple firms

Fragmented industries, those with many firms, currently offer new opportunities for enterprise that can be drawn to the attention of aspiring entrepreneurs, regional development and business support agencies. Special opportunities for electronic commerce, in particular, can be seen in the very difficulties of consolidation of fragmented industries through traditional means. These include industries where there have in the past been few opportunities for economies of scale, which have a strong local dimension (estate agents) or require labour intensive local services (plumbers). Costs can be cut and economies of scale achieved if local markets can be combined by enterprising companies. Opportunities stem from such sources as:

- consolidation achieving new economies of scale (e.g. chains of low budget hotels);• economies of scope, that is combining stages of the production chain or producing complementary forms of output (this often involves a change in enterprise boundaries e.g. through acquisition of new units);
- lowering overheads through IT;
- franchising (this combines a number of other advantages);
- exploiting neglected specialist niches.

Information technology provides many such opportunities, a major reason for the importance of e-commerce in established industries.

Opportunities in Mature Industries

In mature industries, opportunities for enterprise arise from incremental innovation of all kinds, improved service, reduction in costs through process innovations and improved quality. Mature markets have had time to become very large, so incremental cost reductions can generate very high returns. However, though some firms succeed in mature markets, the displacement of a well established product or service may come unexpectedly soon.

While these markets may be competitive, in some cases oligopolies have had time to consolidate themselves in mature markets and are in informal collusion. This offers new opportunities for enterprises that can challenge indirect price fixing and other collusive limits on consumer choice, by offering innovations in the form of cost reductions and improved quality and services through the Internet. We see examples of these strategies in low cost airlines like EasyJet.

The evidence shows that enterprises that succeed in mature industries do so by innovating and differentiating themselves from competition.²⁵ Enterprises providing new IT products and services may be able to renew mature industries, as in states like Massachusetts, where IT companies have diffused computerization techniques that have had a renewing effect on established instrumentation and machine tool enterprises.²⁶

Opportunities in Declining Industries

There are fewer opportunities for new enterprise by start-up companies in obviously declining industries, in which it is costly to dominate the late shake-out and to buy out competitors. However they may still be defensible niches (e.g. by cornering supplies for products that are still in use but becoming obsolete.) It may be possible to cut costs and improve performance, among other moves by a move to:

- locate production in countries with a lower factor cost structure;
- reach consumer markets that have not been saturated (e.g. in Eastern Europe);
- cut waste and costs with consequent manpower cuts, reduction in R & D, training, customer services, etc.

Where decline is slow, opportunities for profit for companies that can dominate in them may be considerable, despite costs to communities suffering job losses. But cost-cutting strategies of this kind can provide only temporary benefits when companies fail to develop competences for the future economy.

Capital accumulated in mature or declining industries can be invested in new growth industries. IKEA, the Swedish furniture firm, for example, acquired a controlling share in Scientific Generics (SG), a Cambridge technical consultancy and made available 70m euro for investment by SG in new firms in emerging industries.

Opportunities in Emerging Industries

There are special opportunities for new entry enterprise in new industries created by technological innovations, demand shifts and new customer needs. Early entrants may be able to pre-empt opportunities and shape further developments in technologies and markets. In many high tech industries with knowledge linkages, the leaders impose standard of design or interactive protocol on the emerging industry and grow partly by absorbing other firms in their network. Microsoft in software, Sun Microsystems in computer workstations, Cisco Systems in computer server equipment provide examples of firms which have shaped new industrial sectors. In brief, enterprises that are successful in emerging industries have been able to:

- Gain first mover advantages, through technological leadership;
- Pre-empt strategically valuable assets;
- Dominate the standards setting process in the industry;
- Create customer switching costs, by ensuring customers have an investment in the product, for example through learning requirements²⁷;
- Create and dominate a new industrial sector.

The importance of the standards setting process has become increasingly clear, especially for industries where network effects operate. As regards timing of entry, companies appear to benefit by entering the industry neither so early as to risk backing a superseded technology, nor so late as to miss shaping design standards and protocols of interaction in the industry.⁸⁷ Understanding of the dynamics of entry timing can be taught in business schools and entrepreneurship centres as part of opportunity recognition skills.

4.6 New firms exploiting opportunities in industry dynamics

The evolution of any one industry is shaped by developments in other industries. Industries are interconnected by production (or value-added) chains and by inter-related consumer requirements. High tech enterprises with their emerging and newly diffusing technologies are often agents of economic change which transmit innovations from one industry to another. By creating and developing new technologies, innovative enterprises also give rise to new types of industry. The development of biotechnology and new materials owes much to the electron microscope developed in the instrumentation industry. When enterprises diffuse such technologies, they can increase productivity for firms in mature industries. For example, new

instrumentation developed in university spin-out firms may provide innovations for established firms in manufacturing. Boundaries of industries and of firms alter as costs of information and of transaction shift. Entrepreneurial activity in new industries has a knock-on effect where innovative firms are active in the following ways.

- 1 Pilot firms generate new technologies (e.g. early micro-computing , biotechnology).
- 2 Receptor firms can respond rapidly to new technological potential, detecting applications in new industries, finding new niches (e.g. software start-ups).
- 3 Diffuser firms can spread emerging technologies. They may move these technologies into more mature industries where there are large markets. This is seen, for example, where software firms devise new programs for supply management in mature manufacturing firms.
- 4 Connector firms can link disparate producers and consumers, technologies and organisations (e.g. internet companies, geographic information companies). These firms are active where there is convergence of industrial activity into new hybrid industries, especially common in ICT industries with the emergence of handheld computers and mobile equipment.
- 5 System integrator firms can combine disparate elements in emerging industries, moving to take advantage of the need for closer interaction between parties in the business ecosystem (e.g. internet companies, commissioned research organisations (CROs) organising clinical trials or drug switching in bio-pharmaceuticals).

4.7 Beyond competition: techno-diversity and new industry formation

The pattern of expansion of firms in Silicon Valley shows that the technological equivalent of “biodiversity” has resulted from the pursuit of new opportunities. This has resulted in the formation of new species of industries or sectors of new industries. It was not always clear at the time of start-up what the new markets would amount to. Microsoft entered the software industry and was in the forefront of creating a new software industry for the micro-computing industry. Sun Microsystems built on demand for more powerful networked personal computers to create a new workstation industry. 3Com and Palm created a new industry for hand-held computers, with a specific focus on the executive market for digital organizers. Cisco Systems grew along with demand for servers to service growing microcomputer networks. Instead of competing with existing firms in existing markets, these winning companies have been leaders in developing new markets for new products and services. They all found new applications for platform technologies and developed effective business models for their innovations.

When technologies have a wide range of potential applications, techno-diversity of activity in a region is an advantage with cumulative impact. It enables local firms to encourage new species of activity, to understand and offer new ways of solving customers’ problems and meeting their needs. This is another reason why churn rates are acceptable. Techno-diversity implies a large number of experimenting firms, some of which will fail because only a few can succeed with unproven technologies. But the successful among these firms become industry shapers.

4.8 Opportunity recognition and business dynamics at the firm level

The way new firms can exploit the opportunities that arise from industry dynamics can be drawn to the attention of aspiring entrepreneurs and support agencies.²⁹ Entrepreneurs have

been able to select and even shape their environment to their own advantage. Role models are important for encouraging awareness of opportunities, another reason why enterprise is concentrated in specific places where ideas are shared. The media can spread the influence of role models beyond local neighbourhoods.

Different types of industrial and market structure shape the context within which firm growth can occur, but there is scope for firms to position themselves to take advantage of dynamic markets. They can use the knowledge built up in the firm as a basis for new productive services. Existing resources can provide leverage, making it possible to acquire further competence in markets with good prospects as new opportunities are perceived.

The emerging structure of opportunities in the economy is not the only factor explaining why certain firms grow effectively while others do not. The way the firm is managed and the way growth is handled affects whether internal resources are developed and successfully matched to opportunities.³⁰

4.9 The new enterprise as a problem-solving venture

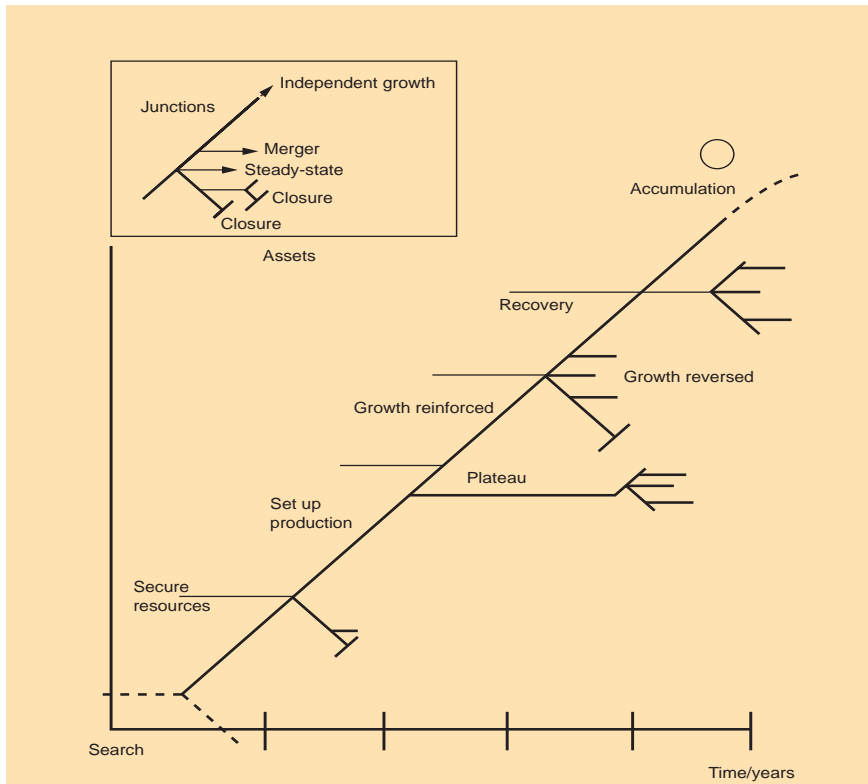
Enterprise has been defined here as the matching of opportunities and resources to create value through new activity. Opportunities must be identified by entrepreneurs and resources must be accessed, secured and mobilised in order to generate returns. Key problems facing the start-up enterprise must be solved by developing a repertoire of problem-solving skills or competence. New firms often go through identifiable phases associated with the dominance of key problems, represented in stylised form in Figure 2. As learning is built up to overcome these problems, competence and capability are developed. Competences can be viewed as individual and team-based knowledge and skills which yield economic benefit. Capabilities represent higher order learning which make it possible to renew competence or develop new competence to fit changing circumstances.³¹ In the case of the small high tech enterprise, the key capability is the group's ability to detect opportunities for their new technologies and to use their competence to sustain innovation.

Entrepreneurial founders do not necessarily have the problem-solving competence required by good entrepreneurial managers. People with the right combination of skills and experience are scarce and the assimilation and motivation of staff can create serious difficulties. As the firm grows there is increasing complexity of management information. The difficulty for decision-makers of assimilating and making considered judgements increases under conditions of rapid growth. Where reserves have been run down, delays and ill-judged decisions can bring growth to a halt. The shortages of any one resource can create bottlenecks with knock-on effects. The firm that earlier experienced successful growth is likely to encounter serious setbacks.

Continual celebration of rapid growth, such as is found in promotional literature, can obscure the extent to which reversals are encountered in the course of growth. The policy implications are that novice entrepreneurs should be warned of the ways in which a promising start can run into difficulties and that rapid growth can lead to blockages and shortages, above all of key people. Ways of overcoming these problems should be explored in case studies and diffused in problem-solving workshops for entrepreneurs and their business advisors. New entrepreneurs should be familiarised with typical growth paths and the causes of common growth problems. Mentoring schemes can be useful in diffusing this understanding. An example is the Twinning Network available to Dutch companies: <http://www.twinning.com>

In principle, firms can follow infinite numbers of paths as they solve the problems of growth. In practice certain paths are more common than others. Common paths are illustrated in Figure 2.

Figure 2: New firms' growth paths



More research is needed on growth paths, but we can already see that although every firm's trajectory is distinctive in its historical specificity and detail, nevertheless certain paths appear to exert an attraction, and many firms are pulled onto a limited set of trajectories. Many are caught on a plateau. Few sustain growth. Understanding of the dynamic of a certain type of growth path may help entrepreneurs and their advisors to avoid the pitfalls that are often encountered as firms grow.

4.10 Typical growth paths of new enterprises

We begin by examining internal or organic growth (A) and go on to refer to external growth through merger with other firms under (B).³²

A. Distinctive preparatory phase

A. 1. 1. Protracted preparatory phase

Preparations may be long drawn out without reaching a successful outcome. For example, many inventor-entrepreneurs do not manage to put their plans for commercialisation of an

invention into practice. Scientist entrepreneurs seldom know how to undertake realistic opportunity detection nor how to protect their intellectual property. The example of Stanford University is cited; the School of Engineering has claimed to be the origin of companies providing half the revenues of Silicon Valley.³³ Support for technology transfer could enhance the success of scientist entrepreneurs.³⁴

A.1.2. Accelerated preparatory phase

Some firms, e.g. early internet ventures, speed through the search and select phase, hitting upon an idea that enables them to build on the timeliness of their business concept. Recent internet ventures took advantage of IT infrastructure reaching a state of critical maturity and entry opportunity. Many of them failed to follow up their opportune timing with effective resource mobilisation and revenues to sustain success, hence the disappointed hopes of the dot.com ventures. There is often a (predictable) failure to generate revenue early enough to satisfy investor expectations. Management of expectations is critical.

A. 2. Early Profitability

A minority of firms moves very rapidly towards profitable output. Favourable factors include low entry barriers for special expertise. When firms are incubated within a parent organisation, they are protected from the considerable risks of the slow preparatory and mobilisation phases. One such firm may be the source of a technology platform with many applications.³⁵

A. 3. Slow mobilisation

A third group of firms goes through a lengthy process of setting up for productive activity, taking a considerable time to reach profitability. This group is heterogeneous because they include those held up by requirements of:

- infrastructure (e.g. telecommunications);
- R&D (e.g. biotechnology);
- manufacturing (e.g. semiconductors);
- marketing (e.g. Internet).

Professional managers can facilitate the creation of competence and capability to meet these requirements. In Silicon Valley new enterprises are provided with experienced professional managers who have the problem-solving skills required to manage the growth process. More could be done in Europe to attract experienced managers in to oversee the transition from new venture to expanding company.

A. 4. Plateau firms

A fourth group of firms grow to a certain point and plateau. The statistics indicate that is a very common pattern in Europe.³⁶ In some cases the plateau does not represent stalled growth, but the achievement of the entrepreneur's goals for a life style company.

Plateau firms may recover their impetus after a period if they obtain a new Chief Executer Officer (CEO) or new resources; they may be acquired and have a new lease of life.

If firms can be supported to grow to a higher average size before levelling off, the local economy will benefit, since larger firms support more ancillary activity by suppliers and sub-contractors.

A. 5. Rapid growth

Where growth is fuelled by early profitability, the firm is often a spin-out enterprise with growth aspirations. These ventures are viewed as desirable investment prospects. They are candidates for a successful stock market launch and the Initial Public Offering (IPO) may come early if investors can be convinced of growth potential. They are also attractive targets for acquisition, and may not sustain their independence. Among firms in an innovative industry, growth may be a requirement for survival.³⁷ Without growth of market share, competition in emerging industries may erode the firm's viability.

A. 6. Growth before Profit

There are firms that grow fast in terms of building internal resources (unlike group 3), but where the strategy is to forego early profitability in favour of expansion. Among these firms, input measures of firm growth such as number of employees together with asset value, overtake measures of sales and profitability. Typically this occurs when they receive massive venture capital funding, or experience inflated share prices after an early stock market launch. New ventures exposed to continual scrutiny are subject to investor disaffection, as the recent experience of dot.coms bears out.

A. 7. Growth reversal

Many firms that grow explosively, by whatever route, in their early years subsequently experience major setbacks. These firms are a select group in that they have early achievements or are viewed by investors as having exceptional prospects. But they are subject to intensive pressures. These firms are often acquired at a lower value than would have earlier been achieved, or retreat onto a plateau. Among this group are high growth ventures reliant on stock market valuations that are subject to severe corrections. The dangers of growth reversal need to be more widely signalled, studied and averted.

B. Growth by acquisition

New funding arrangements are allowing select high tech ventures to grow by buying up other firms. Companies like Cisco Systems and the German software firm Brokat illustrate this pattern. It is very unusual for growth through acquisition to be achieved through retained earnings. However the management of acquired units is a difficult undertaking in itself. This growth path requires experienced managers to be brought in early, and this is often required by the funders and the board members they appoint.

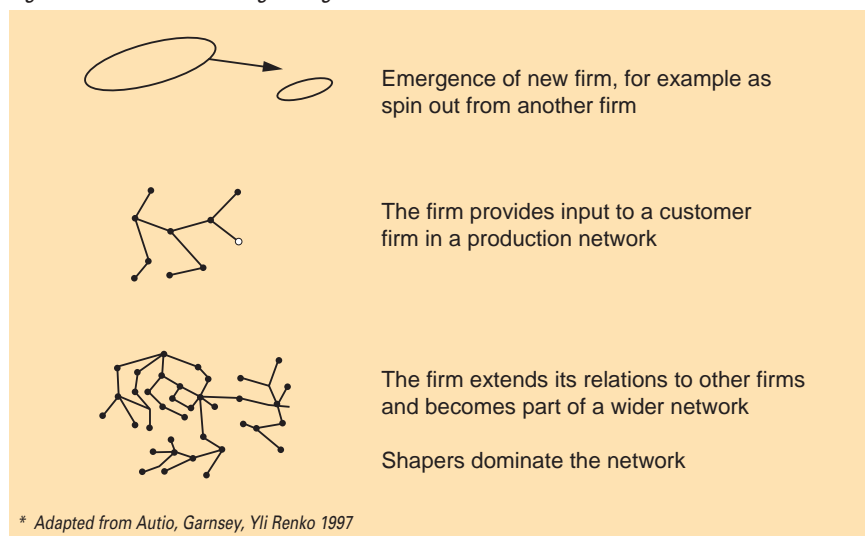
Experienced entrepreneurs and business support agencies recognise the internal dynamics associated with typical growth paths and anticipate problems to which they give rise. This knowledge needs to be documented from local sources and shared through business education and mentoring.

4.11 Importance of network relations

A firm does not grow in isolation. It is critically affected by its relationships with its suppliers, labour sources, sources of funding, distributors, customers and complementary producers. In this respect, every firm is a node in a network represented by this entourage. In the knowledge

economy, nodes of this kind are connected to wider networks linked by IT. Inter-related firms form wider networks which operate in specific sectors of the economy. Firm growth taking place within a network represents a form of industrial ecology in which the new, technology-based firm shapes and is shaped by the industrial sector or cluster in which it operates.³⁸ The growth of individual firms is closely related to the growth of the networks in which they take part.³⁹

Figure 3: The new firm in a growing network*



In emerging industries, outcomes are often shaped by opting for what becomes the dominant standard as an industry matures. Acorn Computers, a promising UK venture, ran into difficulties in the 1980s largely through failure to impose its product standards on the personal computer industry. Laserscan, a pioneering European GIS enterprise also lost out to industry standards imposed by US firms. In contrast, European communications companies have benefited from the creation of common European standards for mobile phones.

If the network of which it forms part does not experience growth, the new, technology-based firm may be trapped in a static network, with limited growth opportunities, especially if it has not yet developed its distinctive competencies or reached the critical mass necessary for growth reinforcement. This situation increases the likelihood that the firm will encounter a growth plateau or growth reversal, which in turn make it harder for the new firm to enter other networks. Thus a combination of internal growth problems and external market relations provides the explanation for the failure of many high tech firms to grow, or to sustain early growth. We need causal models to explain why certain attributes of new firms are associated with success and why external network and industry effects may work for or against such enterprises.

4.12 Interpreting data on successful enterprise

All available studies showed that sustained job growth is concentrated in a small group of firms in a designated cohort.⁴⁰ The questions which have preoccupied studies of entrepreneurship have been focussed at the level of the enterprise and the key characteristics

of firms that sustain growth.⁴¹ Elements at the enterprise level which appear to be associated with firm growth include motivation of entrepreneurs, above average education of entrepreneurs, start-up by a team rather than a single owner, initial funding levels, business experience, willingness to share ownership and release equity, a new product stream and ability to create multi-skilled teams. But entrepreneurs' strategies must take into account network factors (the benefits of growth as part of a network) and the nature of the markets in which they are operating, especially the implications of market maturation as industries evolve. Cross sectional data at the level of the firm are insufficient to provide a causal explanation of enterprise success. Even at the level of the firm, we need causal models to explain why such data are associated with beneficial effects. The model of enterprise growth paths discussed above provides a basis for explanation of this kind and suggests implications for policy of such explanations, summarised in the conclusion.

4.13 Related issues for policy⁴²

We have seen that the knowledge economy finds expression in the expansion of knowledge-intensive technologies and in new networks. The establishment of an IT infrastructure has lowered barriers to entry and made it possible for new ventures to engage in multiple partnerships which reduce the need for sunk costs. But European enterprises and their customers suffer from disadvantages as compared to their US peers in relation to access to the Internet and the provision of adequate bandwidth. These require urgent government attention.⁴³

As regards labour markets, the greatest constraint on effective high tech enterprise is the shortage of people with an entrepreneurial outlook and skills. The role of MIT and Stanford in producing a stream of graduates and masters' students who are technically literate and have basic business skills is significant. European higher education is too specialised to have the same impact. Scientific and technical courses tend to be narrowly professional and have not taught basic commercial awareness, while students of social science and business in Europe have insufficient technical and scientific knowledge. Modular course design should be promoted to ensure a wider range of skills can be achieved by students. A change of outlook is required in European higher education, where depth and detail of knowledge within traditional disciplines are still the measure of quality, downplaying the importance of students' versatility and creativity.

Another issue is raised by the prospect of further economic growth fuelled by enterprise. The natural environment is near a threshold; further growth cannot be sustained without restructuring to bring enterprise and other economic activity into better harmony with environmental needs. New enterprise free of vested interests, could be active in developing innovations in transport, energy, pollution prevention and other technologies with beneficial impact. Fiscal incentives and support for environmentally beneficial enterprise could be promoted, initially on a pilot basis. In other new industries, entrepreneurial firms are often at the forefront of innovation. The innovative potential of new enterprises is of no less importance than their immediate job-generating potential.

4.14 Summary and conclusion

The dynamic unfolding of opportunity in the economy shapes entrepreneurial activity and its success. Opportunity recognition is a strategic skill for entrepreneurs and business support agencies. But whether or not opportunities are pursued and realised depends on entrepreneurial outlook and competence. The following factors affecting new venture growth have been emphasised in this report as calling for attention from policy-makers. Policy implications are best explored through pilot initiatives, since every national context differs and

lessons from abroad have to be adapted to local conditions.

1. Prospects of new enterprises are enhanced by early resource endowments enabling them to realise new opportunities. Early resources are more likely to be supplied by a team than by an individual, and by founders with qualifications and experience of the area of business.¹⁰³ It is now recognised that fiscal policy can help attract competent managers into new enterprise.
2. Incubation of new ventures has a role to play in the attainment of resource generation, sometimes before the firm is incorporated, by protecting the firm through vulnerable early phases and by improving the network position of the new venture.⁴⁵ Incubation facilities should be run by experienced staff who know the industries in question. Monitoring of ventures by experienced mentors can increase survival rates. At critical junctures, even small inputs of key resources can transform a firm's fortunes, as where an incubator centre may postpone rental charges until a struggling venture is in recovery mode.
3. Key success attributes are related to the networking capacity of founders and their ability to match opportunities and resources. The evidence shows that partnerships and alliances allow growth firms to secure complementary assets and achieve market repositioning. In these ways they increase exposure to favourable sectoral demand and investment conditions. Much can be done by policy measures to improve networking, through enterprise clubs, through university research and development associations and local chambers of commerce. Many such efforts are already underway all over Europe including the Netherlands.
4. Innovative firms which keep ahead of direct competition are likely to face better prospects than imitative firms. Innovative enterprise may take advantages of many different kinds of opportunity, including opportunity to substitute for existing activities in innovative ways. Information and communication technologies provide particularly promising opportunities for firms that can obtain sufficient capital and keep ahead of the competition. For this purpose, knowledge about emerging industrial trends is invaluable. Provision of information on technological developments and specific marketing information could be improved to good effect. Little of this is done by the public sector in Europe where specialist information tends to be available only through costly marketing and consultancy reports that are not affordable by small new enterprises. In this respect there is more assistance from the public sector in Japan, where very extensive information resources are provided by the government to help firms follow trends in emerging technologies and markets.⁴⁶ This is a business support function that could be performed by public sector organisations in the Netherlands without danger of contravening anti-competitive European legislation.
5. Emerging firms which fail after a period of early promise may have earlier possessed the characteristics of successful firms. The identification of success characteristics does not therefore guarantee the picking of winners.⁴⁷ The nature of growth reversal processes and shifts in industry dynamics explain this issue. The drive to growth can have perverse effects when it creates resource shortages and synchronisation problems.⁴⁸ Business support agencies can alert growth companies to the dynamics of reversal effects. They can help them to anticipate and allow for potential growth crises. Injection of resources at critical points can make a major impact on firms struggling with resource shortages and blockages.

6. In the new economy, IT network make it easier to subcontract production and use a licensing strategy which reduces the need for early resource endowments. Going virtual is now a realistic strategy, for firms that have a technology which can create value for customers. This implies new business models which need to be studied by entrepreneurs and business support agencies.⁴⁹
7. Whether opportunities are recognised and taken up depends in part on the outlook of entrepreneurs. Skills of opportunity recognition, can be inculcated through workshops, which raise awareness of industry evolution processes and reveal that entrepreneurs can shape industries and do not have to be passive in the face of market and technology developments.
8. Policy makers need to understand that support for entrepreneurs who promote emerging and early diffusing technologies will pay off by providing the skills and creating the business networks of the future. Hence the importance of investment in the science base and support for technology transfer activities of entrepreneurs. An economy can do very well if its wealth producers pursue opportunities for innovation in existing industries, as the case of the Netherlands demonstrates. But to lay the foundation for success in the future, entrepreneurial activity involving emerging and newly diffusing technologies is needed. Significant new technologies can have a massive and unexpected impact. Once this has occurred, there are further profits to be made, but technology leadership has been ceded. Though the recent boom led to an over-valuation of certain technology stocks, continuing benefits of early technology leadership have been sustained in the US and have been credited with one third of total increase in economic growth there since 1995.
9. The US example shows the importance of finance for innovative technology based enterprise. New financial institutions are needed to fund innovative enterprises. However it should be noted that financial arrangements in the US are highly volatile.⁵⁰ After 1987 there was a dearth of funding for high tech enterprise following the knock-on effects of the stock market crash. Technology cycles are funded by huge inflows of volatile capital. Anti-cyclical measures may be appropriate to reduce unfavourable knock-on effects of financial cycles.⁵¹

In brief, the success of enterprises can be improved by policies that reduce the premature culling of innovative firms in their vulnerable early years, and provide an infrastructure that makes available key resources: information, competent people and funding. Access to specialist knowledge about evolving markets and management expertise can help these firms to target markets where demand conditions are favourable. However the closure of a venture is not necessarily a net loss to the economy. 'Techno-diversity' is required to explore the potential of new technologies. Even where innovative, knowledge-intensive firms fail, when the learning achieved by the entrepreneurs is shared through business networks, the resources they have created can be used elsewhere, through new spin-outs and alternative applications of business ideas.

1. There are two approaches to the definition of knowledge. The positivist (scientific) approach views knowledge as information whose validity has been established by tests of proof. The interpretive approach views knowledge as information rendered meaningful by understanding; not all knowledge can be validated objectively, but inter-subjective meaning and assent can be achieved (Rorty 1979). From an economic perspective, both definitions imply that costs arise in the conversion of information into knowledge.
2. O.E.C.D., (2000), *A New Economy? The Changing Role of Innovation and information Technology in Growth*, O.E.C.D., Paris; Council of Economic Advisors (2000), *Economic Report of the President*, US Government Printing office
3. O.E.C.D., (2000), *A New Economy? The Changing Role of Innovation and information Technology in Growth*, O.E.C.D., Paris; Barua A., Whinston D., (2000) *Measuring the Internet Economy*, University of Texas, www.internetindicators.com
4. High tech industries were at the top the league in manufacturing trade by the end of the century (OECD figure 14 p. 41).
5. Knowledge is a source of advantage in every sphere. This fuels fears that the "digital divide" may worsen between those with skills in information technology and those who lack them. This could exacerbate inequalities and income dispersion, increasing the international dispersion of GNP per capita further in favour of the information-rich countries (United Nations, (1999) Statistical Yearbook, New York). This points to the need for policy to address ways of opening up opportunities for computer literacy to excluded groups, for example through training centres and cyber cafes in low cost housing areas, and to offer training to students from third world countries. Jamaica provides an example of a country where internet technologies have been adopted on a widespread basis despite the relatively low income of the population.
6. Space does not allow treatment of the spatial dimensions of high tech enterprise in this report. Extensive coverage is available in e.g. Saxenian A., (1994), *Regional Advantage, Culture and Competition in Silicon Valley and Route 128*, Harvard University Press. See Garnsey E., (1998a), 'The Genesis of the High Technology Milieu: A study in complexity', International Journal of Urban and Regional Research, Vol 22 No 3 pp 361-377
7. Kirchoff, B. (1994), *Entrepreneurship and Dynamic Capitalism*. Praeger: Westport
8. Netherlands Ministry of Economic Affairs and EIM (2000) *Entrepreneurship in the Netherlands, Opportunities and Threats to Nascent Entrepreneurship*, The Hague
9. Metcalf, S., 2000, 'Restless Capitalism, Experimental Economies', in During W., Oakey R. and Kipling M., Eds., *New Technology based Firms at the Turn of the Century*, Pergamon p. 7
10. For a review of theories of economic growth see Rostow W. (1990), *Theories of Economic Growth from David Hume to the Present*, with a Perspective on the Next Century, Oxford University Press. For an emphasis on the role of R&D in economic growth see Romer P., (1986) 'Increasing Returns and Long-run Growth', Journal of Political Economy, 94: 500-521; Romer P., (1994) *Origins of Endogenous Growth*, Journal of Economic Perspectives, vol 8 Winter 1994, pp 3-22
11. Metcalf, S., 2000, 'Restless Capitalism, Experimental Economies', in During W., Oakey R. and Kipling M., Eds., *New Technology based Firms at the Turn of the Century*, Pergamon p. 7
12. Schumpeter J., (1975), *Capitalism, Socialism and Democracy*, Harper and Row NY, p. 84
13. Freeman C., ed., (1984), *Long Waves in the World Economy*, Frances Pinter, London
14. Rosenzweig R., (1998) 'Wizards, Bureaucrats, Warriors and Hackers: Writing the History of the Internet' Review Article, American Historical Review, Dec 1998 pp 1530-1552
15. O.E.C.D., (2000), *A New Economy? The Changing Role of Innovation and information Technology in Growth*, O.E.C.D., Paris p. 35
16. See Kaplan, J., *Start Up, A Silicon Valley Adventure*, Little Brown and Company, London
17. The implications of failure rates in small businesses have received considerable attention in Europe (Storey D., (1994) Routledge, London.) In the US, the disadvantages of high rates of failure were explored by Florida and Kenney in 1990 in relation to Silicon Valley firms (Florida R., Kenney M., 1990, *The Breakthrough Illusion; corporate America's failure to move from innovation to mass production*, Basic Books, NY). Extensive discussion of this issue is to be found in recent articles in the California Management Review.
18. Baldwin used a methodology for identifying the impact of entries and exits on productivity using North American manufacturing census data (Baldwin J., (1995) *The Dynamics of Industrial Competition: a North American perspective*. Cambridge University p 384). Moreover: "Entrants arriving in industries are much smaller than the average. When they do grow, they still are well below the average plant size by the end of 10 years, even though they have increased their labour productivity to the average by this time...." Baldwin's work confirms the importance of a few leading firms among new entrants: "Large market leaders generally only have to worry about which of the large number of entrants will move out of the fringe and challenge them." (p. 238).
19. Netherlands Ministry of Economic Affairs (1999), *The Enterprise Economy*, The Hague, Box 1.4.
20. Kenney, M., (1986), 'Schumpeterian Innovation and Entrepreneurs in capitalism: a case study of the US biotechnology industry' Research Policy 15, 21-31
21. Scherer F., (1992), *International High-technology Competition*, Harvard UP

22. Utterback J. (1994), *Mastering the Dynamics of Innovation*, MIT Press. In what follows, discussion of industry evolution is based on well attested work in industrial economics and management strategy, which has not, however, been directly concerned with opportunities for enterprise (Porter, M. (1980), *Competitive Strategy*, New York: The Free Press; Porter, M. (1985), *Competitive Advantage*, New York: The Free Press.).
23. Since there are more established industries than new industries, the impact of innovation in established industries is greater than that in new industries. But new firms in new industries have the greater potential for growth and transformative impact see e.g. Kirchoff, B. (1994), *Entrepreneurship and Dynamic Capitalism*. Praeger: Westport; Scherer F., (1992), *International High-technology Competition*, Harvard UP
24. Katz M, Shapiro, C, (1994), 'Systems Competition and Network Effects', Journal of Economic Perspectives, vol 8(2): 93-115
25. Clifford D., Cavanagh R., (1985) , *The Winning Performance: How America's High Growth Midsize Companies Succeed*, Sidgwick and Jackson, London; Harrison J., Taylor B., (1996), *Supergrowth companies; Entrepreneurs in Action*, Butterworth Heinemann: Oxford
26. Best M., 2000, forthcoming, *Competitive Dynamics of Regions*, Oxford University Press
27. Porter, M. (1980), *Competitive Strategy*, New York: The Free Press; Porter, M. (1985), *Competitive Advantage*, New York: The Free Press
28. Utterback J., Christensen C., (1998) 'Strategies for Survival in Fast-Changing Industries, Management Science, vol 44 no 12 part 2, Dec 1998
29. In the report Netherlands Ministry of Economic Affairs report, *The Entrepreneurial Society*, 2000, for example, in the list of external factors affecting firm growth in Box 1.6, the influence of industry dynamics on new firm opportunities is not recognised (p. 17).
30. Explanatory models are needed to assimilate and filter detailed evidence from fieldwork and to supply analytic concepts so that we have a consistent basis for comparing and explaining entrepreneurial behaviour. See Penrose, E, (1959), *The Theory of the Growth of the Firm*, Oxford, Oxford University Press, (new edition 1995); Garnsey E., (1998a), 'The Genesis of the High Technology Milieu: A study in complexity', International Journal of Urban and Regional Research, Vol 22 No 3 pp 361-377; Foss, N, 1996, Knowledge-based approaches to the theory of the firm: some critical comments, Organization Science, vol 7(5): 470-476
31. Many definitions of competence and capability are available. The terms should be used to convey the distinction between individual and company attributes and between lower and higher order dimensions of learning. These distinctions are achieved by the definitions used here, which are based on Teece, D., Pisano G. (1994), 'The Dynamic Capabilities of Firms; an Introduction', Industrial and Corporate Change, 3, 3, 537-56.
32. The paths summarised here are not mutually exclusive; firms can move from one such path onto another.
33. Communication from James Gibbon, Emeritus Dean of Engineering, Stanford University.
34. The Cambridge Centre for Entrepreneurship is currently running courses for graduate students in science and technology
35. Fairchild in Silicon Valley and Cambridge Consultants provide examples.
36. Storey, D. (1994), *Understanding the Small Firm Sector*. Routledge: London.
37. Kirchoff, B. (1994), *Entrepreneurship and Dynamic Capitalism*. Praeger: Westport.
38. Autio E., Garnsey, E., Yli-Renko H., (1997), "Resources, complementary assets, and growth in new, technology-based firms" International Council for Small Business, World Conference Proceedings, San Francisco, June 20-24
39. Garnsey E., (1998b), 'A Theory of the Early Growth of the Firm', Industrial and Corporate Change, No 3 pp 523-556
40. In Kirchoff's comprehensive analysis of U.S. data it was the 4% of highest growth firms formed in 1977-8 that created 74% of employment growth in the whole cohort of firms six years later (Kirchoff, B. (1994), *Entrepreneurship and Dynamic Capitalism*. Praeger: Westport, p.186). The longer the period studied, "... the more concentrated is employment creation in a small number of firms" (Storey, D. (1994), *Understanding the Small Firm Sector*. Routledge: London, p. 118). In the Netherlands, half a million new jobs created between 1992 and 1997 by high growth firms; half of all jobs were created by firms less than five years old, and one quarter were created by high growth firms (Netherlands Ministry Economic Affairs 2000, p. 12)
41. Clifford D., Cavanagh R., (1985) , *The Winning Performance: How America's High Growth Midsize Companies Succeed*, Sidgwick and Jackson, London
42. Here we identify three important policy issues which emerge from this report although space limits have prevented further discussion.
43. See Special Issue of the Science and Technology Review, No 24, 1999, OECD, especially Axmann and Payr p. 40
44. Kirchoff, B. (1994), *Entrepreneurship and Dynamic Capitalism*. Praeger: Westport; Storey, D. (1994), *Understanding the Small Firm Sector*. Routledge: London.
45. Reid, S., Garnsey, E., (1997), 'The growth of small, high-tech firms: destinies and destinations of Innovation Centre "Graduates"' New Technology, Work and Employment Vol. 12. Number 2 September. Entrepreneurship in Northern Europe, in EIM,

46. For example JETRO in London collects and diffuses extensive information for Japanese firms on technological and marketing developments in Europe as part of Japanese government support to trade and industry.
47. Storey, D. (1994), *Understanding the Small Firm Sector*. Routledge: London. Storey has shown that rapid growth firms that fail and those that succeed resemble each other more than either group resembles low growth firms.
48. Harrison J., Taylor B., (1996), *Supergrowth companies; Entrepreneurs in Action*, Butterworth einemann: Oxford, p.38
49. Barua A., Whinston D., (2000) *Measuring the Internet Economy*, University of Texas, www.internetindicators.com
50. Bygrave W., Timmons J., 1992, *Venture Capital at the Crossroads*, Harvard Business School Press, Boston
51. Attraction of venture capital to an area can improve growth prospects of local firms, among other reasons, because proximity facilitates trust. Venture capital and private investment on the scale available in Silicon Valley have facilitated sustained growth and major expansion through early acquisition. European ventures, especially in high technology, long had insufficient access to financial resources, a situation transformed during 1998 to early 2000. However policy-makers need to be alert to the implications of volatile capital and can urge the financial authorities to take measures to prevent overheating.

Earlier publications in the series

EZ, *Ondernemerschapsmonitor winter 2000-2001*, Den Haag, 2000 (met als speciale thema "Maatschappelijk ondernemerschap in het Nederlandse bedrijfsleven")

EZ, *Ondernemerschapsmonitor najaar 2000*, Den Haag, 2000 (met als speciale thema "Netwerkactiviteiten van vrouwelijke ondernemers")

EZ, *Ondernemerschapsmonitor juni 2000*, Den Haag, 2000 (met als speciale thema "Intrapreneurship in het Nederlandse bedrijfsleven")

EZ, *Ondernemerschapsmonitor maart 2000*, Den Haag, 2000 (met als speciale thema's "Bedrijfsopvolging in het familiebedrijf" en "Ondernemerschap in het onderwijs")

EZ/EIM, *Entrepreneurship in the Netherlands. Opportunities and threats to nascent entrepreneurship*, Den Haag/Zoetermeer, 2000

EZ, *Een nieuwe kans voor particulieren en voor ondernemers. Een studie naar de toepassingsmogelijkheden voor het Amerikaanse Faillissementsrecht in Nederland*, N.J.H. Huls (auteur), Den Haag, 1999

EZ, *High growth companies in the Netherlands*, Den Haag, 1999

EZ/EIM, *Entrepreneurship in the Netherlands. Ambitious entrepreneurs; the driving force for the next millennium*, Den Haag/Zoetermeer, 1999

EZ, *Snelgroeiende ondernemingen in Nederland*, Den Haag, 1998

EZ/EIM, *Entrepreneurship in the Netherlands. New firms; the key to competitiveness and growth*, Den Haag/Zoetermeer, 1998

