

Legendijk, Arnoud

Conference Paper

New forms of regional industrial policy in Europe: How do policy makers understand 'competitiveness' and 'clusters'?

38th Congress of the European Regional Science Association: "Europe Quo Vadis? - Regional Questions at the Turn of the Century", 28 August - 1 September 1998, Vienna, Austria

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Legendijk, Arnoud (1998) : New forms of regional industrial policy in Europe: How do policy makers understand 'competitiveness' and 'clusters'?, 38th Congress of the European Regional Science Association: "Europe Quo Vadis? - Regional Questions at the Turn of the Century", 28 August - 1 September 1998, Vienna, Austria, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/113600>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

New forms of regional industrial policy in Europe: how do policy makers understand ‘competitiveness’ and ‘clusters’?

Arnoud Legendijk

CURDS, University of Newcastle

Abstract

The last decade has seen a revival of regional industrial policy in the Western world. New policies have been built on recent insights into the drivers of competitive advantage, and are characterised by a focus on local production systems, on networking and partnerships, and more strategic forms of policy intervention. In addition, policy formulation and implementation has generally become part of an interactive process of consultation and consensus building, and, to a large extent, involves the co-ordination and reshaping of existing instruments rather than the development of entirely new ones. This paper will discuss the emergence of new forms of industrial policy targeted on regional ‘competitiveness’ based on case studies undertaken in Germany, the UK and Spain. The aim of the paper is to understand how the concept and understanding of ‘competitiveness’ by local policy makers and other actors has influenced the shaping of local industrial policy. Since all the case studies involve laggard regions, one of the key issues of debate is how policy makers perceive the balance between more indigenous, innovation-oriented approaches and approaches targeted on foreign investments. To understand the different outcomes in the various regions, account is taken of the governance framework for industrial policy making and implementation, the concepts and models invoked and used by policy makers, the impact of external factors such as funding conditions and European programmes and, most fundamentally, the industrial and political traditions which characterise each region. The present paper contains some preliminary results, and will focus primarily on the use of ‘cluster’ concept in the various regions.

Paper submitted to the forthcoming European Regional Science Association (RSA) Conference, Vienna, August 1998.

The work for this paper has been funded under the European Programmes ADAPT (Core project) and HCM (EUNIT network)

Introduction

The last decade has witnessed a revival of regional industrial policy in the Western world. A new style of policy making has emerged differs markedly from the top-down distributional models which dominated the post-war period, but is also more pro-active than the hands-off approach which emerged in the 1980s. The new style of policy-making is characterised by a prominent role of local organisations in shaping regional policy, by a strong orientation on improving local competitive advantage, and by a focus on local production systems. Moreover, in many cases it involves close collaboration between actors from different domains: regional policy-makers, national and European policy-makers, business support agents, training agents, consultants, academics, etc. Consequently, the development and implementation of regional policy has become part of more complex systems of governance, with an emphasis on consultation, networking, partnerships, and consensus building.

In this new environment for regional policy, knowledge plays an important role. Not only are various types of knowledge important for the communication and interaction between different actors in the policy domain; the production and application of knowledge has become a core policy objective. This paper centres on the changing nature and role of knowledge in the policy area of regional development. In particular, the attention is focused on the way certain concepts, seen as emblematic of new style regional policy, have evolved and shaped both policy-making and the relations in the policy domain. The emphasis on concepts will be pertinent particularly in environments in which the policy directions, objectives, instruments - as well as the underlying structure - are subject to continuous processes of debate and negotiation. Concepts like 'networking', 'competitiveness', 'innovation systems' and 'partnerships' have played an important role in shaping new forms and contents of regional industrial policy.

This paper will discuss the role of two popular concepts in the shaping of regional industrial policy: 'clusters' and 'competitiveness'. In particular, the aim of the paper is to understand how the concept of 'clusters' has been adopted and used by local policy-makers and other actors in the shaping of local industrial policy. Drawing on recent insights from organisational and sociological literature, the paper explores the way concepts are used and translated in local policy environments, arguing that, in doing so, both the concepts and the interaction between different agents themselves change. Tracing these double changes provides insight into why certain concepts become more influential in policy-making and how this brings about general tendencies as well as specific local applications. So the idea advanced in the paper is not that the evolving and moving around of such concepts has resulted in a uniform adoption of new ideas and practices. Each local context presents a particular case of interpretation and translation, which contributes to the variation in policy-making between regions.

The paper is based on research in three European countries: Spain, Germany and the UK. While 'cluster policies' have been popular in all three countries, the differences in the role of knowledge and the translation of the cluster concept into policies are striking. The first part of the paper will introduce the methodological framework and the context in which 'clusters' and 'competitiveness' have evolved; the case studies will be discussed in the second half of the paper.

Knowledge and the development of the regional policy

The development and transfer of knowledge has come to play an important and fundamentally different role in the area of regional development policy. In the post-war years, knowledge was largely instrumental, consisting of a set of basic, and relatively stable, insights on how to promote regional development, and of a series of scripts of how to implement policies in the regional context. While there were substantial variations between countries and regions, most regional policies matched a model of top-down re-distributional measures that provided 'hard' infrastructure and direct subsidies to established and, perhaps more, incoming firms. Questions of knowledge could be separated between basic concerns about the overall role and shape of regional policy, and specific issues of implementation (*how to?*). In addition, the production and application of knowledge took place largely through established institutional configurations, in most countries dominated by central and (dependent) local government divisions.

Over the last two decades, the nature of regional development policy and the role of knowledge have changed radically. From representing an 'external', 'instructing' dimension, knowledge has taken a central position in regional development policy. Knowledge, in effect, appears to infuse all aspect of policy-making. Policy objectives are couched in terms of improving the 'knowledge base' of the economy, in shaping the regional capacity to produce knowledge (to innovate) and to absorb knowledge (to learn) to improve the commercial position of the region (Cooke et al., 1996; Asheim, 1996; Howells, 1996). In developing such knowledge oriented policies, moreover, regional organisations (Regional Development Agencies, departments of regional governments, business support and training agencies, etc.) are expected to be innovative and learning themselves. Rather than merely presenting the implementers of centrally designed policies, regional organisations are more and more equipped with the capacity to take their own initiatives, look for their own sources of funding, and engage in new institutional configurations. Regional organisations are thus in a position in which they can develop their own mechanisms of policy implementation, which is often based on the forging of linkages with other local and non-local actors to created customised policy networks. These policy networks, in turn, represent important foci for the development and exchange of knowledge, and a source of inspiration for further innovation and learning by regional development agents.

More could be said about the nature, variations and background of these transformations. In the context of the present paper, however, it may be sufficient only to highlight some of the major trends that accompanied this process (for further discussion see Lagendijk & Cornford, 1998):

- (1) A general move in regional policy from a top-down approach largely concerned with redistribution and physical investments to a more bottom-up approach focused on supply-side measures in the area of technology development and transfer, and on the creation of an 'enterprise culture' through a variety of business support initiatives.
- (2) A move away from subsidy provision through centrally controlled mechanisms and block grants to local organisations to programme and project-based approaches, in which funding is acquired in rounds of competitive bidding.
- (3) Changes in the institutional environment, in which regional organisations have acquired more autonomy from central government, and rely more on partnerships with other local organisations as well as horizontal links with sister organisations in other regions and international organisations (such as the European Commission).
- (4) An increasing role of specialised knowledge production and transfer centres such as university and consultants, in the creation of regional economic studies, strategies and evaluations; these organisations are significant for the interregional and international dissemination of knowledge and practices on regional development.
- (5) Changes in the wider geographical environment of regional development, due to

processes of supra-national integration (especially in Europe) and regional devolution; in Europe, the European Union plays an important role in structuring the environment for regional policy-making, creating new sources of funding etc.

With these changes, the organisational basis supporting regional development policies has moved from a government to a governance structure. Not only have regional authorities developed more independent relations from central government, there are many non-governmental organisations that make important contributions to the design, implementation and even funding of regional initiatives. The policy environment has thus become less hierarchical, more based on evolving communication and network structures. In the words of Rod Rhodes, governance “(..) means there is no centre but multiple centres; there is no sovereign authority because networks have significant autonomy. The distinction between the public, private and voluntary sectors becomes meaningless. All play the game of ‘grantmanship’. These game-like interactions are caused by the need to exchange resources and negotiate shared purposes” (Rhodes, 1997, p.109). While the regional policy governance structure may thus be described as heterarchical rather than hierarchical, new influential organisations have emerged, particularly in the form of what may be loosely labelled “New Model” regional development agencies (Halkier & Damborg, 1997). In addition, what is important is that governance structures are subject to constant change, and that, more fundamentally, this change is part of what governance is about. Creating and reshaping network configurations, repositioning agents in networks, forging new partnerships, all these practices are followed to modify the nature of and access to resources and for the pursuit of particular interests.

Understanding the organisational changes in regional development policy, and the role of knowledge requires insight into the development of governance structures, and, in particular, the identification of resources and interests held by the actors involved. Indeed, the thesis of this paper is that organisational change and new knowledge structures are inextricably interwoven. On the one hand, the nature and development of knowledge flows reflects the increased organisational complexity and need for policy actors to communicate, negotiate, design new policies, apply for funding and evaluate. On the other, organisational structures are themselves remoulded on the basis of new insights and models of knowledge creation and dissemination. Against this background, it is increasingly difficult to understand the role and significance of knowledge disembodied from the context in which it is developed or transmitted. Knowledge has become more heterogeneous, trans-disciplinary, and transient, corresponding to what Gibbons (1994) describe as ‘Mode II’ knowledge. Mode II knowledge contrasts with Mode I knowledge, which is disciplinary-based, hierarchical, science-oriented, and based on the linear model of knowledge flows. The latter is particularly understanding for understanding the link between organisational change and knowledge flows. Under the model of ‘Mode I’ knowledge, the organisational structure served the development and application of knowledge largely in a linear, instrumental way. The main sites for research on regional development were national planning bureaux and university departments; the main centres of policy development national ministries or departments of spatial planning often in consultation with local delegates, and implementation was carried out in a top-down way, in a partly centralised partly decentralised way. Mode II is more organisational, and relies more on tacit forms of knowledge; it involves more questions of know-who and know-where than of know-what and know-why (Lundvall, 1996). Because of the way Mode II knowledge is organisationally embedded, it is also regarded as more socially accountable and reflexive (Gibbons et al., 1994).

To add to the complexity, Mode II knowledge has not fully replaced Mode I knowledge. In many countries, the more conventional methods of regional policy making are still in place. In recent years, however, they have started to accommodate insights derived from ‘bottom-up’ approaches associated with ‘Mode II’ forms of knowledge. One task is thus to differentiate between types of knowledge not only based on their contents but also on the

way they are organisationally embedded. Considering the various dimensions discussed so far, a preliminary typology may be developed as follows:

- (1) Business knowledge: knowledge used by firms to design, produce and market commercial products and services, essentially the basis for wealth creation, although many other factors play significant roles (business environment, national macro-economic regulation etc.)
- (2) business support knowledge: intelligence used by the regional development infrastructure (including business support agencies, business associations, knowledge centres etc) to improve business performance in the region; an important asset of the development infrastructure is thus the (support) knowledge about (business) knowledge, in addition to insights into other elements of regional development (e.g. infrastructure, skills)
- (3) Organisational support knowledge: knowledge that helps support agencies and policy-makers to develop support activities, to acquire funding, build partnerships etc.
- (4) Strategic knowledge: knowledge at a higher level about the institutional configuration of regional development activities, strategic planning and evaluation practices; over the last decades consultancies and organisations such as the European Commission have contributed significantly to this creating and disseminating type of knowledge, developing - in line with the Model II model - a concept of 'best practice' knowledge through daily interaction with practitioners.
- (5) Academic knowledge on regional development: research by academic institutions as well as many planning bureaux has been traditionally geared to the direct analysis of data on regional and business performance with policy recommendations following; conforming a Mode I model of knowledge creation, such research is generally based on universal academic principles, and undertaken at a distance from actual policy-making and implementation. The growth and articulation of the role of knowledge has had a great impact on the social structure of the regional development activity. In many places, a veritable knowledge community has emerged, in which the various layers of knowledge are developed and connected by a myriad of agencies, networks and partnerships. It has become harder to follow the process of knowledge creation and application, as well as to understand the role of actors in governing this process. Formal labels reveal less and less about the practical role of agents; moreover, roles tend to change not as a result of formal redesign of government structure, but through informal processes of repositioning, networking, alliance formations etc. This is not say that formal mechanism of government does not play a role. On the contrary, they are important in setting and monitoring the boundaries of action for development agents. However, for understanding the shaping and impact of regional development policy, more insight is required into the positioning of agents in governance structures.

Knowledge and actor positioning

While for many actors the shift to Mode II has opened new opportunities for development and acquiring new positions in the regional development business, for other actors their position has become more difficult. Using the typology above, two specific cases will be highlighted here, reflecting upon the position of development agencies due to their knowledge needs and the position of traditional knowledge producers such as universities.

As indicated above, different demands are placed upon development agencies, particularly the need to accumulate and apply the knowledge and skills to help their client firms and to develop the organisational capabilities to acquire funding and position themselves in the right support environment. Admittedly, in theory these two activities should support each other (knowledge of level three should advance that of level two and visa versa). However, in the competitive reality of challenge funding and the struggle for positions in the fluid regional governance structures, organisational knowledge often threatens to overshadow the development of support activities (Devins, 1996). Hence often a tension can be observed in

the way development agencies develop and apply knowledge, with potentially - depending on the specific context - important repercussions on the relationship between these agencies, their clients and other actors.

The second case describes a trend of a more fundamental nature. With the shift towards Mode II knowledge, a conflict may be observed between the strategic knowledge of a more transient nature created by consultancies and the more traditional type of analytical knowledge. Under Mode I, the old linear model matched very well the traditional practices of academia and planning bureaux, and the formulation of policy recommendations. Research followed established, although evolving, rules of method and dissemination and bore a relationship to the search for and testing of universal truths. Moreover, although this is an area requiring further qualification on the basis particular historical and geographical circumstances, research fitted into a specific political model. That is, Mode I research matched the principal position of authorities as regulators and facilitators of economic activities, providing external stimulus as well as correction based on a relatively independent stance from market processes.

Within a Mode II situation, the position of research has been changing. It has become more embedded in specific organisational structures, serving the needs of particular organisations agents at the regional level rather than more general principles at higher levels. That is, research has taken (more overtly) a strategic role. Much research has become part of a network of designing regional development and support strategies rather than providing academic conclusions to policy-makers at a central level. In this shift, this type of research has largely abandoned its 'independent' position where it reflected on processes of economic processes and market competition, and has become part of the competitive processes itself. The purpose of research is thus less to produce a general analysis revealing the problems of regional development and to suggest policy solutions, and more to be part of on-going process of intelligence gathering to improve the capabilities of regional actors and business to compete. This move can also be seen in the context of a general shift from economic regulation being geared towards questions of securing macro stability and overcoming market failures, to one where regulation is serving the interests of particular (business) communities, that is, where it is seen as a pillar, rather than supervisor, of competitiveness (Cooke, 1992). While one needs to take into account the negative, potentially even destructive, consequences of such a move, a positive aspect is that it has brought research much closer to the realities of regional economic development, making it subject to feedback loops and local systems of social accountability.

A re-positioning of the research task, however, where knowledge production is more associated with more transient, context specific forms of knowledge, and frequent interaction between knowledge user and producer, also bears on the nature of the research activity itself. Much conventional academic activity suits the Mode I model of knowledge creation. That is, it favours searches for 'grand theories' and general concepts, that is, for knowledge that is, in essence, universal, relatively stable, and accumulated through established rules of conception, presentation, and verification. While certain basic insights derived in this way continue to inform regional policy-making - consider for instance the impact of thinking on innovation in regional policy (Morgan, 1997; Suarez-Villa, 1996) - this is primarily of importance for the setting and justification for the broad direction of regional policy. At a more practical level, however, the development of new strategies and initiatives is coached by organisational and strategic knowledge learnt 'by doing' and by interaction with other development organisations and consultants. An important dimension of knowledge acquisition is the development and exchange of support practices or 'scripts' through these channels. Examples of these scripts are the regional cluster initiatives promoted and developed by Monitor consultancy, the European RIS/RITTS handbook, which offer a practical guide for building consensus-based regional innovation strategies (European Commission, 1996), or the range of initiatives to create science parks, service centres and

other forms of technology support (Lagendijk & Charles, 1998).

The challenge for academic researchers is thus respond to changes in the position and role of research, as well as to the changes in the structure of the knowledge community. A core question for academic researchers is how to strike a balance between the traditional form of 'academic reflexivity' searching for universal truth and rules of method, and new forms of locally embedded, transient forms of economic reflexivity consisting of customised forms of economic intelligence and scripts. While the latter may be justified on the grounds of a more socially and economically beneficial role of academic institutions for the area in which they are established, there is a danger that such moves may limit the scope for a more distanced, more critical stance towards processes of institutional and economic change. While there are no easy solutions in this area, academics involved need to find new models of catering for different interests.

The position of universities and planning bureaux is further compounded by the fact that increased professionalisation of economic development has produced a much larger 'knowledge community' in the economic development arena. Experts on regional and economic development can be found in a variety of institutions outside academia and government: business support organisations, consultancies, business associations, etc. The irony is that while most of these experts have been trained – in increasing numbers - by universities and planning institutes, they now form the basis of a growing professional body which works according to different rules and has become an influential actor in the development of more strategic approaches to regional economic development and intelligence gathering. In a sense, this touches upon the wider question of how social groups are involved in questions of "economic competitiveness" and how the arena is organised in which economic development is discussed and new agendas are set. One role academic institutions can play is to reflect on the way different groups are engaged and improve social accountability of local economic strategy development, as well as engage in debates on regional strategies at national and international levels.

For academics and established government researchers, accommodating to the new environment will not be easy. Not unsurprisingly, academics have not withheld their critical opinions about new developments in the regional development field, and have not refrained from initiating debates on certain fundamental issues emerging from recent insights into regional development. In particular, academic observers have denounced cases of policy emulation through copying of imported practices and scripts (Jacobs, 1994; Doeringer & Terkla, 1995; Cox & Mair, 1991). These authors point out that policy-makers, in emulating policies from elsewhere, lack an understanding of the circumstances in which policies emerged and became successful, and thus fail to customise and accommodate the initiatives to their own situation. This may then explain why so many attempts to copy 'success models' to other area result in frustration, stalemate, and even outright failure. One of the conclusions following from such observations is that strategies need to be grafted onto region-specific knowledge that reflects and employs the unique local capabilities to improve regional competitiveness.

While few will deny that simply imitating policy scripts without proper consideration of differences in circumstances is effort-wasting, other authors have argued that some of the critics have gone too far in emphasising the salience of localised, unique roots of economic success. In this view, much of the present literature tends to fetish specific forms of knowledge (especially non-commodified, tacit knowledge) (Hudson, 1998), or, even worse, misrepresent regional development by alluding to simplistic notions of innovation, networking and the role of proximity (Lovering, 1998). The key pointy challenged here is the emergence of a set of universal truths about the idea of regional uniqueness in the way knowledge is produced and used, and innovative capacity is created.

The issue here is not whether such allegations are 'right' or 'wrong', but to indicate the

difficulties academic research has in engaging with a policy domain which uses knowledge in a different way. Rather than looking for universal truths or scripts - even if they stress regional uniqueness - regional policy and business support agencies are increasingly part of articulated mechanisms for creating and exchanging organisational and strategic forms of knowledge following the 'Mode II' model. This is based on processes of constant learning, often through a trial-and-error process, in which knowledge imported from other regions is used in a variety of ways (Sabel, 1994). The problem for academic forms of knowledge creation however is that have not sufficiently engaged with these new forms of learning. In particular, what seems to be lacking is a perspective that can bridge the articulation of different forms of knowledge within the field of regional development, with more academic modes of knowledge accumulation. At present, many researchers tend to find themselves in a kind of schizophrenic situation, in which they partly act as consultants engaged in regional development support, and partly as academic writers, using different and often incompatible methods of work and languages.

Building a dialogue between different strands of knowledge accumulation and policy practice is a major challenge for all agents involved in regional development. Undoubtedly, failing to create a dialogue will be detrimental for both policymaking and research. Policy-making will lack the more reflective and bridging qualities academic research may bring, leading to, as indicated above, more qualified and suitable of emulating and developing innovative policy practices. Academic research, in turn, may benefit from gaining more insight into and interacting with the complex economic and institutional reality of regional economies and policies. The building of a proper dialogue, and through a proper understanding of the interaction between different modes of knowledge, may thus help to overcoming shortcomings both in policy-making and in research activities.

Tracing concepts: 'clusters' and 'competitiveness'

One way to understand the forms of knowledge accumulation across different domains is by tracing the use and development of prevailing concepts. To facilitate dialogue between different disciplines and areas of activities, certain concepts gain the status of 'boundary objects' (Fujimura, 1992), that is, of concepts for which there is a certain common understanding of what it stands for, although specific interpretations and translations may differ in each (sub)domain. A boundary object may thus present a pivot around which debates and initiatives are develop and structured.

The example used here is the concept of 'clusters', or, to be more precise, "clusters of competitive advantage". Over the last decade, clusters have become a popular concept in academic research, policy-making and the development of business support. Using the preliminary typology identified above, clusters have played a role at various levels:

As an academic term, initially developed by Michael Porter, to indicate the significance of inter-industry linkages in the competitiveness of national (and regional) economies. Since the early 1990s, the term has been associated with new thinking on innovation (Jacobs, 1997) as well as network-oriented approaches to economic development (Rosenfeld, 1997) and spatial development (Lawson et al., 1997).

- (1) As a regional development concept, to develop new sector-oriented strategies of regional economic development, based on sectoral intelligence and regional network building (Legendijk & Charles, 1997). The cluster concept is applied at the level of single sectors or clusters, and to develop wider strategies at the regional level. Cluster strategies have been adopted for instance by several German Länder (primarily Nordrhein-Westphalen and Baden-Württemberg), many states in the USA, and many regions in Europe (Basque Country, Catalonia, Northern Ireland, Styria).
- (2) As a business support term, used as new strategy to instil collaborative and associational practices among firms and to deliver new forms of focused business support to groups of,

rather than single firms (Rosenfeld, 1995). Especially in the UK, new business-oriented policies have been developed with clustering objectives at the local level (Thomas & Shutt, 1996).

- (3) As a policy term used by national and international organisations (such as the OECD and the EU) as part of their attempt to design new approaches to regional economic development and innovation policies (cf. Lagendijk & Charles, 1998; European Commission, 1996). Similarly, producing cluster analysis has become a major business for consultants, and various high-level policy-oriented conferences have been organised around clustering over the last years (see for instance Steiner, 1997).

In the remainder of this section, the attention will focus on way the cluster concept has been understood in two core domains: academic research and policy-making. After first tracing the broad conception and conceptual evolution of 'clusters' at an academic level, the second part of this review will give an indication of how the concept has been enrolled by policy-makers and what impact this has had on the further development of the concept and its application.

(1) Academic development and use of the cluster concept

The 'origin' of the cluster concepts is well known. While there have been other terms, such as 'industrial districts' and 'agglomerations' endorsing similar ideas on the role of localised inter- and intra-industry linkages, it is the academic and practical work of Michael Porter that gave the concept of 'clusters' its prominent weight. Porter's major contribution, apart from the way he marketed his work to a wide public of academics, policy-makers and consultants, was to create a firm link between the idea of 'clusters' and 'competitiveness', in which the latter was associated both with the level of the firm and nation (or region). Like in Porter's earlier work on business strategies, moreover, his approach was more normative, with a strong view on how development strategies should be developed. Although in Porter's seminal work (*The Competitive Advantage of Nations*) 'clusters' was just one of the concepts employed, with less emphasis than for instance the 'diamond', it is especially this term that gained a prominent place in the discourse on economic development in policy at all spatial levels, through the way it inspired follow-up in other domains such as policy-making and business support.

In academia, the popularity of clusters can be related to developments that have taken place in a wide range of disciplines, from economics and business studies to geography, sociology and political studies. In particular, what has been influential is the shift, reflected in Porter's own thinking as well as more general discourses, from an emphasis on the search for stability and 'quiet life' (De Man, 1994, p.39) to one on dynamics and change. Such thinking can be associated with a Schumpeterian view of competitiveness, which stresses the dynamic advantages derived from a constant hunt to "relentlessly improve productivity in existing industries by raising product quality, adding desirable features, improving product technology, or boosting production efficiency" (Porter, 1990 p.6). The roots of competitive advantage however were not just ascribed to firms, but to the system in which firms are embedded - value chain, institutional setting, national innovation system, diamond, etc. This extension forms the basis for the association with 'national' or 'regional' competitiveness.

Embedding the role of business organisations in wider systems endorsed what can be called an institutional perspective on Schumpeterian competition'. An institutional perspective does not only shed different light on the competitiveness of the firm, but also of the multi-faceted and multi-level nature of competitive process itself. Increased competition has had a significant impact on the developments of networks, business associations, and supply chains and the role of the policy-makers. Following a governance approach, many of these meso-level constructs do not only modify the interaction between and performance of businesses, but also present units of competitiveness themselves. Competition is thus lifted

from the level of 'business versus business' to 'group versus group' (Gomes-Casseres, 1994). In the words of Hollingsworth et al. (1994 p.10): "the continuous and rapid integration of world markets has resulted in unprecedented competition, not just among firms, but among the entire complexes of social, institutional and political substructures are embedded". Hollingsworth and his colleagues thus develop the idea of 'sectoral governance', in which there is a plurality of co-ordination mechanisms which bears on the competitiveness of an economic system. The paradoxical outcome of increased competition is thus that it creates the need for single businesses to combine forces, build alliances, and to improve the interaction with the business environment.

It is this combination of trends, the emphasis on innovation and resource co-ordination on the one hand, and the 'system' notion of competitiveness, that paved the way for a concept such as clusters. In the articulation of the concept, however, different strands of thinking can be observed. Porter's own emphasis, as further specified in more recent writings (Porter, 1996), is on the role of a specific set of factors evolving around interrelated industries supporting competitiveness. Featuring among these factors are the constant upgrading of the business environment as well as securing rivalry. Porter is sceptical of co-operation, especially of horizontal co-operation between firms, although he agrees that indirect co-operation, such as through trade associations as 'can be beneficial in some circumstances' (Porter, 1990 p.667). Hence the role of government should be seen primarily in the context of enhancing the quality of the supply base of the industry (the so-called 'created factors'), in the field of technology and labour, the support of vertical linkages and the securing of horizontal competition.

On the other hand, perspectives stressing the importance of networking and governance tend to a more balanced opinion on the role of 'competition-versus-collaboration', or attach most value to co-operation and associational developments. An author who has been important in articulating this view is Michael Best. One aspect in which Best differs from Porter is his more qualified notion of productivity and competitiveness. Both may have negative and positive effects. For instance, especially in more mature markets, a relentless drive to boost productivity may lead to a situation where business are trapped in a vicious circle of cut-throat competition based primarily on shedding labour and squeezing suppliers: 'efforts to increase competitiveness on the basis of increasing productivity can, at times of production paradigm transition, intensify the problem' (Best, 1990 p.22). Direct market competition, moreover, may actually thwart, rather than promote, industrial development especially among groups of SMEs. Competition may stifle processes of inter-firm specialisation and the alignment of investments. Hence: "The tasks of inter-firm institution building comes to the forefront, as spontaneous market co-ordination will suffer from the 'tyranny of small decisions' when a collective decision-making process is required" (Best, 1990 p.234).

What is important in Best's account is not just the reference to the institutional setting as foundation for the development of trust and patterns of collaborative behaviour. The idea is that there is some kind of collective strategic behaviour which supports the development of new regulatory systems at the regional level, and which is driven by a collective identity and commitment to raising the 'competitiveness' of the region within the international economy. Such systems, which can include governance structures from informal networks to formal associations, create social norms and 'rules of the game' that inhibit price and wage competition within the sector and channel competition towards product innovation, design leadership and speciality niches. Market competition is then lifted from the level of small firms to that of the cluster of firms against the market 'outside'. Best's view thus underpins a more strategic and organisational view on system competitiveness, whereas Porter has a stronger market orientation.

Various authors have applied the idea of clustering to the regional level. In doing so, some tended to follow Porter more closely (Enright, 1995; Rosenfeld, 1995), while others

developed a stronger associational and network-oriented view (Hood & Young, 1996; Steiner, 1997; Doeringer & Terkla, 1995; Born & Rehfeld, 1996). In geographical literature, more attention has paid to the 'rules of the game', or the norms and values which are socially constructed and which define the areas and methods of competition and co-operation. (Lorenz, 1992; Storper, 1996). Such rules define for instance the nature of commitment of firms to each other, how the costs and rewards for collective actions are distributed, and how sanctions are imposed on firms which do not comply with the rules agreed. Developing, and controlling the rules of the game is seen as an essential dimension of network formation, and what is an important outcome of the governance of the network. The question whether rivalry is or should be part of the game remains a critical issue. In a policy-oriented document on clusters and networks, Boekholt et al. (1993) recommend a strategy of having "dynamic networks in which firms co-operate in rivalry". Networks or clusters should not represent 'safe havens' but 'stepping stones' to improve competitiveness.

Much more could be said about how 'clusters' are debated in the academic literature than this brief account. Essential here, however, are not the details of the academic debate but how clusters as a concept appeal to other domains such as regional policy-makers and support organisations. Most fundamentally, 'clusters' have derived much of their influence from the solid link to 'competitiveness'. Cluster initiatives are justified, without exception, by presenting them as an approach to improve the competitiveness of an area and improving the competitive response to increased globalisation. On the other hand, clusters are associated in a more discretionary, and often fuzzy way with a range of concepts and ideas about the nature of competition, inter-organisational dynamics, and the role of resources. In that sense, clusters provided a 'space' of ideas and associations which could be enrolled by a variety of actors and translated in different ways. The attention will now turn to development in the policy arena: how did policy makers understand, and use, clusters?

(2) *The policy context*

One reason for the popularity of the cluster concept at the regional level has been the context for industrial policy development at the national level. In particular, the prevalence of the neo-liberal ideology at the national level has led to a strong anti-interventionist stance that sought to limit or even abolish industrial policy. The embracing of the cluster concept by subnational authorities can be seen as an attempt to fill the gap left by the 'hands-off' stance by central government. In particular this seems to be case in Germany, the US (Sternberg, 1991) and the UK (Geddes, 1992), often centred on in regions with a history of industrial decline or crisis. The cluster concept, furthermore, suited the new demands placed on regional development agents as outlined in the first section: the need to create partnerships and governance networks, to secure funding, to develop new, innovative approaches in a bottom-up fashion, etc. Clusters have thus become a buzzword in the interaction between local business support agencies, regional development agencies, funding organisations such as the European Commission and consultants.

The idea that clusters can foster links between different segments of a local economy has had much appeal to regions with a strong tradition in attracting foreign investors. While such 'exogenous' strategies have yielded highly positive results in terms of importing growth and jobs, as shown for instance in peripheral UK regions, less attention has been paid to the process of embedding externally owned plants in the local economy. Increasingly the need was seen for fostering inter-firm supplies, creating mechanisms for inter-firm learning, and encouraging the involvement of management of externally owned plants in local industry associations etc. (Young et al., 1994; Lagendijk et al., 1996). Cluster strategies have thus been introduced as a follow-up of investment attraction policies, and as a way to integrating policies especially targeted on SMEs. One example of such integration is when, through the role model and even active mentoring of foreign firms, small firms are better able to identify their needs for improvement and support. This may then translate into

strategies of inter-firm learning, as well as a reconsideration of the role and form of other policies in the area of training, technology support, education etc., as part of a region-wide learning strategy in a Mode II fashion.

In addition to alluding to networking and institution building, clusters also match the pursuit for more encompassing growth strategies. It is actually the combination of these two dimensions that presents a major appeal to policy makers. On the one hand, cluster initiatives can be part of 'bottom up' strategies, geared towards nurturing regional action with little direct intervention from the public sector. In this model, regional government or the regional development agency merely acts as facilitator or the 'innovative interlocutor' (Morgan, 1996), and as a provider of basic organisational support. On the other hand, RDAs can also be part of top-down approaches, in which the public sector targets specific sectors. Targeted sectors can be those with a high level of foreign investments (such as automotive and electronics), or those assumed to have a high endogenous growth potential (multi-media, environmental industries, business services). In old industrial regions, clusters initiatives are often geared to consolidating dominant sectors that have lost competitiveness.

This translation of a cluster approach into a rise, some would even say 'return', of an interventionist, selective, top-down approach in regional policy has been subject to some fundamental criticism. Porter's seminal work on clusters, for instance, is vehemently opposed to identifying sectors or clusters for targeting because he alleges governments are not capable of understanding future economic developments in sufficient detail: "governments have a poor track record in selecting sectors where the subtle conditions for (...) advantages are present" (1990, p. 656). The fear for taking the wrong direction by targeting has also for government officials been the reason to refrain from following top-down clustering models (Rosenfeld, 1997). In the view of Sternberg (1991), however what is essential is that cluster initiatives do not simply advocate targeting, but are geared to changing the relationships between firms and local institutions, that is, to provide an environment and incentives through which local agents learn to improve collective efficiency and innovative capacity. A more sophisticated approach can thus be developed which squares a bottom-up approach with a 'top-down' monitoring and steering of cluster. Rosenberg indeed sees most of the objections to 'top-down' approaches as undue. Clusters should involve a dynamic process of competence building, and not result into patterns of static specialisation.

Despite some of the academic reservations against targeting, the process of identifying and auditing 'clusters' has become a major theme in the development of cluster policies and a major source of business for consultancy providers. Such studies generally combine established statistical methods, such as employment and production data analysis, 'shift and share', input-output analysis, and the use of technology indicators, with the capturing of qualitative information from industry representatives and experts about perceived strengths and weaknesses. The results are generally summarised in the form of target sectors and imaginative cluster maps, which often turn out to be important elements in local discourses on regional industrial policy. One of the major commercial providers of this type of knowledge is, perhaps ironically, Porter's own consultancy Monitor. A clear difference can be observed between Porter's academic concerns about sector targeting and the 'social engineering' of networking on the one hand, and the more pragmatic policy recommendations produced by Monitor. Recording stronger and weaker sectors/clusters, as well as more and less promising sectors/clusters remains an essential part of the consultancy's product.

In retrospect, the theme of targeting presents a good illustration of how a complex process of interaction between academic thinking about clusters and the practical application of the concept in the context of policy making have shaped the cluster concept. Although clusters had been interpreted initially with a strong pro-market approach to

economic development, the enrolment by policy-makers pushed it towards a more 'interventionist' position. In particular, the concept played into the hands of regional policy-makers eager to modernise their economies both at the level of (support) infrastructure and at structural characteristics, thus favouring targeted strategies. This relative shift in position, however, did not mean that policy approaches became detached from an academic background. What happened was that clusters were more associated with other academic ideas, especially those that emphasised networking and the role of institutions in the shaping of competitive configurations. The marriage between clusters and networking approaches - close to the work of Best described before - has had a two-way beneficial effect. It allowed network approaches in regional economic development to become more focused, especially through links with ideas on innovation networks and innovation systems (Cooke, 1998), and with practices of structural economic change (Rosenfeld, 1995). The concept of clusters was also employed at lower levels of economic activity, in the form of 'micro-clusters' or 'business clusters' in which a number of regional firms, especially SMEs, join to create a specific organisation called a 'cluster' (Rosenfeld, 1997). In return, it braced the cluster concept, turning it into one of the more popular concepts in regional economic development policies in the last decade. One of the consequences of this development has been that the idea of clusters has found much more resonance than the concept of the diamond, although the latter occupied a more prominent place in Porter's thinking.

This has only been a cursory reflection on how links between academic and policy domains (and between that, the domain of consultants) have shaped thinking on regional economic development. There is, undoubtedly, much more tracing to do before firmer conclusions can be drawn. To shed more light on how the cluster concept has been used, the last section of this paper will discuss the development of cluster policies for a number of regions in three countries: UK, Germany and Spain. Because of the differences in the political contexts and the culture of industry support in these three countries, some interesting conclusions can be drawn about how a concept is translated and implemented. The data for these case studies has been obtained through interviews with representatives of regional government, RDAs, business support organisations, universities and consultancies held in 1997.

The concept of clusters shaped in practice: three case studies

Clustering in the UK

Cluster initiatives in the UK have evolved against a particular political background. The shift towards conservative politics in 1979 brought an end to the planned industrial policy and to the dismantling of the sectoral organisations of the Department of Industry and Trade. The absence of a national strategy and vision on industrial development did not mean that the state did not steer industrial development (Cowling & Sugden, 1993). The large-scale privatisation, with the emergence of new regulatory environment, and the support to foreign investments for instance were two developments with a significant impact on the recent evolution of UK industry. What is important however is that the ideological position of the conservative government against 'state intervention' also had a strong impact on local (more Labour oriented) government. Increased curtailing of resources for economic policy forced local authorities to search for other sources of funding, such as Europe, and to engage in partnerships with local business.

The effects of the local-national cleavage show important differences between local developments in England and the regions of Wales, Scotland and Northern Ireland. In England, the government gradually undermined the capacity of local authorities to develop any substantial form of local industrial policy. Responsibilities for business support, training and even land development were shifted from councils to semi-autonomous organisations that received their mandates from central state, such as the Training and Enterprise Councils

and the Development Corporations. This meant a radical change in the system of territorial governance, which became more fragmented, disparate and more driven by business agendas. While the overall position of local authorities became more marginal, they continued to play a role by joining the local offices of TECs, Chambers of Commerce, business association, universities, etc., in policy networks (Rhodes, 1997). The development of these networks was induced by an increased to share resources, and as a response to the 'challenge culture' of project funding and the rising importance of European funding. Ironically, the emergence of policy networks and their European links countered the tendency towards local fragmentation induced by central government policies. In the 1990s, moreover, the central government became more appreciative of local economic development initiatives, partly as response to the European dimension, partly because it saw the need to address the problem of increased spatial inequality (Haughton & Thomas, 1992).

Cluster initiatives in England largely emerged out of sectoral policies that were inspired, or at least justified, by a reference to the 'industrial district' networking model. They evolved either in conjunction with spatial policies, such as the cultural district in Sheffield, seen as one of the few successful cases of an 'industrial district' creation. Alternatively, they were inspired on models of inter-firm networking and resulted in initiatives to bring small numbers of firms together in business clusters (Shutt & Pellow, 1997). A core example of the latter is the support of the North Tyneside Real Service Centre - its name being a clear reference to its Italian inspiration - to the development of five business clusters consisting of between 5 and 10 firms. The targeted sectors range from offshore and marine industries, sectors affected by industrial decline, to software production and design activities. There are also examples of partnership models being applied to the sectoral level, such in the case of Leeds. From the four sectoral organisations which emerged so far one, the financial cluster, has become self-sustained (Thomas & Shutt, 1996). More by necessity than by choice, the English initiatives have evolved as small-scale, 'bottom-up', and project-based, leading to the networking of a relatively small number of business and organisation at a local scale.

The initiatives developed in Scotland, Wales and Northern Ireland developed in the context of a more comprehensive policy to target sectors at the regional level. A similar trend can be observed in the NE of England, where a leading role is played in supporting regional development by the Northern Development Company (NDC). Most of the cluster initiatives are related to a shift in emphasis from solely attracting foreign direct investment to supply chain development and a focus on a limited number of more 'indigenous' sectors. The processes and reasons behind the cluster selection are however different. In the case of Northern Ireland and Scotland the clusters approaches were based on an extensive analysis of the regional economy by Monitor; in the North East, on the other hand, the list emerged out of the historically grown sectoral emphasis of NDC without much analysis. In Wales, cluster initiatives gradually evolved out of a number of initiatives previously taken by the WDA, supported by a regular stream of sectoral analysis. The initiatives included the local supply chain and 'supplier clubs' programmes under the banner of 'Source Wales', the Regional Technology Strategy and other innovation initiatives supported by EU Framework Funds, and international collaboration programmes targeted on SMEs. The Welsh and Scottish cluster initiatives are characterised, in particular, by bottom-up initiatives of a forum nature in a top-down framework of facilitating and monitoring. Besides consultants, in these regions universities have gradually become more involved. While in Scotland university relationships have been oriented primarily towards their contribution to innovative and entrepreneurial potential, in Wales universities have also played a significant role in the institutional shaping of regional development activities. Some leading academics in social disciplines have taken on vital roles as brokers between academic knowledge and the world of policy-making.

Clustering in Germany: Nordrhein-Westphalen and Baden-Württemberg

In contrast to the small areas in which English cluster policy have been developed, the prime level of industrial policy in Germany, that of the Länder, has been generally regarded as too big. Länder such as Nordrhein-Westphalen (NRW) and Baden-Württemberg comprise various large industrial agglomerations, each presenting an appropriate setting for cluster policies. What has occurred therefore, particularly in these two Länder, is a regionalisation of industrial policy. Regionalisation first emerged in NRW, where it grew out of the industrial restructuring policies targeted on the Ruhr area. Since the late 1980s, the Land has been divided into 14 regions, organised using the Chambers of Commerce areas. In Baden-Württemberg, similar tendencies can be observed, particularly around the city of Stuttgart (Iwer & Rehberg, 1994). The regions still have to establish their position between the level of the Land and councils, which both present strong levels of government, and most initiatives require the creation of policy networks with several spatial levels involved.

Cluster initiatives in Germany have been triggered by the processes of industrial decline and the perception that growing global competition is threatening existing industrial structures. The German economic landscape has traditionally been dominated by strong industrial agglomerations that encompassed substantial parts of production chains. This applied for instance to the coal-steel industry in NRW, the automotive clusters around Munich, Stuttgart, and Regensburg, and the finance and media activities in Frankfurt. Over the last decade, in particular manufacturing sectors such as steel and automotive production have been affected by an increased pressure to reduce costs, which has induced rationalisation of production, a relocation of production to low-cost areas, and a shift from local to 'global' sourcing. Besides the perceived impact of globalisation, local economic systems also seem to be under pressure as a result of technological factors. A historical example is the shift from coal-based chemicals to petro-chemicals, which has caused disintegration of the traditional coal-chemical complexes in the Ruhr. Recent examples are the shift to plastics and electronics in the automotive industry, and the increase use of information technology and externally sourced producer services (Heinze et al., 1995). Accordingly, there is a strong

belief in many German Länder and regions that they suffer from a specialisation in mature sectors, in which technological sophistication seems to be less of an advantage as before, while there is lack of growth in new sectors such as information technology and biotechnology. Cluster policies have been invoked as a two-fold strategy. On the one hand, clustering is targeted on consolidating established industries, finding ways to counter processes of disintegration and relocation of production by strengthening local supply chains and building new forms of public-private collaboration. On the other hand, clustering represents an attempt to stimulate the development of new kinds of activities through the targeting of sectors such as in multimedia, environmental sectors, telecommunication, and biotechnology.

One successful case of cluster initiatives in NRW is presented by the environmental sector. Driven by coalitions between large companies in steel, car and energy production, environmental cleaning firms, research centres and local councils, the growth of the environmental sector presents a natural evolution out of steel-coal related activities, i.e. from 'problem-causing' to 'problem-solving' industrial activities (Heinze et al., 1995). Cluster formation has taken place not only by the linkages with 'old' industrial activities, but also by the impact on the growth of professional services in the sector (Van Essen, 1997). In other sectors, results have been more mixed. While a new multi-media cluster seems to emerge around Cologne, driven by private companies in electronics and the broadcasting sector, ambitious initiatives launched elsewhere in NRW have been less successful. In Baden-Württemberg, the cluster approach recently been adopted as a potential response since the Land has entered what has been called 'its deepest crisis since the existence of the Federal Republic' (Iwer & Rehberg, 1994). In particular, the medium sized suppliers in the automotive sectors have been hit strongly by the changing procurement practices of their customers. While one objective is to create a new support infrastructure for the automotive sector, clustering is also seen as an approach to support new sectors, notably in the energy sector, biotechnology and telecommunication as part of regional structural policy.

Like in the British case, the emergence of cluster approaches has been part of a shift towards a more business-driven agenda and new forms of governance based more of a policy network. Originally, industrial policy in Germany was grafted upon a model of tripartite governance at the Land and central level, in which representatives were drawn from the state, business and unions. Recent developments, triggered by an increased concern with 'competitiveness' and a stronger emphasis on supply-side measures, have weakened the position of the unions. Stronger alliances have been forged between authorities and businesses, often dominated by larger firms, in specific policy networks (Heinze & Schmid, 1994; Iwer & Rehberg, 1994). This move has had several consequences. The partial disengaging of industrial policy-making from the corporatist consultation process paved the way for more variation and experimentation in approaches. In NRW, the Land government actually encouraged diversity and experimentation in a "let a thousand flowers bloom" fashion, because it wanted to promote innovation as the way forward in industrial policy and business support. A second effect was the increased role of external organisations such as consultancies in the devising and implementation of new policies. One example is the role of the Mulheim-based consultancy firm Agiplan in running cluster projects targeted on the automotive cluster in NRW; the lessons learnt from this project have recently been used for setting up a similar project to support the automotive industry in the Austrian province of Styria. Furthermore, university departments as well as the Land-financed research institute IAT in Gelsenkirchen both developed academic and practical expertise and promotion of the cluster concept (Rehfeld, 1996).

Interestingly, this 'professionalisation' of industrial policy was also taken up by the unions as a way to regain influence in the area of industrial policy. In NRW, for instance, ISA is a consultancy linked to trade-unions which has initiated several cluster project in the Land, in sectors such as metal processing, chemicals and wood and cement production. In Baden-

Württemberg, EMU, also a related to the trade unions, played a major role in creating interest for the cluster approach. Apart from their main interest in securing their position in industrial policy, the key message the unions convey through these initiatives is that, while they accept the need to follow a strategy to increase 'competitiveness' through collaboration, this should not only be developed at a managerial level, but also include the voice and interests of labour.

Clustering in Spain: The Basque Country

The Basque clustering approach shares with the two other cases a context of industrial decline. With the German case, it shares a dominance of indigenous firms, many of which are family owned and benefit from a strong entrepreneurial ethos, and a strong role of local banks. In many other respects, however, the context is highly different. The Basque Country enjoys as a region a high level of autonomy that includes, unique for Europe, its own tax raising powers. While macro-economic policy is a responsibility held in Madrid, the regional government has substantial competencies in the areas of industrial policy and business support. What is less positive however, is that the region appears to lack a culture of collaboration. Business attitudes are generally highly individualistic, and there is little co-operation firms and public organisations. The region is known for its strong co-operative traditions, but such attitudes remain restricted to organisations such as the Mondragon Corporation. So the introduction of the cluster programme has to be analysed against the background of a strong local government combined with a weak tradition of associative and collaborative attitudes.

Regional industrial policy in the Basque country has gone through various phases since the process of devolution started after the death of Franco in 1975. From the early 1980s, the main objective was to provide direct support to Research and Development; this shifted to technology transfer in the mid-1980s, and became organised along cluster lines from 1989 onwards. In the 1980s the key driver behind the technology policy was the regional RDA, the 'Society for Industrial Promotion and Restructuring' (SPRI), especially through its 'Unit of Technology Strategy' (UET). The backbone of the Basque technology support was formed by the network of technology centres established by SPRI. The regional network consists of seven technology support centres, and local universities, and is not matched by any other Spanish region.

The cluster policy became the dominant form of industrial policy in the early 1990s. The shift to clusters was instigated not by SPRI but the Industry Department of the Basque government. As a result of the cluster audit, carried out by Monitor, followed by several revisions, nine strategic clusters (Automotive components, special steel, machine tools, appliances, agro-food, pipeline sector, paper production, logistics) and five emerging clusters were identified (professional electronic equipment, aeronautics, telecommunication, IT, pre-fab construction, advanced materials) (Gobierno Vasco, 1993). Other clusters have been added afterwards (knowledge management, telecommunication). This profile replaced the five core technology areas that had been suggested by the UET in 1989. The main justification for the shift to clusters was the need to improve the identification of demand to enhance the effectiveness of technology support, and, in doing so, the competitiveness of the region. While clusters were considered as the *demand* side for support to technological improvement, the regional technology network embodied the *supply* side. Clusters generally consist of a 'talking club' of leader firms, seen as 'mentors', co-ordinated by a secretarial organisation appointed by the government and a Board with representatives of the government, leader firms and selected business organisations. Some of the cluster teams are relative open (notably Machine Tools); most however employ strict membership rules and consist of closed networks. The three main areas in which clusters are expected to produce plans and activities are technological development, quality management and human resource development.

While this undoubtedly presents the best-orchestrated cluster programme discussed here, the negative side is that this programme has been imposed on, rather than negotiated with, local actors by the Basque government. The initial investigation by Monitor was carried out in a “rather secretive fashion” (Cooke & Morgan, 1998 p.245); the whole process, even that of ‘consultation’ was imposed on businesses and organisations rather than being developed in conjunction with them, which explains the need for several revisions of the cluster profile and procedures. In addition, the individual cluster models themselves follow a top-down model, privileging larger firms rather than stimulating interaction between different segments of the local economy. One of the complaints which can be heard in other organisations in the region, such as universities and business support organisations, is that some of the cluster teams behave as secretive clubs of business managers rather than centres of information exchange and negotiation. A related problem is that clusters, despite the central role they were initially granted, have become more stand-alone and isolated from other initiatives developed at the cluster level. A new programme has been launched recently focused on developing local supply chains independently from the cluster programme, which also uses large firms as ‘mentors’ (Tractor Programme).

What the cluster initiative and other recent industrial policy programmes in the Basque Country show is the influence of political struggle and shifts between local organisations. Moreover, compared with the other case studies, there is less propensity for creating networks and partnerships across different domains involved in regional development (government, RDAs, universities etc.). Launching the cluster initiative was an important component of the shift in the organisations dominating regional industrial policy: it strengthened the position of the Department of Industry versus SPRI; since the early 1990s the latter has lost most of its strategic power and has turned into high-quality business support organisation. It has largely stopped making its sectoral inquiries as it used to do in the 1980s. The adoption of clusters was partly driven by personal contacts between government officials and with Michael Porter. The cluster programme overruled the sector orientation developed by SPRI (particularly UET) and the Technology Centres, and was therefore strongly resented by these actors. Although they are involved in the technology strands, the Technology Centres have not played a central role in the cluster programme. In contrast to British and German cases, universities do not act as a significant source of knowledge for policy making (although individual academics may play important political roles). The isolation of the universities not only due to the preferences of policy-makers, but also to the fact that there is very little applied research oriented to the local economy.

A salient feature of policy programmes is that they are largely developed and justified on the basis of externally derived knowledge, with an important role played by consultants, and, in some cases, also sister organisations abroad. In a style close to Mode I than Mode II knowledge, information is recorded in voluminous planning documents in which policy programmes are detailed and scheduled in elaborate planning phases.

Concluding remarks

This paper has addressed the role of knowledge in regional development policy, and the question of how knowledge has been shaped by, as well shaped itself, the interaction between different domains involved in regional development, from academic researchers to policy makers and implementers. The conjecture underpinning this inquiry was that there has been a radical change in the nature and role of knowledge, described as a shift from Mode I knowledge (linear, universal) to Mode II knowledge (transient, context-specific, etc.). Besides general tendencies such as the alleged emergence of a 'knowledge economy', in the case of regional development this shift has been accompanied by a range of developments, for instance in the organisational structures of policy development, in funding regimes, in the rationales of regional policy, etc. In addition to the identification of Modes of knowledge, several layers of knowledge have been distinguished, which allowed different spatial levels to become involved and interact.

The concept of 'clusters' was introduced as a label that, on the one hand, has been one of the more popular ideas moving around in the field of regional development at regional, national and international levels, while, on the other, inspiring locally specific translations and tailored initiatives. In the case studies, the paper has identified organisations responsible for local translations of the cluster concept (such as RDAs) as well organisations involved in cross-regional transfers (such as consultancies and international governmental organisations). Moreover, in tracing the origins and evolution of the concept, a complex interaction has been observed between the academic and policy domain. In doing so, the popularity of the concept has been attributed to a dual factor. On one side, clusters chimed with the prevailing emphasis on innovation and 'competitiveness'; on the other side, through its diverse academic roots, clusters could be associated with a variety of (partly contrasting) messages, from changing market conditions to instilling collaborative and networking cultures. The popularity of the concept can thus be attributed partly to its fuzziness, which allowed it to serve a variety of policy interests.

The emphasis on the political role of knowledge, however, should not be read as purely a matter of manipulation. Knowledge and policy interests interact in different ways, depending on the nature of characteristics of regional governance structures and the mechanisms through which knowledge is acquired and employed. In both the UK and Germany, for instance, external knowledge (such as the cluster concept) has been a vital source of inspiration and justification for policy development. Notwithstanding, this absorption of knowledge has been accompanied with processes of local adaptation and reshaping of knowledge. Adaptation has served as part of generating effective (and hence rewarded) policies and as part of their positioning strategies in regional governance structures. Knowledge is not only an instrument; it also contributes to goal setting and identity-building. In the British case, especially England, the role of knowledge acquisition and development should be seen against the background of an institutional vacuum, which was filled by new organisations and new initiatives. In the German case, the acquisition and development of knowledge has been important in the search for more innovative approaches by established organisations. Moreover, a process of professionalisation has given rise to new organisations especially in the consultancy sphere. The Basque country provided a contrasting case, characterised by manipulation of externally acquired knowledge for political purposes, and in which less evidence was found of a Mode II knowledge environment.

A final world should be devoted to the position of academic research. This paper has trodden the sensitive path of assessing, in a reflective way, the role of research in regional development against the background of a shift in the way knowledge is produced and used. The idea emerging from this discussion is that a different dialogue needs to be established between academic research, other knowledge producers and policy-making. This should not

be read as a critique of the way academics have approached questions of regional development, nor of the norms and values employed in the enterprise of academic research. Nevertheless, because academic research follows certain rules and perspectives, it seems not always be able to grasp the peculiarities of 'Mode II' knowledge or to engage with the complex environments in which knowledge relevant to regional development is produced and used. In particular, what requires further attention is the way academic knowledge relates to other forms of knowledge, notably the types of organisational and strategic knowledge acquired through context-specific processes of reflective learning that increasingly influence regional development activities. In such an environment, more traditional analytical approaches can still fulfil an important task, for instance in informing choice of targeting and in performing evaluation, but it is important to see this task within the context of a more varied and complex system of knowledge production.

Note: The work for this paper has been funded under the European Programmes ADAPT (Core project) and HCM (EUNIT network) The author wishes to acknowledge the support given by these programmes as well as the helpful comments made by James Cornford.

References

- Asheim, B.T. (1996): Location, agglomeration and innovation: towards regional innovation systems in Norway. Paper presented at the International Geographical Congress, The Hague, The Netherlands, August 5-10, 1996.
- Best, M. (1990): *The new competition. Institutions of industrial restructuring*. Polity Press, Cambridge.
- Boekholt, P.; Fahrenkrog, G.; Jacobs, D.; Howells, J. (1993): Clusters and networks of innovative SMEs. Background paper for the Policy Forum workshop, Brussels, December 1993.
- Born, A.; Rehfeld, D. (1996): Produktionscluster oder Verlagerungsdruck? Räumliche Folgen neuer Produktionskonzepte am Beispiel der Automobilindustrie. In: *Arbeitsteilung ohne Ende? Vom Schwierigkeiten inner- und überbetriebliche Zusammenarbeit*. (Eds: Brödner, P.; Pekruhl, U.; Rehfeld, D.). Hampp, München, 189-215.
- Cooke, P. (1992): Regional innovation systems - competitive regulation in the new Europe. *Geoforum* **23** (3), 365-382.
- Cooke, P. (1998): Introduction: origin of the concept. Chap. 1. In: *Regional innovation systems*. (Eds: Braczyk, Hans-J.; Cooke, P.; Heinderich, M.). UCL Press, London, 2-25.
- Cooke, P.; Morgan, K. (1998): *The associational economy: firms, regions and innovation*. Oxford University Press, Oxford.
- Cooke, P.; Boekholt, P.; Schall, N.; Schienstock, G. (1996): Regional innovation systems: concepts, analysis and typology. Paper presented to the EU-RESTPOR Conference "Global comparison of regional RTD and innovation strategies for development and cohesion", Brussels, 19-21 Sept. 1996.
- Cowling, K.; Sugden, R. (1993): Industrial strategy: a missing link in British economic policy. *Oxford Review of Economic Policy* **9**, 1-18.
- Cox, K.R.; Mair, A. (1991): From localised social structures to localities as agents. *Environment and Planning (A)* **23**, 197-213.
- Devins, D. (1996): The use of external advice by new and established SMEs. Some survey evidence. Chap. 10. In: *Small firm formation and regional economic development*. (Ed: Danson, M.W.). Routledge, London, 161-188.
- Doeringer, P.B.; Terkla, D.G. (1995): Business strategy and cross-industry clusters. *Economic Development Quarterly* **9** (3), 225-237.
- Enright, M.J. (1995): Organization and coordination in geographically concentrated industries. Chap. 4. In: *Coordination and information. Historical perspectives on the organization of enterprise*. (Eds: Lamoreaux, N.R.; Raff, D.M.G.). University of Chicago Press, Chicago, 103-146.
- Van Essen, M. (1997): The role of professional services in development of industrial main suppliers. *EUNIT Discussion Paper Series* **6**, 1-20.
- European Commission (1996): *Practical guide to region innovation actions. Regional Innovation Strategies (RIS). Regional Innovation and Technology Transfer Strategies (RITTS)*. Office for Official Publications of the European Communities, Luxembourg.
- Fujimura, J.H. (1992): Crafting science: standardised packages, boundary objects and 'translation'. In: *Science as practice and culture*. (Ed: Pickering, A.). University of Chicago Press, Chicago, .
- Geddes, M. (1992): The sectoral approach to local economic policy. Chap. 1. In: *Restructuring the local economy*. (Eds: Geddes, M.; Benington, J.). Longman, Harlow, 1-21.

Gibbons, M.; Limoges, C.; Nowotny, H.; Schwartzman, S.; Scott, P.; Trow, M. (1994): *The new production of knowledge*. Sage, London.

Gobierno Vasco (1993): *Plan de Tecnología Industrial*. Gobierno Vasco, .

Gomes-Casseres, B. (1994): Group versus group - how alliance networks compete. *Harvard Business Review* 72 (4), 62.

Halkier, H.; Damborg, C. (1997): Networks, development agencies and intelligent regions. Towards a framework for empirical analysis. *Aalborg University. European Research Unit. Series of Occasional Papers* 22, 1-27.

Haughton, G.; Thomas, K. (1992): The role of local sector studies: the development of sector studies in the UK. *Local Economy* 7 (2), 100-113.

Heinze, R.G.; Schmid, J. (1994): Industrieller Strukturwandel und die Kontingenz politischer Steuerung: Mesokorporatistische Strategien im Vergleich. SIT Working papers 94-2, Bochum: Ruhr-Univ.

Heinze, R.G.; Hilbert, J.; Nordhause-Janz, J.; Rehfeld, D. (1995): Industrial clusters and the governance of change: lessons from Nordrhein-Westphalia (NRW). Paper presented at the Conference on Regional Innovation Systems at the Akademie für Technikfolgenabschätzung, Stuttgart, Oct. 1995.

Hollingsworth, J.R.; Schmitter, P.C.; Streeck, W. (1994): Capitalism, sectors, institutions and performance. Chap. 1. In: *Governing capitalist economies - performance and control of economic sectors*. (Eds: Hollingsworth, J.R.; Schmitter, P.C.; Streeck, W.). Oxford University Press, Oxford, 3-16.

Hood, N.; Young, S. (1996): Transnational corporate strategies, subsidiary initiatives and regional economic development - European evidence. Paper presented to the EMOT Workshop on Learning and Embeddedness: Evolving Transnational Firm Strategies in Europe, Durham UK, 27-29 June 1996.

Howells, J.R. (1996): Systems of local and regional innovation: innovation arenas. Discussion paper, Manchester: PREST.

Hudson, R. (1998): The learning economy, the learning firm and the learning region" : a sympathetic critique of the limits to learning. Paper presented to the RGS/IBG Annual Conference, Kingston University, 5-8 January 1998.

Iwer, F.; Rehberg, F. (1994): *Cluster und strukturwandel. Bedeutung und Entwicklung regionaler Produktionscluster, Strategien und Chancen des Umbaus und Handlungsmöglichkeiten der Gewerkschaften am Beispiel der Region Stuttgart*. IMU-Institut, Stuttgart.

Jacobs, D. (1994): Clusters, clusterdimensies, clusterbeleid. Chap. 2. In: *Industriepolitiek, regionale clusters en de werking van markten*. (Eds: Van Dijk, J.; Florax, R.). Geo Pers, Groningen, 7-34.

Jacobs, D. (1997): Knowledge-intensive innovation: the potential of the cluster approach. *The IPTS Report* 16, 22-28.

Legendijk, A.; Charles, D.R. (1997): Clustering as a new growth strategy for regional economies? A discussion of new forms of regional industrial policy in the UK. The UK contribution to the OECD-MIC (cluster) research. Presented at the OECD Workshop on Cluster analysis and cluster-based policies, The Hague, Oct. 97.

Legendijk, A.; Charles, D. (1998): Regional institutions facilitating technology transfer to SMEs: A review paper for OECD. .

Legendijk, A.; Cornford, J. (1998): Regional institutions and knowledge - tracking new forms of regional development policy. *Geoforum* **forthcoming**, .

Lagendijk, A.; Laigle, L.; Pike, A.; Vale, M.A. (1996): Local embedding of international assembly plants - . Paper presented to the EUNIT Conference on "Territorial development in Europe: the impact of innovation and restructuring", Dortmund, 22-24 May 1996.

Lawson, C.; Moore, B.; Keeble, D.; Lawton Smith, H.; Wilkinson, F. (1997): Inter-firm links between regionally clustered high-technology SMEs: a comparison of Cambridge and Oxford Innovation networks. *ERSC Centre for Business Research. Working Paper* **65**, 1-38.

Lorenz, E.H. (1992): Trust, community and cooperation. Towards a theory of industrial districts. Chap. 9. In: *Pathways to industrialization and regional development*. (Eds: Storper, M.; Scott, A.J.). Routledge, London, 195-204.

Lovering, J. (1998): Misreading and misleading the Welsh economy: the 'new regionalism'. *Contemporary Wales* (Forthcoming), .

Lundvall, Bengt-Å. (1996): The social dimension of the Learning Economy. *DRUID Working Paper* **96** (1), 1-24.

De Man, Ard-P. (1994): 1980, 1985, 1990: Een Porter Exegese. *Tijdschrift voor Politieke Economie* **17** (3), 32-54.

Morgan, K. (1996): Learning-by-interacting. Inter-firm networks and enterprise support. In: *Local systems of small firms and job creation*. (Ed: OECD). OECD, Paris, .

Morgan, K. (1997): The learning region: Institutions, innovation and regional renewal. *Regional Studies* **31** (5), 491-503.

Porter, M.E. (1990): *The competitive advantage of nations*. Macmillan, London.

Porter, M.E. (1996): Competitive advantage, agglomeration economies and regional policy. *International Regional Science Review* **19** (1&2), 85-94.

Rehfeld, D. (1996): Produktionscluster und räumliche entwicklung. Beispiele und konsequenzen. Institut Arbeit und Technik, Wissenschaftszentrum Nordrhein-Westfalen.

Rhodes, R.A.W. (1997): *Understanding governance: policy networks, governance, reflexivity and accountability*. Open University Press, Bristol.

Rosenfeld, S.A. (1995): *Regional business clusters and public policy*. (Series Industrial-strength series regional business clusters and public policy.) The Aspen Institute, Rural Economic Policy Program, Washington, D.C.

Rosenfeld, S.A. (1997): Bringing business clusters into the mainstream of economic development. *European Planning Studies* **5** (1), 3-23.

Sabel, C.F. (1994): Learning by monitoring. In: *Handbook of Economic Sociology*. (Eds: Smelser, N.; Swedberg, R.). Princeton-Sage, Princeton, NJ, 137-165.

Shutt, J.; Pellow, N. (1997): Industrial districts and business support strategies - contrasting evidence from the North of England. Paper presented to the Conference 'Networking and Small and Medium Sized Enterprises', Bologna University, June 19-20 1997.

Steiner, M. (Ed.) (1997): *Competence clusters. Workshop report. Graz and A1-Ring Austria, November 21-22, 1996*. Leykam, Graz.

Sternberg, E. (1991): The sectoral cluster in economic development policy: lessons from Rochester and Buffalo, New York. *Economic Development Quarterly* **5** (4), 342-356.

Storper, M. (1996): *The regional world*. Guildford Press, New York. (forthcoming)

Suarez-Villa, L. (1996): Innovative capacity, infrastructure and regional policy. Chap. 14. In: *Infrastructure and the complexity of economic development*. (Eds: Batten, D.F.; Karlsson, C.). Springer, Berlin, 251-269.

Thomas, K.; Shutt, J. (1996): World class Leeds: sectoral policy and manufacturing alliances in the 1990s. Chap. 5. In: *Corporate city? Partnership, participation and partition in urban development in Leeds*. (Eds: Haughton, G.; Williams, C.C.). Avebury, Aldershot, Hants, UK, 81-102.

Young, S.; Hood, N.; Peters, E. (1994): Multinational enterprises and regional economic development. *Regional Studies* **28** (7), 657-677.