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Globalisation and Regional Economies:
Can OECD Regions Complete in Global Industries?
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PART I

Chapter 4

Clear Strategy, Good Governance

This chapter explores the importance of governance arrangements in helping regions react to changes in the global economy. In some cases, mobilisation has been a response to crisis; in others a more structured mechanism for economic policy formulation is used. In either case, the evidence base necessary for decision making stands out as a crucial issue, as does the ability of public and private sector actors to find consensus around a forward-looking and realistic response.

Introduction and key points

Regional competitiveness is attributable to numerous factors, some of which regional actors have the power to address. One area where policy does play a role is in the provision of "local collective competition goods" of value to firms (Crouch, *et al.*, 2001). Such goods may concern availability of relevant skills, access to information related to technical evolution or external markets, the sharing of a regional label, etc. These collective goods and services provide competitive capacity to the actors located in the place. Their provision must be ensured by social or political arrangements, strongly linked to the central government regional policy (objectives and means), that is, by forms of multi-level governance. This chapter explores the key elements in determining a possible regional response, both in terms of strategy and the governance arrangements that make it possible to design and implement a strategy.

Key points

- Different forms of economic shock provided a catalyst for some regions to develop more forward-looking strategies and motivate participants in the strategy development process. A more systematic approach to anticipating change is probably needed.
- Because region-level data, particularly in the field of innovation, are relatively weak, the evidence base by which regions can compare their position with other regions and track changes in the enterprise base tends to be weak.
- Where there is no specific crisis, the evolution discussed above could be sufficiently incremental to be missed by policy makers. This argues for an approach that is proactive in terms of a regular regional economic "check up".
- Given that functional economic regions do not always map to administrative boundaries, a variety of strategies are used to define the regional unit of intervention. These spatial footprints may vary by industry or by cluster within the same region. Furthermore, the tools available to the regional level differ considerably across institutional frameworks.
- The process to develop the regional strategy can be helpful in building consensus on the problems and possible solutions for the region's economic development. There were challenges for regions when the regional plans did not sufficiently convince those actors with resources.

What is the region?

One of the first challenges for mobilising regional support to enhance economic strengths is the definition of the region. The mismatch between the political administrative boundaries and the functional economic region can be a serious barrier to building competitive regions (OECD, 2005a). The development and implementation of a strategy to support the region's economic strengths is often a key step in designing an approach that takes into account this functional area. However, co-operation among

different public actors may be difficult to achieve. The development of an organised public response for the region seems to be an important first step. But this does not mean that such a response is required in all cases nor that if there is an organised response that it will be successful. The case study regions have developed their regional strategies in very different ways, reflecting the different mandates of the public actors and the degree of overlap between political and functional boundaries (see Table 4.1).

Mismatches between administrative and functional areas

No co-ordination body

The example of Stockholm illustrates an interesting point about the way that political boundaries can influence the type of support that public authorities provide for key industries. The fact that the spatial footprints of the biotech and ICT industries are different has important implications for public support. In the case of ICT, a strategic part of the cluster is largely contained around an industrial park within the City (and therefore County) of Stockholm. In contrast, the biotech cluster spans three counties in the greater Stockholm-Mälar region, a fact that is considered to impede co-ordination. While co-ordination across the three counties is weak, some bottom-up initiatives in different counties are seeking to bridge the gap, such as Biotechvalley and Uppsala Bio, to improve coherence in the strategic provision of support for the pharmaceuticals and biotechnology industries. However, no public actor has taken the role of "intra-regional leader" to link these initiatives.

With respect to horizontal co-ordination (across local government boundaries), the case of north-western Switzerland illustrates an even greater challenge to defining a region. First, the biopharmaceutical cluster spans areas in three countries, Switzerland, Germany and France. Second, the definition of the region varies by purpose, and a number of different geographical definitions (or footprints) are used. This "variable geometry" and purpose-oriented delimitation of north-western Switzerland is a reflection of the strong mandate of the Swiss cantons. The existence of six of these cantons in a rather small spatial perimeter reinforces this fragmentation. Furthermore, inter-cantonal co-ordination mechanisms are weak. Few institutions that co-ordinate regional policy activities exist and they rarely cover the entire region or, if they do, they are only equipped with few competencies. Against this background, defining a coherent strategy for the biopharmaceuticals industry across the region is very difficult.

Informal arrangements

Some regions have developed informal mechanisms to permit them to organise policy formulation and delivery across a functional region. In the Eindhoven region, the initiatives to support economic development are carried out by collaborations like the Horizon Programme which was followed up by the Brainport Strategic Programme. In addition, a cross-border initiative, the Eindhoven-Leuven-Aachen triangle, was launched. From a regional economic development perspective, the city-region and the two largest municipalities of Eindhoven and Helmond are the most important and powerful actors in horizontal collaboration. However, this initiative sits alongside several other formal and informal mechanisms (such as the "Peaks in the Delta" regional economic planning programme at the national level and Brainport at the inter-municipal level) that crowd the administrative landscape.

The automotive sector spans many counties within Michigan and across into other states. A range of co-ordinating bodies have been set up by the counties with the support

Table 4.1. **Regional definitions and mandates in case study regions**

Region	Administrative region contains functional region?	Regional mandates for economic development
ICT		
Stockholm	Yes, with respect to the ICT cluster	• Regional level has a strategic role in planning and co-ordinating • Regional level weak • Limited funding and implementation possibilities • Municipalities have a strong position
Eindhoven	No, but different footprints are used by governments to correspond to the functional region. A formal government level, city-region (so called WGR+ region) has also been formed	• Regional level has a strategic role in planning and co-ordinating but limited funding • The operational work is carried out by regional economic development agencies and by increasingly important triple helix public-private partnerships • The city-region (21 municipalities) plays an important role in initiating horizontal collaboration
Ottawa	Yes, merger of political units to better map to functional region	• Regional level has a strategic role in planning and co-ordinating • Municipalities have a strong position, especially after the merger • Depending on the service or programme, the City of Ottawa partners with many private organisations
Recife	Yes	• Regional level has a strategic role in planning, co-ordinating and executing the policies • To bypass administrative burden, a not-for-profit association, defined as Social Organization (OS) under Brazilian law, carries out regional economic development within the ICT sector. It has both regulatory and financial authority • Generally, the municipal level is not involved in economic development
Automotive		
Västra Götaland	Yes, merger of political units to map to functional region	• Regional level has a strategic role in planning and co-ordinating • The regional level has a strong position in comparison with other regions in Sweden (it is an experimental regional structure combining multiple counties)
Turin	Yes	• Increased regionalisation • Loosely organised approach to economic development reflecting the informal nature of institutions
Detroit/ south-east Michigan	No, the automotive industry spans across several counties in the State of Michigan and Windsor (Canada)	• The state level has a strong mandate but a non-interventionist approach • Counties have relatively weak mandates • Informal arrangements to cover functional regions have been initiated; *e.g.*, SEMCOG a co-operation between ten counties in south-east Michigan
Shanghai	Yes, but auto clusters in close proximity in neighbouring provinces	• Shanghai municipality has provincial level status and a strong mandate and resources to support economic development
Biotech		
Stockholm	No, the biotech cluster spans across three counties in the greater Stockholm-Mälar region and there is no co-ordinating body	• Regional level has a strategic role in planning and co-ordinating • Regional level weak • Limited funding and implementation possibilities • Municipalities have a strong position
North-western Switzerland	No	• The cantons have a strong position (each canton and half-canton has its own constitution, parliament, government and courts) and considerable fiscal autonomy through cantonal taxes) • Small spatial perimeter of cantonal level a challenge for co-ordination: 26 Cantons for 7.5 million inhabitants and approximately 41 000 km^2
Montreal	Yes, merger of political units to better map functional region as well as co-ordinating body for greater Montreal region	• Regional level has a strategic role in planning and co-ordinating • Cluster-based action plans are being developed and implemented within a decentralised governance framework involving all economic stakeholders
Shanghai	Yes, biopharmaceuticals research-oriented cluster highly concentrated in one industrial park; production occurs in neighbouring province	• Shanghai municipality has provincial level status and a strong mandate and resources to support economic development

for the state authorities to help overcome co-ordination problems, both generally and with respect to key industries. One example is the south-east Michigan Council of Governments (SEMCOG). It was originally created to develop planning and co-ordination of business and policy initiatives among ten counties to improve business and regional economic performance across jurisdictional borders. More recently, it has focused most of its activities on workforce quality development initiatives. There are other initiatives as well that encompass several counties, in some cases more specialised or focused, such as Detroit Renaissance, an initiative between CEOs of leading companies which address the development needs of the region with a focus on human capital. Another example is Automation Alley, a technology cluster initiative that seeks to address some of the concerns of the automotive sector through retraining activities but also the development activities in emerging sectors using related technologies.

Merger of political units

One strategy used in the two Canadian metropolitan regions and in the Västra Götaland area was a merger or union of political units to better map the administrative boundaries to the economic functional area. In each case, the new administrative structure has been used as a framework for a regional development strategy.

The Montreal and Ottawa examples illustrate one of the most radical institutional reforms in OECD countries in the context of governance frameworks. Montreal and several surrounding towns were amalgamated to create a larger municipality. Ottawa also underwent an amalgamation. In 2001, the Ottawa-Carleton Regional municipality merged with six cities, four townships and one village to become one city with a single tier of administration. In the beginning, the process was quite controversial but it was reported that within a year of its implementation most stakeholders found it productive.

As part of the trend towards increased regionalisation in Sweden, in 1999 Västra Götaland was formed through the merger of the three counties. Those counties include Gothenburg and Bohus län, Älvsborg and Skaraborgs län. The region has taken over responsibilities from the national government for the planning of regional development. The region also was transferred some functions previously managed by the City of Gothenburg. The purpose of the merger was mainly to enhance the efficiency of operations and to provide a better platform for infrastructure planning. Västra Götaland has the same legal status as a county with responsibility for development and is, together with another county in south Sweden, Skåne, a pilot case for setting up new regions in Sweden.

Variations in regional mandates

A region's policy response is also bounded by the mandates of the municipal, regional and national levels, which varies considerably across national institutional frameworks. For example, the spatial impacts of national level funding for areas such as research and development, education and transport can play a very important role in the development of regional specialisation and define the margin of manoeuvre and level of ambition of regional strategies. Moreover, there are different rationales for different levels of government to support a particular regional specialisation, notably the extent and nature of positive economic spillovers from the cluster for the national economy (OECD, 2007a).

Among the case study regions, regional mandates vary from those with real tools for economic development to a limited planning role with minimal resources or authority. In fact, the municipal level led the "regional" support strategy in several cases. The ICT

clusters in Stockholm and Ottawa, for example, were all most actively supported by the municipal level. Shanghai is a special case having the powers of both a city and a province.

Strong regional mandate

In federal countries like the United States, Canada, Brazil and Switzerland, the regional level has considerable resources for economic development and a large degree of fiscal autonomy. However, in the case of the US, Canada and Brazil, that sub-national entity with a regional mandate is often of a much larger scale than a functional economic area. In others, the practical autonomy of the regions is also significant, such as in Italy since its administrative reform process. Shanghai, a municipality with provincial level status, also has a strong mandate and resources to support economic development.

The possible downside of a strong regional mandate is potentially unproductive competitive behaviour (even within the functional region) that undermines the possibility of developing clear strategies. In north-western Switzerland, the federal structure with each canton and half-canton having its own constitution, parliament, government and courts allots a large extent of fiscal jurisdiction to the cantons and the local authorities. This makes inter-cantonal co-ordination much more difficult.

Creation of regional planning bodies

In some cases, responsibility for implementing the strategy has been more or less entirely devolved to a quasi or non-governmental body. This is often the case, for example, where regional development agencies take on a broad mandate for agenda setting and programme delivery. In Recife, the State of Pernambuco is responsible for regional development but in order to avoid administrative burden, regional development is carried out by a not-for-profit civil association, defined as a Social Organization (OS) under Brazilian law. In this ICT example, Porto Digital has been vested with both regulatory and financial authority in order to carry out regional economic development activities. Generally municipal governments are not involved at a strategic level in shaping regional strategies. However, with respect to the ICT sector much informal energy comes from the university.

There are examples of regions that have successfully created themselves an entity with a more strategic, planning or co-ordination role but do not have the resources or direct responsibility for implementation. The Montreal Metropolitan Community (CMM) is an example where a regional level was created for planning purposes that does not exist in the institutional framework. Whereas municipalities or provincial agencies have executive powers, the CMM is a co-ordinating, planning and financing body for metropolitan-wide strategic functions. Contrary to a single-purpose metropolitan agency, it has a multi-sectoral focus including spatial planning, economic development, social housing, public transport and infrastructure, environment and culture. Its metropolitan-wide view enables policy coherence across municipal borders and helps to channel investments where they are considered most beneficial for the region as a whole. It receives some tax revenue, coming from municipal contributions and provincial grants, but has no taxing power. It does not act as a substitute for the players and decision makers currently working in this field (OECD, 2004b).

The city-region in Eindhoven is another example of a co-ordinating body. It was created by bringing together 21 municipalities who provide the funding. The city-region

facilitates planning in some key areas, such as regional development, traffic and transport, but also the environment and socio-economic conditions. Officially, the province has the mandate to invite municipalities to form a city-region.

In other cases, responsibility for regional planning coupled with a weak regional mandate has proven more problematic. For example, Swedish regions are responsible for developing economic development strategies. However the resources and ability to deliver the strategies rest with municipalities. These regional plans, known as Regional Growth Programmes (RTP) and Regional Development Programmes (RUP), aim broadly to sustain regional growth and better co-ordinate efforts of local actors through collaboration on strategic plans. However, municipality plans have no obligation to refer to these plans as compliance is carried out on a voluntary base. The County Administrative Boards and the county councils have a weak position relative to municipalities that hold substantive power in economic development. The overwhelming majority of the regional budgets are spent on health care, leaving little room for economic development activities. In the Stockholm area, the county RGPs do not play a key role as a co-ordination strategy with Stockholm City. In contrast, the RGP for Västra Götaland has achieved greater coherence across public and private actors for implementation, accenting the importance of the method for developing the strategy.

Developing the strategy: the importance of the process

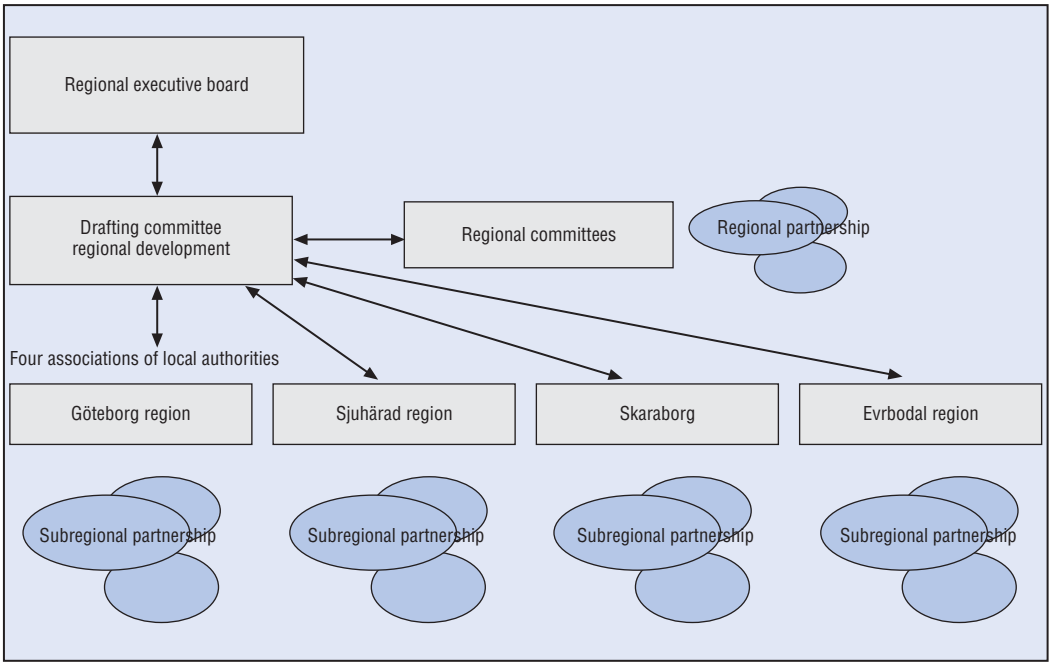
Mobilising public and private actors

Many public and private actors are ultimately responsible for economic development. Therefore, the ability to validate the strategy with those who will benefit or help implement it should not be underestimated. The process of developing the strategy itself serves several functions. In particular, active networking is important if the policy formulation process is to reflect real needs and be of value. In Montreal, for example, the large-scale project initiated by the Montreal Metropolitan Community to identify and define metropolitan industrial clusters has played a role in mobilizing a wide range of stakeholders that up until that point had not worked well with each other (for example, different municipalities preferred to support and market biotechnology industries located in their own areas). The creation of the action plan made it possible to begin the mobilisation process, which continued to a greater extent through work by the Life Sciences Committee.

By being mobilised behind an agreed strategy, stakeholders are more likely to co-operate when this is needed. A good example of this is the reaction of the Västra Götaland region in 2004 when General Motors announced that the production of medium-sized cars will take place in existing plants either in Germany or in Sweden. The fact that lead actors were already co-operating enabled the region to reorient its investment strategy to building intellectual infrastructure and sophisticated R&D programmes as a rapid and visible response to this potential crisis (Nutek, 2005). The overall strategy in the Västra Götaland region was developed in conjunction with the four regional associations of local authorities (sub-regions), with the assistance of a number of parties representing trade and industry, universities and colleges, and others as illustrated in Figure 4.1.

Increasingly, private actors are brought into the policy-making process to bring a broader perspective than the jurisdictional approach that often hampers consensus building. Ottawa, as is common in many North American cities, partners with numerous

Figure 4.1. **Västra Götaland regional model**



private actors. There are quasi-public economic development authorities and councils as well as The Ottawa Partnership (TOP), a public-private partnership that includes the mayor and a business leader as co-chairs. In that way economic development services can be carried out through actions performed by the municipality and through an independent development agency with which it is easier for private actors to work.

The process of developing such a strategy is contingent upon the institutions involved but also the cultural context. The case of Turin highlights the dual nature of institutions, formal and informal, in contrast with countries that have a highly formalised approach to regional strategies. In Recife, the Porto Digital Management Unit Board which manages the ICT cluster consists of 37% government representatives, 21% from the productive sector, 11% from universities, 16% from non-governmental organisations, and 16% from other groups of society. In that way, different stakeholders are involved in defining the strategy and put forward their views. They control the development by setting up objectives, goals and guidelines for the operation. In general, it is important that all stakeholders are involved in developing the strategy so that they all are committed to the strategy. In China, the public sector has a dominant role, making it difficult to develop at this stage public-private partnerships akin to those common in North America and some European countries.

Triggers for developing a regional strategy

The trigger for developing a regional strategy or related actions in several examples emanated from outside the region through an exogenous shock or a sector-specific crisis. The crises in the auto industry in Västra Götaland and in Detroit/south-east Michigan have led to initiatives to try to build a regional response. The impetus for Turin's regional economic strategy has also come in the wake of the near collapse of Fiat.

In other cases, the concern has been to revitalise or change the image of the region. In Ottawa, for example, the common goal of changing the city's image from being a sleepy government town to a dynamic high-tech hub rallied local stakeholders. There was an agreed upon need to change the image of the city from a political capital to one with other economic strengths, especially in light of public sector job losses. In Eindhoven, the initiative Brainport is an attempt to strengthen performance in global competitiveness and the reputation of the region as a top hot spot technology region and increase its visibility to the national government in comparison with other priority regions such as Rotterdam and Amsterdam. In Recife, the Porto Digital initiative was a response to the stagnation of the ICT sector with qualified labour leaving the region for jobs in the South.

National initiatives or policy shifts by the national government have also led to regions developing strategies, partly to enable them to access funding associated with a new policy focus. In China, plans are required at all levels of government. In Sweden, regional strategies are mandated by the national government. Furthermore, a programme of the Swedish Governmental Agency for Innovation Systems, VINNOVA, required that in the context of a programme call for proposals, the applicant cluster offers a clear picture of regional development initiatives. Applicants from both the regions of Stockholm and Västra Götaland were both rejected in the first round of funding applications. An important reason for unsuccessful applications in both regions was the lack of clear picture of regional development priorities. This event also served as a trigger for Västra Götaland to build consensus to access greater resources.

Nature of regional strategies

Overall strategic orientation

The aim of a regional strategy is ultimately to synchronise the supply of public goods and services to support firms, individually and collectively, and the business environment generally. The most difficult challenge is that the real-time needs of the private sector often evolve more quickly than policy can address. The conceptualisation, formulation and implementation of successful regional economic strategies depend on the ability of regional stakeholders to understand the transformations that affect the regional economy. If it is true that regional economic success depends on the learning abilities of social and economic systems, it is also true that such success depends in a fundamental sense on learning government systems at regional and national levels.

Goals of these regional strategies may cover several important themes. One is the degree of alignment of education and research institutions with the development requirements of different firm and cluster needs. Another is the degree of correspondence between technological development and economic contribution. Other factors that have an impact include infrastructure support, advanced business services, fiscal incentives, world-class educational and research facilities, and quality of life, which are intended not only to attract but also keep investment by embedding it in the regional economy. Although there is considerable variation along these issues in the regions considered here, they generally illustrate the importance of a synchronised enabling framework for the competitiveness of a region and its cluster.

More than spatial planning, a regional strategy can be like a foresight exercise that includes an understanding of the region's positioning and where it is headed. The nature of the challenges suggests that a clear region-level vision is an important step towards

rethinking a region's economic direction. Case study regions ranged from having no overall regional strategy, or at least not one that is clear, to having a plan with clear prioritisation of public support for particular sectors or clusters (Table 4.2).

Many of the regions have developed an overall vision to guide the economic development work. These vision documents are usually not concrete action plans but set the overall scene for economic development. The vision is then taken forward either by the public sector alone or in conjunction with private actors.

In Ottawa, economic development activities are guided by the Ottawa Vision 20/20 and the City Corporate Plan. The Ottawa Vision 20/20 is a long-term strategy for positioning Ottawa for innovation, competitiveness and prosperity and it lays out policies for key Ottawa business markets, including the export sector. It has been developed by the City of Ottawa in co-operation with stakeholders from the business, academia and public sector. While ICT is noted to be a main driver of the city's economy, the focus is on more general competitiveness framework conditions such as skilled labour, the general business climate, infrastructure and the quality of life.

Region Västra Götaland has developed Vision Västra Götaland, an overall framework to organise regional actions in order to enhance the region's appeal as a place to live and work and specifies long-term objectives. In terms of economic policy intervention the Vision has five focus areas. These are: sustainable trade and industry; a leading position in competence and knowledge development; the development of infrastructure and high standard communications; the cultural life of the region; and health. This vision is closely

Table 4.2. **Regional strategies of case study regions**

Region	Overall regional strategy	Targeting sectors
ICT		
Stockholm	Regional Growth Programme – RGP (key strategic document [county level] + the City of Stockholm Master Plan [local level])	Yes, but the ICT sector is not prioritised
Eindhoven	Yes, Brainport Navigator 2013. Beyond Lisbon!	Not explicitly but different plans and programmes support high-tech sectors
Ottawa	Yes, Ottawa Vision 20/20 City Corporate Plan	Not explicitly, but support high-tech sectors by enhancing framework conditions
Recife	No	Yes, the Porto Digital initiative targets the ICT sector
Automotive		
Västra Götaland	Yes, Vision Västra Götaland Regional Growth Programme – RGP (key strategic document at the county level)	Yes, nine clusters are prioritised as well as cross-sector initiatives between these clusters
Turin	No	Yes, regional government established "platforms" for firms in the automotive, ICT, aeronautics and transportation sectors
Detroit/south-east Michigan	No	Not explicitly, but many initiatives are targeted to the automotive sector
Shanghai	Yes	Yes, auto is a "pillar industry" for the region
Biotech		
Stockholm	RTP key strategic document (county level) + the City of Stockholm Master Plan (local level)	Yes
North-western Switzerland	No	Not explicitly; but several cantonal policies have a sector focus mainly on traditional sectors
Montreal	Yes, the CMM Council economic development plan	Yes, 15 clusters identified
Shanghai	Yes	Yes, biotech is a high priority sector in science and technology plans

related to the Regional Growth Programme, which is an operational plan that responds to a mandate from the national government.

In a couple of regions, the regional strategy has been championed by a local leader. It is clear that certain individuals have played a key role in developing the ICT cluster in Recife and most people would argue that the cluster would not have developed with the same speed without these people. Many of them have a background either within the university or are senior government officials with close connections and broad networks within the government. In Ottawa, certain key individuals were mentioned as important for the development of the ICT cluster, especially certain entrepreneurs that built up and started several companies.

Planning documents continue to be key guiding documents for public action in all fields in China. The 11th Five-Year Plan, which is the most influential blueprint guiding the country's social and economic development, including the broad orientations for S&T development. Below the national level, provinces, cities and counties develop their own local social and economic development and science and technology development plans, in line with the general framework set at the national level. For Shanghai, this means that the planning documents offer guiding principles and concrete actions for a regional strategy.

Targeting sectors and clusters

While explicit sector-specific industrial support is uncommon, most economic strategies still target specific sectors in some way, usually through a cluster initiative. While they may have a sector-neutral approach in their set up, when focusing on a region's key strengths certain sectors (and their geographical locations) will naturally be highlighted. Most of the strategies target traditional strengths as well as a couple of new or emerging sectors. The forms of support channelled to clusters tend to be through cluster initiatives or some form of collective services for the actors in the cluster.

Rationale and selection for support

There are a number of legitimate rationales for supporting a specific sector or cluster in the regional economic strategy as illustrated by the case studies. Employment creation and wealth creation are the two primary goals of these policies but they are not always synonymous. As production is increasingly outsourced, many of the niches in global production networks remaining in regions employ few people. Some sectors or clusters may be deemed in need of assistance due to poor growth. Sectors on the decline shedding employment are a political challenge for any region that these strategies seek to address. Other sectors may be more enabling, as they are integral to others, such as ICT. In terms of R&D investment, often the rationale is to target not the traditional sectors but those on the new frontier that are likely to be critical for competitiveness in ten years. They may include nanotechnology and innovation in healthcare or specific competitive technology platforms, ranging from hydrogen energy to intelligent systems.

Stockholm county's regional planning does prioritise clusters, but not necessarily the largest. Even though ICT is an important sector in terms of value added and employment for Stockholm, the county did not prioritise the sector for support. This is in part due to the fact that the City of Stockholm, with significantly more resources, supports the Kista science park where many cluster actors are located. Therefore while ICT is important to the region, it was deemed that the cluster didn't need regional support as much as others do.

In Västra Götaland, one main objective within the regional strategy is to promote an innovative economy. Cluster development is a key strategy to achieve this goal, together with strategies to promote entrepreneurship and specific initiatives to support the development of SMEs. Nine clusters are prioritised as well as cross-sector initiatives between these clusters. These are life science and health care, automotive, ICT, food, petrochemicals, textile, wood and creative industries.

Montreal's CMM Council economic plan includes a list of clusters developed through a comprehensive cluster audit. The multi-stage cluster audit involved a mapping, including an assessment of high potential niches, economic and institutional elements, relationships among actors and strategic potential. Ultimately 15 clusters were selected with the support of an expert technical committee and regional stakeholders, grouped under four types of clusters each with a separate rationale for support:

1. *Competitive clusters* (aerospace, life sciences, information technologies and textiles/clothing). With the exception of the textiles, these clusters are all part of the new economy. As for the textile industry, it is a major source of jobs in Montreal and could complement many other industries if it quickly shifted to technical textiles. All of these clusters already include world leaders in their respective fields.
2. *Visibility clusters* (culture, tourism, services) serve to market the metropolitan area by supporting more generally the city's development efforts. These strategic clusters serve to ensure the overall quality of life that nurtures the dynamics of innovation and make the metropolitan area more attractive.
3. *Emerging technology clusters* (nanotechnologies, advanced materials, environmental technologies) involve technologies with tremendous growth potential over the long term. They have fewer members than other clusters because they rely primarily on sustained R&D efforts and some of their applications are horizontal.
4. *Manufacturing clusters* (energy, biofood, petrochemicals and plastics, metallurgy, and pulp and paper) involve a wide variety of industrial segments. Although associated with the old economy as opposed to the new, they still offer excellent growth potential in many markets and generate a high number of jobs.

Support for clusters existed in several regions but was not part of an overarching economic development strategy. In Turin, the sectors are supported in the context of research and innovation platforms but these are more loosely co-ordinated actions rather than an overall strategic framework. In Recife, cluster support as a specific initiative only exists for the ICT cluster known as Porto Digital. However, the initiative has been successful and the State of Pernambuco is now trying to replicate the cluster strategy in other sectors and regions. The policy has worked as a tool for mobilisation and allocation of resources to an emerging cluster with backing by all actors in Recife and has encouraged greater university-industry linkages and knowledge spillovers in general. While Ottawa's city vision and plan do not specifically target sectors or clusters, there are a number of initiatives by various public and public-private actors that serve the ICT sector. In the province of North Brabant (Eindhoven), public authorities are focusing their efforts on more general strategic actions plans and programmes. However, the city-region of Eindhoven has put much effort in strengthening its profile as an ICT region and in branding it world-wide through these different plans and programmes.

The north western Switzerland region does not actively pursue an approach of supporting Life Sciences using targeted business development measures. Rather, the

cantons in the core area of north western Switzerland limit their activities to creating a framework of laws and regulations that is conducive to innovative R&D, entrepreneurial initiative, firm creation and spin-offs in the area of Life Sciences. However, since most of the cantons have a general objective of increasing the attractiveness of the canton, the present economic structures (such as life sciences and precision mechanics) and strong sectors influence the business development and acquisition activities.

There is always a challenge for the public sector to ensure sufficient private sector engagement in the context of cluster initiatives. In the case study examples there are common strategies for sharing roles between the public and private sector. This role-sharing usually concerns membership on the oversight bodies for the initiative. Nevertheless, there are some examples where the public sector is the real driver of the initiative and in other cases it is the private sector, albeit there may also be strong public support (see Table 4.3).

Risks associated with targeting regional specialisations and clusters

Regional governments struggle with how to effectively embed key firms and industries in the region while managing exposure to economic shocks to the extent possible. Policy makers are not necessarily in the best position to anticipate business risks, especially given the rapid pace of change.

There is a risk of wasting public resources in support of "wishful thinking" clusters. The appeal of high-growth industries can lead to a cluster approach that attempts, often unrealistically, to generate critical mass in fields such as life sciences and ICT in which competition is particularly fierce. The public investment requirements to start a cluster from scratch are very high and not all regions share the same economic structures and institutional settings in order to be competitive. Absorptive capacity for new technologies is another important element. These considerations raise the question of whether clusters can be created and, if so, at what cost.

There are also risks related to the cluster's structure. Regional economies based on small firms working in the same or related sectors can be vulnerable to market shocks that undermine simultaneously all firms in the cluster. Hub and spoke, platform and state industry clusters can also be seen as vulnerable if the core firm leaves or downsizes. Therefore, efforts to embed such core firms are at the heart of several regional strategies.

Another form of risk is that firms in a cluster may become too inward looking or rigid. This results in what are termed lock-in effects, whereby the major investments to support specific sectors or clusters make it difficult to adjust strategies to new circumstances later because the cluster is less open to adaptation (Andersson, *et al.*, 2004). However this last point is clearly the subject of debate, as other theories identify clusters as a way to generate greater rivalry and complementarities which spur innovation, not complacency.

The emergence of paradigm-shifting new products or technologies is rare, and betting too much on a disruptive technology is a risk, but so is not anticipating the potential of such a technology. There have been many examples where regions have shaped their economic future around such technological innovations, but these are exceptions to the rule. The most obvious example is perhaps the emergence of Finland's mobile telephone cluster. Another example is the growth of an advanced ICT cluster around the RIM facilities in Waterloo, Canada where the Blackberry was created. At the same time, new technologies can bring risks for established clusters. The R&D effort to develop alternative fuels could,

Table 4.3. **Public *versus* private role in cluster initiatives of case study regions**

	Public sector role	Private sector role	Driver: public vs. private
ICT			
Recife	40% of Porto Digital Board representation, funding, real estate	Board representation	Public
Ottawa	Co-ordinate across and support private cluster initiatives	Manage different cluster initiatives	Private but strong public support
Kista	Mayor member of Electrum Foundation that oversees the Kista Science City company; support incubator initiatives located in the Science City; Lead in terms of vision of a science city concept	Board members of Foundation, real estate privately managed, minimal engagement in the Science City concept	Public (Science City) Private (cluster orientation)
Eindhoven	Brainport for regional development (public-private foundation with local public funding)	Board of Brainport, Management of High Tech Campus Eindhoven research park, Point One Cluster initiative for embedded systems (privately run with public co-financing)	Private but strong public support
Automotive			
Turin	Fund a platform that supports the automotive sector	No active private sector involvement	Public
Västra Götaland	Cluster facilitation, channelling of funding from national and regional programmes	In the "Innovative co-operation platforms" (Lindholmen Science Park in Gothenburg and Innovatum In Trollhättan), the automotive industry participates as well as other related industries, such as ICT companies	Public
Detroit/south-east Michigan	Initiated several partnerships such as Automation Alley, Detroit Renaissance	Involves private sector actors	Public
Shanghai	Zoning policies for co-location and regulation for joint ventures; different technology-based platforms	Participate	Public
Biotech			
Montreal	Organisation of support studies, facilitation of cluster "table" (steering committee)	Private sector leads steering committee, leads strategic decision making and resource allocation	Private but strong public support
North-western Switzerland	BioValley, MetroBasel initiative, Bern Cluster Policy	Involves private sector actors	Public funding and support essential
Stockholm	Many of the cluster initiatives are driven by the public sector	SMEs play an active role in some of the cluster initiatives	Mixed
Shanghai	Zoning policies for co-location; different technology-based platforms	Participate	Public

in theory, reshape the auto industry over time. The main research and testing facilities for fuel cell technologies are in California and in the Vancouver region, not in traditional car producing regions. And the main cluster participants are often from other sectors such as energy generation rather than car makers.

Economic strategies targeting specific sectors have been criticised in several regions. In Turin the debate during the past ten years has focused on whether the region should place strategic emphasis on new or traditional sectors. The emphasis on new sectors originally stressed the importance of ICT, and more recently other leading economic sectors such as health sciences. It was in this context that the *Torino Wireless* initiative was launched. The key objective was to increase ICT intensity in the traditional sectors of the regional economy while fostering entrepreneurship in new ones. However, the initiative has not been supported by other measures to enhance innovation capacity in traditional

sectors or measures to include key stakeholders and especially the SMEs. As a result, the initiative has met with criticism that it was too late.

Linking with national level strategies and resources

Spatial impacts of national policies

Many of the instruments and resources that would be important for a cluster, such as R&D funds, are offered by a higher level of government. Therefore, these regional strategies in several cases seek to tap into these greater regional or national resources. For example, the Province of Quebec receives a disproportionate share of national resources to support the biotech industry. Nearly 50% of Canadian health research funding and most of the research activities are carried out in Montreal. Quebec represents 23% of Canada's population, but accounts for 68% of Canadian prescription drug patents, 42% of R&D pharmaceutical investments, and 41% of R&D biotechnology investments. Most of these activities are located in the Montreal region.

Being a capital city also offers regional advantages for national resources because many R&D centres may be located there. It is for example an advantage in Ottawa to be close to the National Research Centre (NRC) as well as the Communications Research Council (CRC). NRC has several joint projects with private industry and has set up a business development organisation with the purpose of finding and establishing liaisons/alliances with private companies. These firms may be interested in utilising innovations done within the NRC or in setting up joint ventures for the commercialisations of patents and innovations. By actively marketing such findings, the NRC is not only contributing to financial funding of its innovative operations, it is also contributing to establishing new companies. CRC supports decision-making policies and provides expertise to programmes with the aim to transfer the outcome of its R&D projects to firms for development. Both organisations are actively promoting business development and technology transfer with and to private companies or by enabling start-ups.

National level strategic priorities and cluster policies

In many countries, the national level targets certain sectors through industrial or science policy that reinforce the region's strategy. In some cases, regions may even seek to map their support to these priority clusters to access greater funding or other forms of support. As part of national industrial policy in the context of the Innovative Sweden strategy, Sweden has selected six key sectors for sectoral strategy plans to be developed through national dialogues. The three sectors studied in this report are part of this priority list. In the Netherlands, national priority areas for research include ICT and nanotechnology, areas of strength for the Eindhoven region. Within the automotive sector, the role of the national level ranges from no intervention to subsidies.

Many national level cluster policies actively involve regional level public actors in their approach. In fact, many require the support of regions in the selection and/or funding of particular cluster initiatives. The national level may manage the call for proposals but require that the region support the project in principal or even in terms of co-funding of projects. In some cases, the national level may allocate funds and delegate responsibility for actually managing the programme (OECD, 2007a).

National level programmes were most notable in Sweden, and to a lesser degree the Netherlands. The national level Dutch programme to support key innovation areas,

including nanotechnologies and semiconductors, is important to Eindhoven even if it does not involve the regional level directly. Point One's strategy is to co-finance activities prioritised by a private-sector led cluster initiative composed of both large firms and SME representatives in the area of embedded systems. One of the strategies of the programme includes strengthening the quality of the local supplier network to embed several of the important large firms present in the area.

In the past, the cluster concept has not been prioritised or discussed at the national level in Switzerland. Many consider that Switzerland does not have the critical mass and only has capacity for two to three clusters. However, this has changed and the national government is today in an exploratory phase regarding cluster policies, considering whether to adopt one or to leave it to up to the regional level to decide. The role of clusters has increased partly due to a shift in public support from lagging regions to leading regions, with most industries clustered around leading cities.

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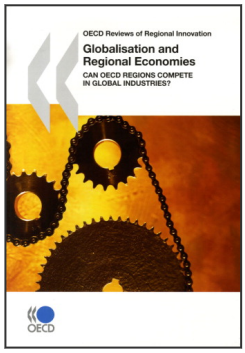

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