16 Economic Capabilities and Strategic Clusters: New Perspectives for National and Regional Economic Policy

Pieter P. Tordoir

16.1 Introduction

Since the early Nineties, national economic policy in the Netherlands has been limited to market liberalisation and safeguarding adequate market conditions and adequate collective factor conditions, including physical and knowledge infrastructures. Because of past policy failures and EU regulation, micro- and meso level industrial policy has become marginal. Some years ago, national policy makers were inspired by Michael Porter's diamond framework for the explanation of industrial competitiveness (Porter, 1990; Jacobs, Boekholt & Zegveld, 1990). Porter's concept of economic cluster formation became for some time a buzzword, but this did not lead to actual policy change. At the moment of writing, there is a growing awareness in national policy circles of the limits of liberalisation, particularly in the case of the network provision of products and services such as railroads and electricity and telecommunication networks.

In this chapter, a new case is made for meso level industrial and spatial-economic policy, not as a substitute but as a complement of policy aimed at general market and factor conditions. There are various reasons for a renewed meso level policy, some of which are rather pressing. First of all, the competitive strength of nations and regions depends not only on market efficiency and other general conditions but also on industry-specific and cluster-specific conditions at a deeper level which have been forged by long term investment and which are hard to copy. Such conditions, among which specific knowledge infrastructures, networks of synergetic and pre-competitive collective entrepreneurship and shared regional and national pools of experience and specialised labour, will gain importance in liberalised international markets. These specific conditions do not evolve through the market mechanism and self-organisation alone. Some collective action is needed, both by entrepreneurs and by government agencies. Adam Smith's invisible hand of the market needs the visible hand of

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entrepreneurs and policymakers in order to produce optimal economic results in the realms of labour productivity, innovation, and competitiveness. Of course, the relevance of this Schumpeterian line of reasoning varies from one industry and economic cluster to the other. Second, and most importantly, the functioning of the market mechanism itself depends on some crucial capabilities of the economic system that cannot be produced by the market system only. Core capabilities in this respect are physical market access, governance capability (in its widest sense) and innovation capability. Specific clusters of business activities and specific competencies within business firms play a key role in the formation of these capabilities within the economic system.

In this chapter, an argument is made for industrial policy aimed at these activity clusters in particular. In the next section, three vital capabilities for productive and flexible market economies are explained in some depth. The key to competitive strength lies in combinations of these capabilities. The section concludes by referring to various avenues for national and regional economic development, while taking strategic capabilities into account. A subsequent section focuses on the contemporary Dutch economy. The productivity, innovativeness and competitiveness of various industries in the international market are explained by the development and intersection of strategic capabilities and activity clusters. The chapter concludes with some implications of the analysis for economic and spatial policy at the national and regional levels in the Dutch context.

16.2 Inside the grey box: vital economic capabilities

Are there any welfare theoretical grounds upon which we might assess the composition of industrial activity of national and regional economies? Must some activities be deemed more important than others? According to pure micro-economic theory, such assessments are futile. Industrial composition is a non-issue and a grey area for mainstream economics. It is not a black box, as innovation and technological development are a black box for economic analysis, since the activity composition of economies can indeed be perfectly explained by market theory (Rosenberg, 1982). The composition is a *grey box* in mainstream economics: explainable, but meaningless.

According to pure micro-economic theory, changes in the industrial composition of the economic supply-side follow from changes in the composition of final demand. Final demand composition is a datum for mainstream economic science and escapes economic analysis. Only the

efficiency by which changes in demand are translated into changes in supply matters. From the micro-theoretical perspective, policy should be limited to general conditions for efficient adaptation. Only the entrepreneur is capable to adapt. The government should not take over the rudder from the entrepreneur and should limit itself to the provision of free and navigable waterways (Arrow & Hahn, 1971).

Ricardo's theory of comparative advantages, explaining variations in the national and regional activity composition from relative scarcities of factors of production is derived from micro-economic theory. On the basis of his theory it follows that a welfare optimum is secured by free trade of goods and services (Hollander, 1979). When free trade is accompanied by free movement of capital and labour, geographical variations in wealth will, according to Samuelson's extension of Ricardo's theory, moreover evaporate. National and regional specialisation patterns, under such conditions, will not influence wealth. The goals and means of EU economic policy reflect this line of reasoning and give limited scope for national and regional industrial policy. Governments might invest in the supply factors of production, such as labour, infrastructure and the pool of technical knowledge but they are not entitled to protect this supply from foreign consumption. Thus, economic policy based on micro- and welfare economics prevents specific industrial policy at the micro- and meso level, apart from competition and market structure policy. Also, Porter's diamond model, which is one of the few meso level models explaining the competitiveness of industries, does not provide any other basis for public policy other than competition policy and the provision of collective factor conditions. Porter's model perfectly explains the Dutch advantage in flower bulbs, for example, but that does not imply that the flower industry should therefore be given preferential treatment by national policy.

Schumpeterian theory, the main rival of neo-classical theory, does supply us with grounds for more specific industrial policy, however. Schumpeter saw that perfect competition might stifle innovation and growth since it prevents organised and large-scale research and development (Schumpeter, 1942). The Schumpeterian advice would be to allow for some level of market concentration in order to reach sufficient scale for R&D (Nelson & Winter, 1982). Nonetheless, neither neo-classical nor Schumpeterian theory provide, in any case, sound reasons for favouring one cluster of economic activities over the other. Hereafter, it is argued that such reasons might however very well exist.

The theories mentioned above are based on an abstract and simplified representation of economic reality. Naturally, the supply system of the economy

is structured according to the structure of final demand by way of the free market. This is Adam Smith's famous 'invisible hand'. In theory, the invisible hand does the job, but in practise it needs a real-life hand. The formation of industrial structures and the growth and governance of markets is guided to an ever-increasing degree by specialised activities within the market economy that support the smooth functioning of markets, the decision making process by entrepreneurs, business organisations and investors, and innovation processes. In principle, there are three kinds of vital capabilities involved in the functioning and growth of advanced and complex market economies. These capabilities are to a large extent supplied by activities that form part of the industrial composition of advanced market economies. Nonetheless, the market mechanism by itself will not produce these capabilities to a full extent. Schumpeter followed this reasoning for the capability to innovate, but the principle holds as well for other vital capabilities. The argument presented in this chapter is that competition policy and the provision of general conditions for business development should be complemented, within limitations, by specific industrial policy oriented towards these three kinds of capabilities and the industrial clusters providing these.

Physical market access

A first and most obvious capability within a smoothly functioning market economy is physical and informational market access. Mainstream market theory addresses the economic and institutional structure of markets, but not the geographical structure and the physical accessibility of markets, notwithstanding the influence of the latter on market efficiency. Geographical market structure and physical accessibility pose severe problems for theory, due to increasing returns to scale and external effects that escape and hamper the market mechanism (Fujita, Krugman & Venables, 2001; Tordoir, 2001). These effects are particularly relevant in networks for the transportation of goods, people and information. Because of increasing returns, networks are not provided by the 'invisible hand' of market forces and are thus a natural concern for collective policy, aimed at public network provision when a monopoly is most efficient, or at Schumpeterian competition policy when an oligopolistic market supply structure will do.

In advanced economies, physical market access is not only a matter of networks. In many cases, physical networks are only one layer within a multi-layered structure of facilities and activities involved in transportation. Often, the utility of physical infrastructure, including roads, railways, airports and seaports, is also determined by the presence and qualities of

services providers. The services provision structure itself usually consists of various layers. The efficiency of physical networks will depend not only on the governance structure of the network itself, whether publicly or privately provided, but also on the structure and development of service providing industries. Hence, governments willing to invest in efficient networks should take careful notice of the quality and market strategies of these providers. Adequate size, industrial structure and innovativeness of intermediary service providers and clusters of supporting activities, positioned between a physical network and the final user, are essential for the utility of networks, for the efficiency of market interaction and for economic productivity and wealth in general.

Governance capability

Governments can only enforce competition (or self-organisation) in the event of market failure due to strategic behaviour of market participants. When market failures result from technical scale and external effects, organisation is unavoidable. This explains not only the role of government and collective action but also the existence of large and hierarchically structured companies. Where the market fails, efficiency results solely from managerial and administrative competencies in the public *and* private sector (Williamson, 1980). However, when markets do work, governance capabilities are needed for the continuous adaptation of companies to ever changing markets and institutional conditions.

The market mechanism does provide for the most essential of governance capabilities, namely entrepreneurship. More generally, it ensures a natural selection of governance capabilities, provided that companies with various governance practises compete with each other. Natural selection stops, however, if one practise becomes dominant. In that case, only a continuous learning process can take over the role of the market in stimulating innovation and progress in governance practises. Usually, progress in governance practises results both from selective market forces, knowledge spill-overs and collective learning processes via trade journals and management education. Cultural, social and physical proximity are key conditions. Governance in the economy means the co-ordination of human agency. Human agency can only be understood and influenced within a common cultural context (Beckert, 1997; Granovetter, 1985). Face-to-face contact is essential and that explains the physical proximity condition. Therefore, governance practices are often specific in a national and regional context. The Netherlands, for example, are known for the 'Poldermodel' of governance, a co-ordination practice

developed over centuries that differs significantly from the more centralised models in France and the USA (Aglietta, 1976; Boyer, 2000).

Governance in our advanced and complex mixed economies is highly knowledge-intensive. Nestled around governance centres, among which head offices and government departments, are extensive complexes of supportive knowledge services including consultancy, legal and information services. This complex of corporate activities forms the core of the Central Business District in large cities. At work is a cumulative causal process of spatial concentration towards a limited number of global control centres, triggered by the globalisation of the economy, that together form a system encompassing the various time zones in the world (Castells, 1996; Sassen, 2001). The result is the rise of the global network economy, where national and global control centres (CBDs) are interlinked by the global hubs-and-spokes system of air-links. International control centres are without exception also hubs in the global air-links network. Networks for physical market access and concentration of governance activities are tightly interlinked.

Innovation capability

Growth of productivity and GDP per head is eventually determined by the improvement of products, services and production processes. Innovativeness is therefore the last but certainly not least of the three propelling capabilities in advanced economies. The underlying innovation process is no longer a *deus ex machina* and *black box* for the economic and administrative sciences. Armed with insights into the social, economic and spatial foundations of the innovation process, policy makers can do much better than just subsidise R&D, which is still the favoured policy. Effective innovation policy is directed at the forging of connections with and within the creative core of the economy. Effective governance structures do a better job than just throwing public money at private enterprise. Innovation capability and governance capability are closely interconnected.

In abstraction, innovation concerns variation, selection and diffusion. There is some analogy with natural evolution, except that the latter involves self-organisation whereas the former demands a certain level of organisation and thus governance. Three forces are at work: the feeding power of knowledge development (technology push), the selective power of the demand market and the learning and diffusion engine of rivalry in the supply market. The obvious handle for policy is technology development, where the market mechanism might fail due to scale effects and high levels of risk. Organised R&D often requires large size companies to be involved and thus a relaxation

of competition policy. Since companies invest only in R&D if they can reap its fruits, some level of initial protection is necessary.

The scientific literature is overwhelmingly concerned with technical progress. Non-technical innovation in the 'cultural' fields of design and communication, and innovation in governance practices, are two increasingly important areas of creativity and economic progress that are neglected in the literature and in policy circles. In the field of cultural creativity and innovation, organised R&D is much less relevant. Innovation is usually a matter for the individual entrepreneur and individual specialists, including the artist. New ideas circulate in informal circles and new products and services are often developed in temporary project groups. For these reasons, individual independence, informal interpersonal contacts, shared life styles and languages, and knowledge spill-overs (as an external neighbourhood-effect) are crucial ingredients of fertile innovation environments. Such environments therefore often have a specific and local or urban character (Florida, 2002). In the case of both technical and cultural innovation, a critical local demand market of early adopters is often a necessary condition (Porter, 1990). Innovation not only demands contextual changes in firms since users have to adapt as well. In the case of intermediary users (business-to-business markets), the market concentration at the demand side is relevant. Concentrated or monopsonic demand markets are less conductive to innovation.

Finally, the spatial structure of the demand market plays a role. Knowledge spill-overs are just as relevant within the demand market as they are within the supply market. The neighbourhood-effect is a major driving force in the diffusion of innovation adoptions. The context of spatial structure is thus highly relevant for the development of innovation capabilities.

16.3 Structural and spatial interdependence of capabilities

Market access, governance and innovation capabilities are structurally and spatially interdependent. Taken together, they form a base for the competitiveness of industries, regions and nations. The value of interconnection of the three capabilities varies according to some basic market characteristics, among which the level of volatility, standardisation and industrial concentration.

The Dutch horticulture cluster is a fine example. Within this cluster, specialised firms maintain a worldwide network of channels for wholesale and retail distribution and sales of flowers, bulbs and greenhouse products,

supported by co-operative auction facilities and Schiphol Airport. The cluster therefore maintains a global hub position. The concomitant flows of information and interpersonal contact networks are, in turn, a fertile breeding ground for the creative core of the cluster, consisting of firms specialising in genetic engineering and in the development of dedicated ICT, logistics and marketing methods. Horticultural product markets are volatile and fragmented spot markets, where many small and interdependent players within the context of complex value chains have to react quickly to changes in world demand and supply markets. Such a combination of market characteristics is typical in many 'hot' consumer-oriented markets, among which fashion, media and advertising, but can also be encountered in innovative producer services industries and advanced manufacturing within complex time-critical chains, such as design furniture and race car construction. These types of industries all show functional and spatial clustering of firms and strategic capabilities. Clusters compete in the international market just as much as individual firms do.

In industries characterised by concentration of supply and demand markets, low market volatility, and mass production, the interdependence between market access, governance, and innovation capability is less pronounced and less critical for competitiveness. In consumer electronics, retail banking and the energy sector, for example, product development, governance, and distribution can easily be functionally and spatially separated. Nonetheless, even in these less complex industries, time-critical interdependencies between various strategic capabilities may occur at an intersectoral level. The Philips Group, for example, could move its global headquarters out of Eindhoven, its R&D seat, because of the slow interaction between R&D and governance, but it moved its headquarters to Amsterdam because of the high interaction between firm-internal administration and advanced financial and producer services. Located close to Schiphol Airport, the administrative centre of the company can easily interact with the main financial and business centres in the world.

More generally, we see spatial interdependency between economic and political decision centres, international transportation nodes and clusters of advanced creative services. The combination of physical node development, headquarter activities and creative activities is typical of metropolitan centres in the top and sub-top of the international urban hierarchy (Daniels, 1991; Tordoir, 2003; *see also Map 16.1*).

The above argument does not imply that the development of the three strategic capabilities explains the competitiveness of regional and national

industrial clusters in every instance. As stated above, the value of the capabilities depends on market and industry characteristics. This value is, for example, relatively low in cases of standardised production and services processes. In these cases, neo-classical economic theory, which does not mention any of the capabilities discussed here, can perfectly explain regional and national patterns of industrial specialisation and competitiveness. Thus, there are two explanatory models for regional and national industrial specialisation patterns, development and competitiveness: the mechanistic neo-classical model, based on regional and national differences in production factor scarcity, and an organic model, based on spatial differences in the development and interconnectedness of the strategic capabilities discussed here. Both explanatory models do not exclude each other, but overlap and intersect. Market efficiency and industrial specialisation demand physical market access and governance activities, in the same way as each of the strategic capabilities is, in principle, based on an efficient market mechanism. Like any other economic activity or resource, activities involved with strategic capabilities are subject to Ricardo's laws of comparative costs.

Strategic capabilities are thus subject to neo-classical economic laws. They have certain cost levels and carry price tags that will differ from region to region. Local price tags will vary according to local changes in supply and demand and according to changes in other regions. Apart from competition on the basis of strategic capabilities, therefore, there is also direct competition in markets for strategic capabilities. An international airport hub, for example, provides a basis for local industrial competitiveness, but the airport itself is also subject to international competition.

Nonetheless, strategic capabilities are a rather special type of economic activity. In other words, they are a special type of resource. Contrary to common types of resources such as labour, capital, and land, strategic capabilities generate *endogenous* regional and national development capacity. Industries, regions and nations with highly developed strategic capabilities are at the source of change and development in the global economic system. Regions less endowed with these capabilities behave as floating corks in the waves of economic change. There, waves of change are not initiated or changed in direction to the benefit of the region. Strategic capabilities are hard to develop and difficult to imitate. They are partly untradable and spatially highly immobile. Local companies cannot easily shop for them outside their region of establishment. Once established, physical market centrality, governance capability and innovation capability can give cities, regions and nations a remarkably robust competitive edge. Thus, the Southeast of England,

the Île de France and California, which are regions of comparable economic size and strategic capability endowment, have all shown rather stable growth potential throughout various upturns and downturns during the last century. On the other hand, many other regions in the UK, France and the US have witnessed sometimes drastic volatility in competitiveness and wealth in the same period. The three regions mentioned, which are not by chance endowed with highly diversified metropolitan economies, seem to weather the storm of the changing world economy with great ease. The next section provides some more detail regarding developments in the Netherlands.

16.4 The Dutch economy in perspective

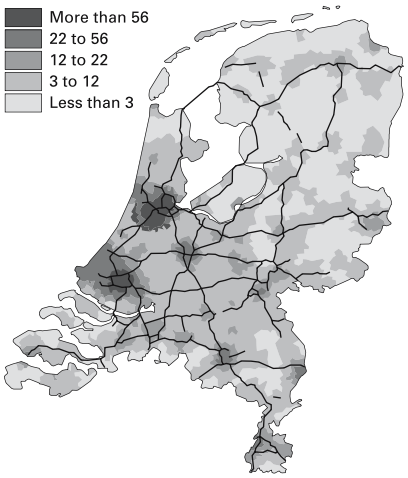
The industrial composition of the Dutch economy is highly sensitive to the relative costs of factors of production, particularly land, energy, and labour costs. The neo-classical perspective on national specialisation and competitiveness is thus quite relevant both for entrepreneurial strategy and national public policy. Labour costs moderation has for many years been, and still is, a main lever for national economic policy in the struggle for international competitiveness. The successful development of the Dutch economy cannot be explained on the basis of competitive factor costs alone, however. A strategic capability of rather overriding importance, by which the Netherlands have a quite unique international position, is the result of the central geographical position of the country in international and global market access networks. A majority of exporting local industries profit directly and indirectly from a strong embeddedness of the economy in international transportation networks. As regards the other two kinds of strategic capability discussed here, the Dutch position leaves a lot to be desired, however. A certain level of strength does exist in the field of governance capabilities, with the country being home to some of the largest multinational companies and a well-developed financial and business services sector. However, neither Amsterdam, the main centre for these activities, nor the Randstad region as a whole belong to the group of top-ranking economic decision centres in the world. Advanced economic governance capabilities and innovation capabilities as well are also concentrated in a handful of very large corporations. Thus, market access is in general by far the most important national capability with the widest implication in terms of profiting industries. Governance capabilities are present but not particularly strong. Innovation capabilities are the weakest of the three cornerstones.

Moreover, competitive advantage based on strong *combinations* of strategic capabilities is rather rare in the Netherlands. The aforementioned example of the Dutch horticulture cluster is an exception to the rule. The situation differs widely among the various exporting industries, however.

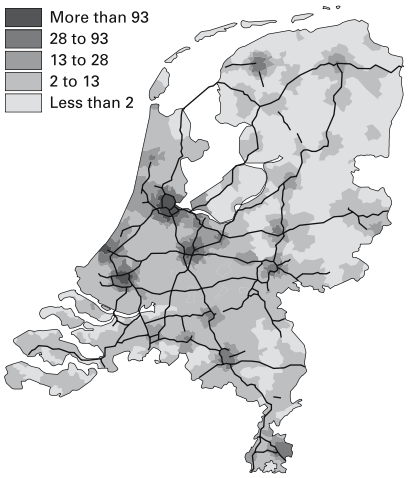
The neo-classical drivers of the competitive strength of the Dutch economy, including moderated costs of labour, land, and energy, increases in the economically active population due to immigration and increasing labour participation by women and the rather successful national deregulation and liberalisation policies, cannot be sustained in the medium-term and long-term future. The robustness of Dutch international competitiveness is therefore rather limited. Labour productivity growth levels have been low for many years. Only a few goods and services produced in the Netherlands exhibit high levels of exclusivity and low price elasticity of demand. These fundamental weaknesses of the national economy were hidden from view during the Nineties of the last century, a period of exceptional economic growth fuelled by a sudden rise in labour participation (of women in particular), soaring house prices and consumption loans.

Scarcity of land and labour, relatively high cost of living levels and structural cost inflation in construction and public services are a normal condition in advanced metropolitan regions. The Netherlands is in fact becoming a large metropolitan region and will have to deal with concomitant high cost levels. Population ageing puts extra pressure on costs. Moreover, the limits to the liberalisation policy are becoming obvious; market efficiency is in many sectors close to an optimum. For all these reasons, the country needs new and more sustainable engines for economic growth and international competitiveness. The final section of this chapter discusses avenues for the development of new growth engines on the basis of strategic capability development. Before doing this, however, we should have some idea of the actual development of these strategic development in the Dutch context.

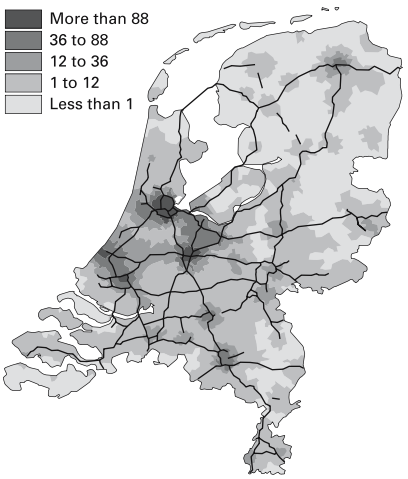
Map 16.1 shows empirical evidence of the development and spatial dispersion of business activity directly involved with the three capabilities discussed here. It highlights the dispersion patterns of selected clusters of highly specialised activities at the four-digit code level of the Standard Industrial Classification. Regarding market access services, for example, only those business activities are selected that are directly involved with international network development and services provision, including specialised intermediary activities. Thus, road transportation and distribution companies are excluded, but logistical services providers are included. Governance activities are interpreted as 'advanced business services', including knowledge-intensive consultancy and specialised



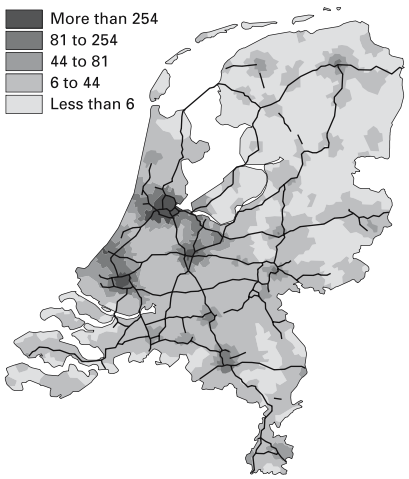
1a Distribution of advanced distributive services



1b Distribution of advanced business services



1c Distribution of advanced creative activities



1d Total, three activity clusters (1abc)

Source: Kleyn & Tordoir, 2003; Louter 2003

Map 16.1 Distribution of strategic activity clusters in The Netherlands, 2001 (workers per square kilometre)

headquarter activities, but excluding common accountancy and bookkeeping services for example. Map 16.1b therefore provides an indication of the extension of the *corporate* complex in the Netherlands. Finally, only advanced

creative activities are selected. Thus, R&D establishments, ICT developers and designers are selected among other advanced activities, but ICT installation and maintenance provides are left out of the selection.
The patterns that arise in Maps 16.1a to Maps 16.1d are telling and support the argument that providers of the strategic capabilities discussed here could be expected to agglomerate in large urban areas, for a wide range of reasons. Agglomerations differ in their share of the selected clusters, however. Only the northern wing of the Randstad conurbation, the highly urbanised western part of the Netherlands, exhibits high shares in all three clusters. This might be one of the reasons for the economic success of the northern wing, comprising the cities of Amsterdam and Utrecht. The southern wing of the Randstad, comprising the cities of Rotterdam and The Hague, is richly endowed with advanced distributive services (connected to the port and trading centres of Rotterdam) but less so with advanced business services. All three of the selected activity clusters show more or less the same pattern of spatial dispersion. There are some notable exceptions however. Outside the Randstad, strategic clusters are concentrated in cities, but specialisation plays a more pronounced role, except in the case of Eindhoven, the main city in the southern part of the country.

16.5 Policy implications

In principle, an advanced and highly urbanised society with a high level of solidarity between successful and lagging social groups and high levels of investment in education, culture and the natural environment can only be sustained by high levels of labour productivity growth and by high levels of exclusivity of the output of products and services. These two conditions have not yet been fulfilled in the Netherlands. Meeting these conditions will require some substantial changes in strategic management and policymaking, both in the private and the public sectors. New types of industrial policy, based on public-private co-operation and within the boundaries of EU regulations, will become necessary.

Through enhanced labour productivity and output exclusivity in terms of a low price elasticity of demand, Dutch industries will become an initiator and less of a prisoner to changes in the international division of labour. According to the American economist, Vernon, advanced and robust metropolitan economies shed activities with diminishing profit margins to low cost regions, using the thus freed resources for investment in innovation,

analogous to the portfolio and product lifecycle strategic management models (Vernon, 1966). Such a development course demands absolute advantages and organic, endogenous development capabilities. These capabilities do not arise by self-organisation alone and need some sort of co-operation. This chapter concludes with some policy recommendations regarding the three strategic capabilities discussed in the preceding sections.

Reinforcing international market access

Reinforcement of international market access by way of infrastructure improvement and 'mainport' development has been a leading policy in the Netherlands during the last half century (Gout, Haffner & van Sinderen, 1997). The value of the nodal position of the country in international transport networks does not need further argumentation. Public policy makers have, in order to secure that position, placed an emphasis on investment in physical infrastructure, including airport and seaport facilities. Apart from the quantity and quality of the physical infrastructure, the utility of the facilities involved depend very much on the development, quality, and competitive strength of service providers, however. Competitive airports and seaports need competitive airlines and shipping companies. Competitive telecommunications networks need strong communications and media industries. This fact has been acknowledged by Dutch policymakers in the past, as proven by the protective policy towards KLM, the national flag carrier. Nowadays, EU regulation prevents protective industrial policy, however. New avenues for the reinforcement of service providers, within the limits set by the EU level playing field, have therefore to be found.

The transportation and distribution industries first of all need to improve their knowledge base. The Netherlands is known as a transport and distribution centre, but less as a centre for innovation in the fields of distribution, logistics and related ICT development. American, Asian and French service providers lead the way in these fields. This calls for specific innovation policy which we will discuss at some length below. A second priority for policy is to enhance the utility of market access capabilities supplied by the complex of physical facilities and services providers for a wide scope of industries. The aforementioned horticulture cluster sets an example that might be followed by other industries. Connections between 'mainport' and 'brainport' functions are still rather weak at the moment. Airports and seaports in the Netherlands, notwithstanding their prime competitive position in the international theatre, are first of all hubs for international transfer, throughput and break-of-bulk. Value adding activities and origin-destination markets only play a secondary

role as a market basis for the physical infrastructure involved. In practical terms, for example, the activities of the horticulture cluster could be extended to encompass many more time-critical flows and value adding activities in the broad field of perishable goods. The large Parisian distribution centre for perishables at Rungis is setting an example in this respect. Such development can only be based on strong distributive services and on organisational and co-operative competencies within the industries involved. In order to extend the value-adding function of physical market access facilities, therefore, policymakers in the public and private sector have to strengthen innovation and governance capabilities as well as the quantity and quality of physical facilities.

Reinforcing innovation capabilities

Innovation has for some time been a main spearhead of Dutch economic policy but it has not received the same attention and investment funds as is the case with physical infrastructure (Ministerie van EZ, 2000; Centraal Planbureau, 2002). Current innovation policy is mainly directed at the stimulation of R&D for commercial application by way of subsidies and fiscal incentives and public-private funded research programmes. The policy is thus aimed at particular elements in the innovation process, using subsidies as a trigger. We can raise the questions of whether these elements are indeed the weakest link in the innovation process and whether monetary incentives will indeed do the job.

Most innovation processes and innovation systems comprise four main links: first, knowledge development within public and private institutions; second, the interface between these institutions and (potential) applicants of this knowledge; third, knowledge application within user organisations; and finally, diffusion of knowledge applications within and between industries. In well-functioning innovation systems, these links are both individually strong and collectively integrated. In principle, there are three ways to co-ordinate this collective integration, hierarchical co-ordination within the (large) firm, collective co-ordination within co-operative structures, and finally co-ordination by the market mechanism and by external effects via knowledge spill-overs (Marshall, 1919). The Dutch economy is strong with respect to hierarchical co-ordination within the boundary of large multinational companies, but less strong in co-operative innovation processes (apart from exceptions such as the horticulture cluster) and rather weak in market-driven integration of innovation processes. Apart from the activities of some large companies, co-ordination of chains of innovation therefore seems to be the

weakest link in the Dutch context. Recently, awareness of this has increased in policy circles, but this has hardly materialised in policy measures as yet. The currently dominant liberalisation policy might even be counterproductive in the field of innovation, since innovation often demands some level of co-operation.

The main problem is the weakness of the middle link, and specifically the absence of efficient interfaces within the triangle of public knowledge institutions, private knowledge applicators and financial investors and intermediaries. Apart from this, mechanisms for the diffusion of knowledge applications within and between industries are weak. Market incentives for knowledge application are insufficiently picked up by knowledge generating institutions. Within academia, researchers are driven by publication pressure and peer judgement and hardly by possibilities for application and patenting. Entrepreneurial competencies are rare within academia. On the other side of the academia-market interface, small and medium sized firms (SMEs) in particular are, with some exceptions, not able to translate market opportunities into research needs. Neither are many firms able to translate progress in research into market opportunities. Moreover, organisational fragmentation within industries dominated by SMEs prevents critical mass formation that is often necessary for R&D projects. Finally, the financial sector lacks specific competencies necessary for the funding of innovation-driven enterprises. Innovation driven financial markets, such as the Nasdaq and the many small private investment funds in the US, are much less developed in the EU. In the Netherlands, investment banking is strongly dominated by a few large banks that are mainly oriented to wholesale operations, with large transactions, low risk and small margins. Specialised small-cap and mid-cap funding, with high risk and high margins, which requires specific knowledge of industries and technologies on the part of financial investors and dealmakers, is a rare phenomenon.

These problems pose the policy question of how a 'triple helix' can be wrought between public research institutions, industries and investment agencies. Central issues for innovation-stimulating policy in this respect should be the improvement of governance competencies and incentives for co-operation both in the public and private sector and second, the improvement of competencies to translate between research and market opportunities, including the connection of R&D competencies with entrepreneurial competencies. In the US, the academia-private sector link has been drastically improved by a single act that gives universities a strong incentive to application-oriented work. In the well-known Finnish innovation policy model, the emphasis lies

on new co-operative structures whereby large companies, particularly Nokia, play a central role. The successful US model is interesting for the Netherlands and the EU in general because it does not involve any extra public money. The Finnish model has value for the Netherlands because of the role of large companies. Large companies are dominant in the Netherlands but do not work much with the local SME sector. Finland is leading the way towards successful cluster formation between large and small firms.

Apart from co-ordination oriented economic policy, other policy areas are also relevant to innovation capability. Spatial policy is one of these, for two reasons. First of all, due to the value of frequent face-to face contacts for the co-ordination of complex processes, spatial proximity (at the scale of daily urban and regional systems) is highly conducive to well-functioning innovation systems. It pays, for example, to locate new public research facilities close to potential industrial users, and vice versa, to develop new enterprise facilities close to research centres. It also makes sense to organise innovation policies at a regional rather than national scale, particularly so when SMEs are involved. Second, knowledge spill-overs, an external effect of the market mechanism, are conducted by proximity: the well-documented industrial districts-effect (Marshall, 1914). This effect is even more important for non-technical innovation than for technical innovation. Culturally innovative activities such as design, fashion, and the media industries are spatially clustered for the same reasons. Spatial urban planning can contribute to these beneficial effects. Urban planning is also highly relevant for the spatial facilitation of quick expansion of successful firms, for easy transformation of industrial locations and for environmental regulations suitable for new production processes. In the Netherlands, both land development flexibility and the local regulatory environment often pose severe problems for expanding innovative companies, particularly in urban areas.

Reinforcement of governance capabilities

Governance capability is the most encompassing of the three capabilities discussed here. Governance is a major ingredient of market access networks and services and of efficient innovation systems. In its widest sense, governance comprises both management and administration, *and* entrepreneurship. The governance of market economic systems, at the levels of individual enterprise, inter-organisational value chains and macro-economic systems, usually involves combinations of administrative and entrepreneurial activity. On the other hand, however, administration and entrepreneurship are completely different competencies that, in combination, provoke tensions.

This chapter concludes with the argument that economic policy, at the national, regional and urban level, should not only be more involved in conditions for good governance in the public and private sectors and in public-private arrangements, but should be able to cope with the inherent tension between administration and entrepreneurship, turning this tension into opportunity rather than conflict.

In theoretically perfect markets, co-ordination is purely a result of the market and entrepreneurship. In practise, the visible hand of an administrator will often be necessary due to the existence of scale effects and external effects. Moreover, even perfect markets demand many and strict institutional conditions that call for administrative competencies, such as a central monetary authority and an enforceable legal framework. Thus, organisation is not only an alternative to self-organisation but in fact complements it (Tordoir, 2001). Organisation, in turn, can either be accomplished by vertical and hierarchical structures, based on power, or by horizontal and co-operative structures, based on trust (Ouchi, 1980; Fukuyama, 1995). Collective, hierarchical and co-operative types of organisation have a major disadvantage, however. In these types of organisations, administrative leadership, political infighting and zero-sum gaming will quickly dominate entrepreneurial leadership and non-zero sum gaming (Olson, 1996).

This phenomenon is highly visible in the Netherlands. Efficient administrative control fits in rather well with the national culture, judging by the many successful large companies of Dutch origin. The country is also rather capable in co-operative co-ordination, judging by the internationally acclaimed success of the Dutch 'Poldermodel' of social-economic negotiation and co-operation between organised employers, labour and the state. The Poldermodel is not a recent invention but goes back to a centuries-old cultural tradition. Finally, entrepreneurial leadership, upon which large Dutch multinationals such as Philips and Shell were once founded, has during the last decades mainly been consigned to the SME sector. Thus, the three principal modes of governance, hierarchical administration, horizontal co-operation and individual entrepreneurship (in a context co-ordinated by the free market), are all present in the Dutch economy, but each in different sectors of the economy and society. Hybrid forms of governance, where entrepreneurship are combined with either hierarchical or co-operative administration, are rare. There are exceptions to the rule, for example in the horticulture cluster, where co-operation is mixed with entrepreneurship. Synergetic mixing of large hierarchies with small entrepreneurship, a cornerstone of the successful Finnish innovation model but also common to other

successful regions such as Silicon Valley, Bayern and Emilia Romagna, has almost disappeared from the Dutch economy. Organised, co-operative entrepreneurship, once a cornerstone of the international entrepreneurial success of the nation, has become indeed somewhat of a *contradictio in terminis* in the Dutch context.

Governance capability within the economy is not an explicit subject of economic development policy in the Netherlands. Surely, the tackling of governance issues and problems is often unavoidable in practice, since the successful implementation and accomplishment of almost any policy will depend on the development of adequate co-ordination and governance competencies. Nonetheless, governance is yet not regarded as a major issue by itself in economic policy circles. Here, a strong argument is made to change this. Synergetic combinations of administrative, organisational, co-operative, and entrepreneurial competencies are a principal key to competitiveness of any activity cluster, industry, and regional and national economy. Such combinations are weakly developed in the Dutch economy (as they are in most national and regional economies). The relevant knowledge is in ample supply in the Netherlands and elsewhere. The Netherlands has the highest number of management and administration consultants per inhabitant (De Jong & Tordoir, 1991). The country has a rich tradition in the administrative sciences. The national culture favours consultation and co-ordination and could give a right context for successful combinations of governance competencies. At the moment, however, the thickness of collective institutes and structures for co-ordination inhibits rather than stimulates such combinations. Administrative, co-operative, and entrepreneurial competencies are each imprisoned in different islands. Advanced administrative competencies are mainly locked in the world of large enterprises and public institutions (with little incentives to co-operate with third and smaller parties), co-operative competencies are increasingly confined to the 'Poldermodel' world of government-oriented representative business and labour organisations. Finally, entrepreneurial competencies are pushed back to the realm of small and medium-sized enterprise.

Eventually, the aim of the economic development policy suggested in this chapter is to stimulate the combination of hybrid governance capability with market access capability and innovation capability, in a customised manner that fits in well with the structure and culture of various economic clusters and industries. In this way, policy agencies must indeed show some level of entrepreneurship, not by taking over the driver's seat from the entrepreneur, but rather by enhancing awareness of the issues at stake and the capabilities

involved and by goal-oriented and co-ordinated action and investment in a long-term perspective. The principal key is co-ordinated entrepreneurship at the meso level of clusters, industries and regions, by private-private and public-private co-operation and coalition building. These will enhance the use value of public capital investments and subsidies, two mainstream policy instruments that will at times remain necessary but should preferably not be used in a stand-alone context. Public policy funds are a necessary but not sufficient condition for economic development policy at the regional, national and even supranational levels. We can do more with less.

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Part III Concluding remarks