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Learning together for local innovation: promoting learning regions

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Executive summary

This book examines how one builds innovative local and regional communities. It does so through analysing case studies from different parts of Europe. The emphasis is on learning from practices. Regional innovation depends on dialogue, cooperation, networking and learning between all social and economic actors in a region. The interfaces between different interest groups in a region are the places where learning takes place: people learning together to address complex social and economic problems. This can be understood as region-wide 'practical learning' along 'learning region' lines.

Education and training (E&T) agencies can facilitate learning regions by becoming moderators of 'action-oriented' learning and carrying out supportive accompanying research. The case studies in the book examine how education and training agencies, including universities, joined with other actors in addressing regional innovation along the above lines. The cases cover a range of contexts from manufacturing, regional universities, women's cooperatives to promoting social cohesion in multicultural communities. Each case can be understood against the background of the other cases, enabling learning from differences.

In an introductory part of the book before the cases are presented, Barry Nyhan outlines the agenda for E&T in building learning regions for innovation in Europe, while Bjørn Gustavsen and Richard Ennals outline the design of the project on which this book is based.

The core of the book contains 12 European regional learning cases. Thomas Stahl discusses the efforts of employment and vocational training actors to regenerate a region in Germany that cuts across state boundaries. Trond Haga discusses enterprise networks in western Norway, where new facilitating roles for innovation, supported by training, were created. Maria João Filgueiras-Rauch reports on three successive projects to address the challenge of social inclusion in the multicultural Amadora suburb of Lisbon. In reflecting on learning from experience, Yeoryios Stamboulis and Yannis Psycharis describe the experiences of women's cooperatives in Magnesia, central Greece.

Drawing on a long tradition of programmes in Scandinavia, Marie-Louise Eriksson discusses the role of 'industrial development centres'. Tom

Johnstad chronicles the radical change in the town of Raufoss in Norway, as it moved from being a single company town, in the armaments industry, to become a vibrant learning region based on networked small and medium-sized industries. Anne-Marie McEwan and Richard Ennals investigate the potential for 'healthy working centres' in south-east England, where obstacles to social capital formation were encountered. Arunas Augustinaitis, from Lithuania, considers the challenges facing his country, as it seeks to adapt new approaches to education and innovation to address the requirements of the 'knowledge society'. Based on cases in Germany and other countries, Ludger Deitmer introduces a self-evaluation approach for evaluating 'public private partnerships'.

The changing role of universities in promoting learning regions is discussed by three authors. Bernd Hofmaier discusses the role of a regional university, in line with the 'third task' of universities, in promoting regional development in Sweden. Peter Totterdill reflects on the experience of a university's involvement in industrial innovation in the English 'east midlands'. Andrea Bardi provides an update on the classic story of Emilia-Romagna, the Italian region, whose 'industrial districts' and entrepreneurial culture have commanded international attention. He reports on changes in the culture of the region that require a new role for regional universities.

Following the case studies, there are two theoretical chapters on learning regions. Philip Cooke takes a sceptical look at learning as a key element in regional innovation systems. In contrast, Bjørn Asheim emphasises the importance of regional learning for innovation in a globalising economy.

The conclusion, by Bjørn Gustavsen, Richard Ennals and Barry Nyhan, pulls together the learning points from the cases. However, rather than attempting to come up with a single European model of learning regions, they discuss the cases as providing the starting point for an ongoing European discourse, in which people learn from one another's experiences.

Preface

The European Commission communication 'Modernising education and training' states that education and training systems are 'a determining factor in each country's potential for excellence, innovation and competitiveness. However, it goes on to affirm that this requires 'synergy between "knowledge policies" (education, training, employment/social affairs, research, etc.) and the active involvement of key actors such as parents, teachers/trainers, the voluntary sector and local actors' ([1]).

This book explores how synergy can be strengthened between education and training actors and other social and economic actors to promote regional or local innovation. Based on the concept of the 'learning region', the central argument is that the regional or local environment provides a meaningful context for social and economic innovation. In emphasising the importance of the regional dimension, the above quoted Commission document states that 'priority should be given to improving governance through learning partnership, especially at regional and local levels as a means of sharing responsibility and costs between the relevant actors (institutions, public authorities, social partners, enterprises, community organisations, etc.)' ([2]).

When innovation is discussed, people often think mainly of technological innovation regarding new products, instruments and services. However, 'although technological innovation is crucial, social innovation is just as important' ([3]). In fact technological innovations can only be exploited if they are accompanied at the same time by social innovations. Social innovation is about the organisation and implementation of social measures with the involvement of people on the ground. For example, it is about facilitating small enterprises (SMEs) create the human and organisational environment necessary to benefit from technology. It can also be about bringing different SME actors together for competence development or introducing more efficient or participative forms of work. It is about fostering employment or

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([1]) EC – European Commission. *Modernising education and training: a vital contribution to prosperity and social cohesion in Europe*. COM (2005) 549 final/2, 2005.

([2]) Ibid.

([3]) Quote from a speech by Lenia Samuel, Deputy Director General, European Commission, DG Employment, Social Affairs and Equal Opportunities at a seminar on 'Integrating innovation and transnational cooperation into ESF programmes for 2007-13', Brussels, 8 December 2005.

social inclusion. These kinds of innovations are led by people who promote social networks for action.

This book outlines case studies of initiatives taken by actors from different backgrounds who worked together to promote social innovations in their own regions. Many of these are education and training actors who played a key role from educational or research points of view. Several case studies were supported by European Union programmes such as EQUAL, which emphasise the importance of transnational European exchange.

The authors of these case studies are researchers who have played the dual role of stakeholder and reporter in their own region's innovation projects. They have also been intermediaries in dialogue with other European projects in the Cedefop mutual learning and exchange network project which gave rise to this book.

It is hoped that the account of their experiences discussed here will promote dialogue with a wide range of actors, in particular those in education and training, who are concerned with promoting networks for local innovation.

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Introduction to the book

Bjørn Gustavsen, Barry Nyhan, Richard Ennals

This anthology presents the results of a Cedefop research arena (Cedra) project which examined how actors in a region learn together to promote local innovation. Such a region can be termed a 'learning region'. The main focus is on presenting and analysing practical cases. A central place is given to the role to be played by education and training actors in joining other social and economic actors to foster regional innovation. However, authors from a range of different backgrounds, such as work organisation, innovation policy, industrial development, regional development as well as education and training, have contributed to this multi-disciplinary anthology. These authors are researchers who are mostly actively supporting these regional innovation initiatives as well as reporting on them.

The project which gave rise to this book had a transnational European exchange focus. The authors of the different cases formed a network in the context of the Cedefop research arena which met several times to present and discuss their cases. The aim was not simply to write cases but also to use the writing experience as a way of debating the inner workings of these cases to prompt mutual learning. The aim has also not been to create European generalisations but rather to create opportunities for the authors and readers of this anthology to learn from differences and bring new insights to bear on their unique regional situations.

Following a presentation of the structure of the book in this chapter, there is a short account of the design of the project which has a direct impact on the structure of the book.

Structure of the book

The anthology is divided into five parts. Part I has two chapters by Nyhan (Chapter 1) and Gustavsen and Ennals (Chapter 2). Nyhan's chapter, which is also a form of introduction to the book, presented from a Cedefop vocational training perspective, discusses the rationale for education and training (E&T) actors to work closely with other economic and social actors

in regional innovation projects. In briefly referring to the cases in this book at the end of the chapter, he discusses the tensions faced by E&T actors in becoming involved in regional action-oriented learning. Chapter 2 by Gustavsen and Ennals outlines the thinking underpinning the design of the Cedefop project which this book is reporting on ([1]). They also present a summary of the cases and the other issues discussed in the remaining chapters of the book.

Parts II and III, which are at the heart of this anthology, comprise 12 case studies of regional learning from nine European countries. The focus of the cases in Part III is on the role of universities in regional innovation processes.

Part IV has two theoretical chapters that take up different positions regarding the 'learning region' concept. While Cooke in Chapter 15 takes a critical perspective, Asheim in Chapter 16 argues in favour of the relevance of the concept for today's society.

The single chapter in the concluding Part V by Gustavsen, Ennals and Nyhan is a reflection on what can be learnt from the innovation processes presented in the 12 cases. This chapter is not written from the perspective of deducing general principles based on an analysis of the different experiences, but rather on what people can learn from one another's experiences and apply in their own unique situations.

The structure of this book differs from other books in that the theoretical Chapters 15 and 16 discussing concepts, follow rather than precede the practical cases. It is therefore useful to present briefly the logic followed in the design of this project which has shaped the structure of the book.

Design of the project

This project which set out to improve our understanding of the notion of the learning region could have proceeded in different ways. The most conventional way would be to start with defining the two key concepts: what do we mean by learning and what do we mean by region? However, as soon as one embarks on such a process of definition some problems emerge. The growing interest in regions is linked to the point that 'the region' is in certain respects becoming a core area for innovation which means that general approaches are subject to limitations: what works in one place does not

([1]) This is also briefly discussed below in this introductory chapter.

necessarily work in another. Linking innovation to the notion of region opens up local differences that exert a decisive influence on how we set about creating innovation. If this is the case we need to consider that among the various circumstances that differentiate regions we find the notion of 'region' itself. Obviously, there are some general elements in the notion of region (see discussion in Chapter 1 by Nyhan). As a point of departure we speak about a geographical area of a certain size, or scope. 'The region' is generally thought to be more than, say a municipality, but less than a nation state. Even on this simple level some major differences enter the picture: there is a radical difference between the local and the national in a small nation state such as, for instance, Lithuania, compared to a large one such as Germany where, for instance, Nordrhein-Westphalia, with close to 20 million people, can be seen as a region.

Consequently, we started this project not with efforts at definition but rather inviting researchers to report on projects that call themselves regional. All projects may not correspond to a specific notion of regional, but do correspond to a regional notion in the broad sense and this is the core point. Regions are less the products of defining exercises but rather the results of different local circumstances on a practical level, addressing what needs to be done to become innovative.

This anthology contains reports from several European projects where the point of departure is the practical activities going on: what is done for what purpose and with what results? The link between the different streams of activities and a broader perspective is made by means of comparison. It is by looking at one case in the light of other cases that we can learn what the learning mechanism is.

Learning by generalisation is rejected as uninteresting when processes characterised by differences are the point of departure. Instead, it is necessary to learn from differences. To learn from differences between processes where there are several practices, however, is no simple task in itself and is hardly a task that can be fully dealt with within the framework of one modest project. Ideally speaking, a process of learning from practically grounded differences should involve the actors concerned and imply a direct dialogue between these actors across regional boundaries. This for obvious reasons is not a practical possibility. Therefore, mutual learning must in some way or other be based on more limited channels.

One such channel is engaging researchers who are directly involved in a particular region's practical activities, especially those involved in organising regional learning processes. These researchers are actively involved in the

practice unfolding within a region but also play the role of reporter, interpreter and analyst. Through being anchored in these types of activities, research can move between the theoretical and the practical in the sense that research not only provides inputs into a cross-regional discourse but can also take impulses from this discourse and brings them back to a researcher's own region. Through the link with the practical processes, research can feed these impulses into the stream of practice.

A system for learning between regions can, from this perspective, consist of several regional processes, where researchers are linked to these processes while at the same time constituting their own research community for comparing and exchanging experiences. If such a system exists for a period of time it can function as an online generator of impulses in the sense that each impulse feeds into a regional process which can be monitored over time to see if it works well. If several regions are linked in this way, flows of boundary-crossing impulses can take place, providing each region with a rich flow of ideas.

The idea for such a process at European level was, as far as we know, first launched by Ennals and Gustavsen (1999). It was not easy to implement this project design and the idea of building cross-European development coalitions in this way stagnated for some years. This present project made it possible to bring it alive again and take it some steps further. Several cases are presented, all representing efforts at creating innovation but all very different. Taken together they represent a reasonable sample of what innovation looks like if it is to take place across a broad front and is not limited to, say, technological development in a handful of international giant corporations. Instead, to mention a few examples, this book addresses: efforts at creating innovation in small and medium-sized enterprises; efforts at making employment and training agencies work together; efforts at integrating ethnic minorities in a suburban environment; and an effort to turn a small former east bloc economy into a dynamic region. Unless we can learn across such broad samples of different situations we will be unable to utilise the main advantage of Europe with its internal differences, not only between nation states but perhaps even more so between regions. While a uniform notion of a region and associated innovation policy is bound to fail developing the ability to learn from differences and to work together across several boundaries will open the road to a far more innovative Europe.

Acknowledgement

Many different EU and national funding bodies throughout Europe support the basic research and development work on which the cases in this book are based. These are acknowledged in the different chapters. However, the editors would like to acknowledge two Swedish institutions which have prepared the ground for developing key concepts on which this anthology is based. These are: Vinnova (The Swedish State Agency for the Promotion of Innovation Systems) which supported a comparative project on regional development in Scandinavia; and the Swedish National Institute for Working Life which provided support for editorial work on the Scandinavian contributions to this anthology.

PART I

Addressing the issue of local innovation

CHAPTER 1

Building learning regions for innovation in Europe: a challenge for education and training

Barry Nyhan

1.1. Introduction

This chapter addresses the question of why education and training (E&T) agencies ([1]) should be interested in promoting 'learning for local innovation along learning region' lines. Following this introductory section, section two outlines the circumstances that prompted education and training policy-makers and actors to become partners with other actors in promoting local innovation. Section three examines in broad terms what is meant by the 'learning region' concept.

Section four goes on to outline ways in which education and training authorities began to engage with this concept in projects and policy-making arenas. An analysis of trends shows various understandings and practices, but all of them using the learning region heading. In looking at the tensions faced by E&T agencies in 'action-oriented' learning region projects in section five, the reader will understand why the word 'challenge' is in the title of this chapter. But, before proceeding to the main subject matter of the chapter, something needs to be said about how the project which this book is reporting on came into being.

Cedefop, the European Centre for the Development of Vocational Training ([2]), is charged with promoting new ideas to improve links between the education and training sector and economic, social and employment actors. Building on earlier work on the learning region theme (Nyhan et al.,

([1]) The term E&T agencies refers to all education and training bodies including universities and research activities within these bodies.

([2]) http://www.cedefop.europa.eu/

2000; Fries Guggenheim, 2003; Nyhan, 2003), Cedefop issued a call for tender for a research agency to collaborate with Cedefop in animating a small European research network to produce an anthology on 'learning together for local innovation: promotion of learning regions'. The Work Research Institute (WRI), Oslo, put forward an apposite and interesting proposal on how to shape this project from content and methodological perspectives. The focus in the proposal was on sourcing and examining emerging incremental projects based on the principle of 'action-based' learning.

A central feature of the WRI proposal was the focus placed on emerging 'average' and indeed problematic cases as distinct from 'best practice' or 'star' cases. The argument for this was that in the 'best practice' approach, the uniqueness of historical, industrial and social features often tend to be overlooked, so giving rise to misleading generalised and prescriptive guidelines for actors in other situations. It was argued that to achieve sustainable innovation, actors must engage in their own unique development journey. The alternative to learning from 'best practice' is one based on different regions/localities learning from one another in mutual learning contexts: resulting not in replicating 'best practice' cases but rather in creating 'hybrids' in which people construct their own reality through bringing together elements of their own thinking with borrowed elements from other peoples' thinking. In Chapter 2 Bjørn Gustavsen and Richard Ennals take up the above project design and methodology in more detail. We move here on to discuss the relevance of learning regions for education and training.

1.2. The learning region: a collaborative approach to regional innovation

One of the earliest references to the concept of the learning region in education and training (E&T) probably occurred in 1994 during a series of European exchange seminars (supported by the EU Eurotecnet programme), focusing on the role of education in reconstructing the former east German states (*Länder*) (see Koch, 1994). These states faced a range of complex and interrelated economic and social issues that required education and training to work in close partnership with all the different economic and social actors.

The stress placed on the importance of the regional dimension of innovation put forward by various economic and social thinkers at the time

(see Brusco, 1986; Lundvall and Johansson, 1994; Putnam, 1993a, 1993b; Lundvall, 1992; also see later works by Florida, 1995; Asheim, 1996; Lundvall and Borrás, 1997) was encapsulated in the concept of 'learning region'. The 'learning region' concept was a way to envisage how all actors sharing the same local context learn to cooperate with one another in addressing economic and social innovation. It entailed establishing locally-driven bottom-up networks involving public and private economic employment actors, R&D centres, social partners, universities and other educational and training institutes. In other words, the local community learns together in an integrated way with all parts of the socioeconomic 'system' moving forward together. Thus, the interfaces between the different parts of the system are critical focal points as channels for dialogue and cooperation enabling people to learn together and from one another ([3]).

During the abovementioned exchange seminars in the former east German states, education and training actors were challenged to take on a key role in mediating dialogue between actors across boundaries. Of course at that time the education and training system in east Germany was still attempting to move away from a bureaucratic approach to knowledge development and teaching and learning, so the learning region concept was an enormous challenge to them. However, it was recognised that education and training institutes had advantages in moderating learning region networks, in that they could draw on research and training resources to promote economic and social reform activities. They could also claim a legitimate public role to engage with all actors in society.

While the *Länder* of the former east Germany form a unique case, all countries and regions in Europe have had to restructure over the past 15 to 20 years as they moved from a more stable economy and labour market to one based on world-wide competition calling for continuous innovation. In this regard, the regional or local focus was seen by different commentators which have just been mentioned above, to provide an appropriate context in which to devise innovative ideas and put them into practice. Ennals and Gustavsen (1999) argue that regional networks, based on 'development coalitions' open up possibilities for the widespread adoption of innovative forms of work organisation. (Also see a later work by Fricke and Totterdill, 2004.)

([3]) For an account of initiatives in line with the learning region concept in the former east Germany see OECD, 1999; Kidder and Attwell, 2000.

1.2.1. Innovation as a community-based 'collective learning' process

Many people see 'innovation' and 'learning' as separate spheres of human activity. Learning is seen to be the transmission of knowledge based on, and following on from, an innovation breakthrough. However, Brown and Duguid (1991) disagree, contending that 'working', 'learning' and 'innovating' are just different dimensions of the same reality. Innovation is fostered through people with different specialisms learning together. All life and work problems have multifaceted and related aspects that can only be addressed by collective work and learning: practitioners working together with, for example, technological specialists and researchers. Innovation is a complex multifaceted socio-technical process that is fostered by interactive learning. (See Chapter 15 by Cooke and Chapter 16 by Asheim who take up different points of view in discussing the strengths and weaknesses of the learning region concept in promoting innovation.) Innovative regions are identified as those having the capacity to set up collaborative learning networks – webs of interactions – on how to improve their practice. An education and training agency can act as 'the spider' in a learning-network web (see Deitmer and Attwell, 2000).

1.3. What is meant by a 'learning region'

The concept of the 'learning region' has been briefly outlined, but now it needs to be fleshed out somewhat more. In this section the meaning of the term 'learning' in the learning region concept and the meaning of the term 'region' are discussed. The benefits resulting from a learning region, which can be termed 'social capital', are also discussed.

What precisely is meant by the learning region? It is a rather elusive term with many different meanings. As we shall see in Section 1.4 of this chapter there are many different types of initiatives, understanding and definitions of learning regions (see also Gustavsen and Ennals in Chapter 2).

1.3.1. The meaning of the term 'learning' in the learning region

First, what is meant by 'learning' which is a rather ambiguous word when applied to a region? Learning is associated with schooling and formal education and training. In contrast, the term 'learning region' has been coined not by educational theorists dealing with formal education but economic geographers, social economists and learning theorists from an ethnographic background. So learning in the learning region sense is mainly

about what is often called 'informal learning': the kind of learning that people engage in as part of their everyday life. Humans are 'learning beings'; learning is a way of being human. In fact 'informal learning' is 'natural learning' and calling it informal learning tends to give it a kind of second class status. Etienne Wenger (1998) writes about this kind of learning:

> 'Being alive as human beings means that we are constantly engaged in the pursuit of enterprises of all kinds, from ensuring our physical survival to seeking our most lofty pleasures. As we define these enterprises and engage in their pursuits together, we interact with each other and with the world, and we tune our relations with each other and with the world accordingly. In other words we learn'. (This text is quoted in Stamps, 2000, p. 58.)

In fact, most learning is of this kind (see Cedefop's publication entitled Lifelong learning: citizens' views, 2003). According to this (see Figure 1) people consider that they mostly learn in informal everyday settings such as: 'getting together with other people'; 'learning through leisure activities'; and 'working/learning on the job'. A later survey (Chisholm et al., 2004) confirms this in showing that informal learning plays a major role in people's lives (see Figure 2). Informal learning is more significant for our lives than formal learning because it directly shapes our practice. It has a direct impact on how we act. However, being informal learning does not mean it is easy. Much of it is difficult and even painful.

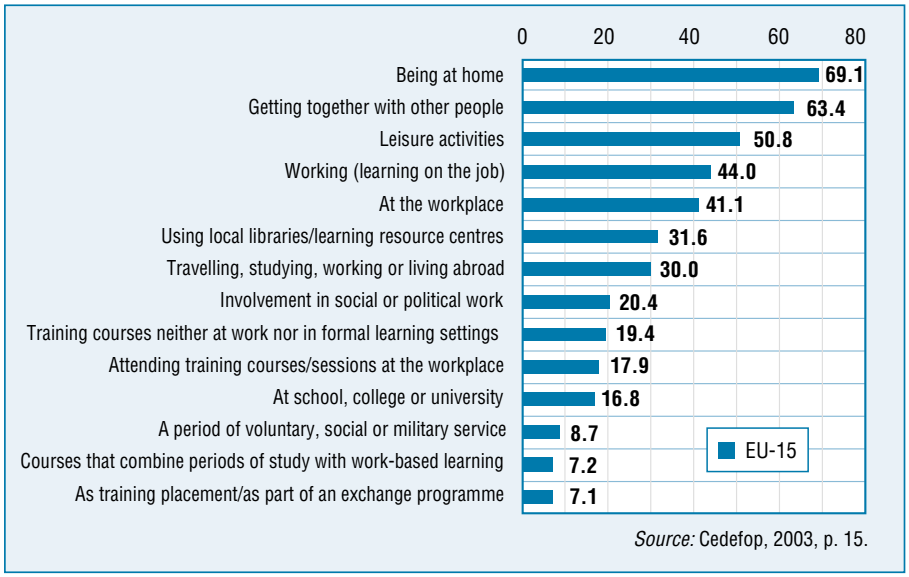
This kind of learning is not something we pursue on our own, but we mostly learn together with and from other people, engaging in common activities. This learning can therefore be called 'social' or 'collective' learning.

Wenger goes on to say that 'over time this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise. It makes sense therefore to call these kinds of communities "communities of practice"' (quoted in Stamps, 2000, p. 58).

Most learning occurs through participating in and contributing to the life of a community. As it comes about through social interactions it cannot be seen as just the property of individuals; it is shared. It is greater than the sum total of the learning of all individuals; it is collective. This is the meaning of the word 'learning' in the term 'learning region'.

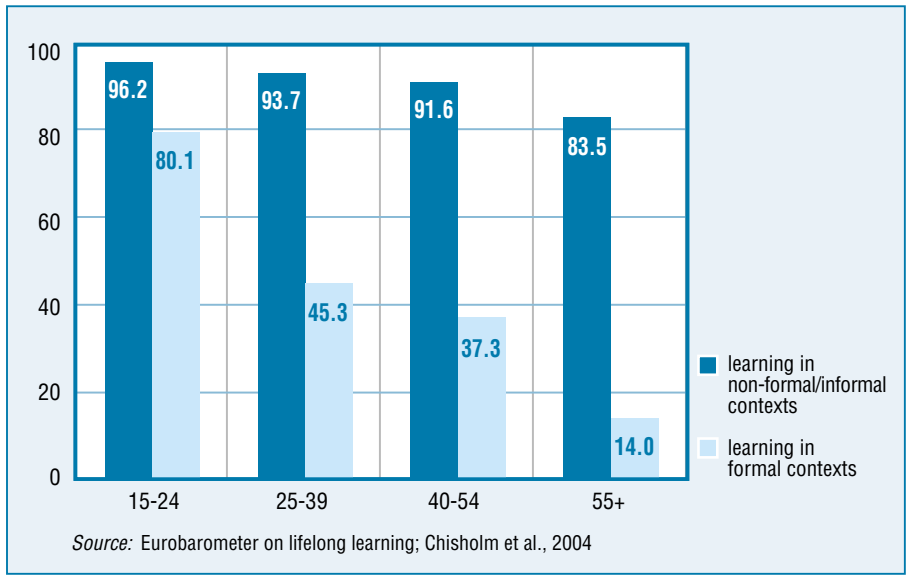
Informal learning therefore is the 'normal' or 'natural' way that people learn. Formal learning in education institutions is a minority form of learning,

Figure 1. **The contexts in which respondents think they have learned something in the past 12 months, EU-15, %**



Source: Cedefop, 2003, p. 15.

Figure 2. **Proportion of respondents having learned something in the preceding year, by learning context and age groups (2002)**



Source: Eurobarometer on lifelong learning; Chisholm et al., 2004

in particular for the vast majority of the population who are not in formal education. But of course, formal education is a basis for 'natural' every day learning and there is much abstract and theoretical knowledge that can only be learnt in formal educational settings. However, its main purpose is to give people a foundation for a lifetime of 'natural learning'. One of the most important things that the formal educational and training system can give people is the competence to learn (Nyhan, 1991). It is important to understand the distinctive strengths of formal learning and 'natural' (informal) learning. In formal learning the focus is on the individual. Individuals are taught and tested for their individual knowledge and skills. The objective is to build up individual 'human capital'. In contrast the learning that takes place in the learning region is collective learning giving rise to 'social capital' (see Section 1.3.3). Each person owns a part of the knowledge learnt in the learning region. So it is the community that owns the learning.

Another difference between formal and 'natural' learning is that much formal learning is abstract and theoretical whereas learning in the 'learning region' is practical and action-oriented aimed at achieving a common goal or common good. It is action-based learning (see Engeström [1987] on 'activity (learning) theory' and Revans [1980] on 'action learning). The experiences of companies that have introduced new management and learning approaches along 'learning organisation' lines, throw light on how learning in the learning region takes place (Senge, 1990 and Morgan, G., 1997; see also Nyhan et al., 2003). This means adopting flatter organisational structures with autonomous work groups. Learning is embedded in this process, taking place in the problem-solving environment of the workplace. To assist this process the HRD or training department plays a catalyst role rather than a direct-training one, assisting different employees to pool their experiences to generate new knowledge in 'knowledge creating companies' (see Nonaka and Takeuchi, 1995).

Much 'natural' learning may not be 'good learning': indeed it can be 'bad learning' acquiring 'bad habits'. This is why there is a need for training and development moderators to enable people reflect on what and how they are learning. The learning region concept, similar to the learning organisation concept, is about moderating the energy of every-day natural learning and transform 'bad learning' habits into 'good learning' ones.

1.3.2. The meaning of the term 'region' in the learning region – the importance of community, locality and place

It is now time to reflect on the meaning of the word 'region' in the learning region. Social and economic geographers have brought the local, contextual and culturally embedded community dimension of knowledge to our attention, in contrast to other specialists who focus on knowledge as something abstract, theoretical and context-free (see Chapter 14 by Asheim).

Despite the emphasis on globalisation and the prediction of the 'demise of place and distance', due to advances in information and communication technology, the locality is continuing to assert itself as a focal point for economic and social life ([4]). EU policy to promote economic and social cohesion based on a regional approach has been very successful (Nyhan, 2000). Due to their smaller scale, regions can better coordinate their planning efforts and be more flexible than larger national entities in coming up with solutions to address everyday problems. The possibility of close personal contacts along with the feeling of a communal identity and a shared history can generate commitment to work hard at local level, building 'social capital' (see Section 1.3.3), which is not always the case at national level.

The word 'region' in the 'learning region' sense, therefore, is to be interpreted in a broad way to refer to a geographical area or locality whose inhabitants share common objectives or problems. This does not have to be a statutory regional entity, nor does it necessarily have regulated or defined 'political' boundaries (see Chapter 3 by Stahl who describes a cross state [*Länder*] cooperation project in Germany; and also see Chapter 10 by Augustinaitis who portrays the nation state of Lithuania as having the features of a learning region). The distinguishing feature of a learning region is not its statutory or non-statutory regional status, but rather the existence of a 'networking' and 'horizontal' form of cooperation among people in the same territorial area who have a common interest in working together for a common goal or common good.

The strengths of localities are as follows:

(a) people have shared common interests and history;
(b) small geographical size leading to proximity of actors to one another;
(c) infrastructure for cooperation and a context for learning from one another.

([4]) Porter (1990) pointed out the distinctive value of local factors: in particular the clustering of enterprises in the same sector in a particular region.

In many cases 'learning regions' may refer to small-scale communities, localities, towns or villages involved in collaborative learning activities, even across states or countries. The important feature is the collective efforts producing an outcome in the interest of all those living in close proximity to one another.

1.3.2.1. *Each learning region is unique*

For the above reasons all learning regions are unique, based on their own particular characteristics, history, strengths and weaknesses. So for example, the difference between a north of Italy learning region (e.g. 'industrial districts' of Emilia-Romagna see Chapter 13 by Bardi), and the region of Gnosjö in Sweden (see Chapter 7 by Eriksson) both based on local historical traditions, work ethic and shared values, are different from other Nordic learning regions based on regional innovation steered by public and private policy (see Chapter 8 by Johnstad and Chapter 4 by Haga on Norwegian experiences.)

However, one should not exaggerate the advantages of regions in promoting economic and social advancement. Regions and localities often can be inward looking and resistant to change. Power within regions can also be held by cliques who manipulate affairs for their own purposes and resist necessary national-level reforms. Also, some economically well-off regions can be isolationalist, thinking only of their own self-interest and not taking responsibility for broader national social and economic issues, nor engage with those outside their own boundaries.

1.3.3. **Benefits of the learning region: 'social capital'**

Even though the theory of 'social capital' had been around for a long time, Robert Putnam's study of the regions of northern Italy (1993a, 1993b) made the concept known to a much wider audience ([5]). He made a direct link between the quality of the relations between people in a particular locality and their everyday economic and social life, their 'civic life' as he termed it, and the performance of their political institutions and economy. He argued that political institutions perform better when civic life is characterised by: 'civic community'; a strong associational life; civic engagement; political equality; solidarity, trust and tolerance. Communities with these features possess 'social capital'. According to Cooke (2000) and Wolfe (2001) creating social capital is one of the benefits of the learning region as outlined above (see also OECD, 2001c).

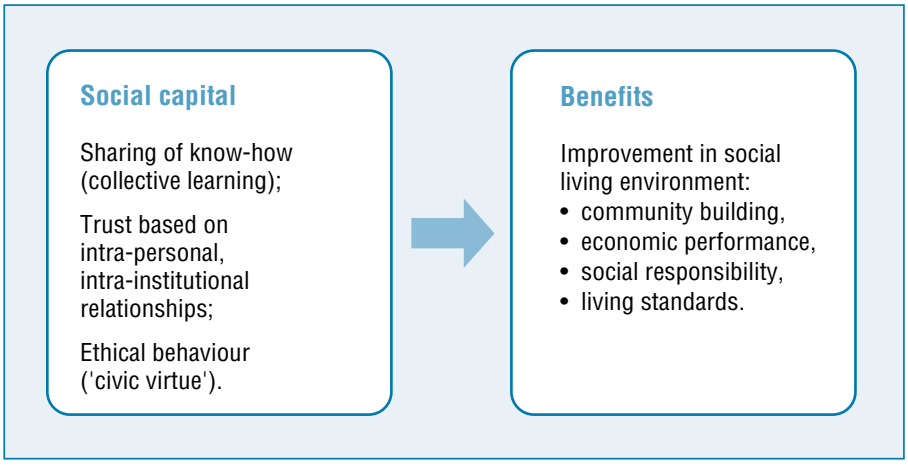
([5]) See also Coleman, 1998 and 1990.

Putnam (2000) expanded on the idea of social capital in a later best selling book in which he argued that with the rise of individualism, social capital is declining in the US ([6]). His description of social capital is as follows:

> 'Whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them. In that sense social capital is closely related to what some have called "civic virtue". The difference is that "social capital" calls attention to the fact that civic virtue is most powerful when embedded in a sense network of reciprocal social relations. A society of many virtuous but isolated individuals is not necessarily rich in social capital' (Putnam, 2000, p. 19).

According to Lesser and Prusak (2000, p. 124) social capital refers to the social resources that individuals within a community create through their webs of social relations and then draw on as a common resource to improve their community's way of life with regard to its social living environment, economic performance and living standards. Building social capital is based on intangible and informal relationships and tacit understandings that cannot be measured in terms of classical quantitative criteria (see also Docherty et al., 2002).

Figure 3. **Benefits of social capital**



([6]) This book gave rise to separate discussions with political leaders such as: US President Bill Clinton, British Prime Minister Tony Blair and the Irish Taoiseach (Prime Minister) Bertie Ahern.

According to Fukyama (1995, p. 26) 'social capital is the capability that arises from the prevalence of trust in society. It differs from other forms of human capital in so far as it is usually created and transmitted through cultural mechanisms like religion, tradition or historical ties'. De la Fuente and Ciccone (2002) define social capital as 'the norms and social relations embedded in the social structure of a group of people that enables the group or individuals participating in it to achieve desired goals.

Social capital is dependent on 'mutual giving and receiving relationships' and cannot be generated on the basis of pure market relationships (MacIntyre, 1999). This requires 'ethical communities of practice' (see Nyhan, 2006).

1.4. E&T and the learning region concept

This section discusses the take up by E&T actors of the ideas outlined above. First, the economic and employment crises of the 1980s and early 1990s forced the education world to examine radically its policies due to the fact that the classical linear supply and demand for learning/knowledge was not operating smoothly.

Education traditionally has two objectives: teaching 'existing' knowledge and researching 'new' knowledge. For the most part in teaching, this means transmitting formal (abstract/theoretical) knowledge. For research, the focus is mainly on developing new theoretical and scientific knowledge, at a remove from society, which is then passed on to 'users' as 'applied knowledge'. Both of these teaching and research approaches are based on a linear, top-down view of knowledge development and innovation.

Around the beginning of the 1990s, many E&T policy-makers and actors saw they must change this linear approach and begin to interact more with economic and social actors if they were to contribute successfully to innovation in society. European Union policies and programmes stressed the concept of partnerships and in particular social partnerships as key to the future: an interactive approach, engaging with all stakeholders in society. Regional approaches along learning region lines were seen as an appropriate way to promote innovation on the ground.

A second factor contributing to the interest of E&T in the learning concept around the same time was the development of, or perhaps more accurately the 'rediscovery' that, learning is fundamentally a social interactive process that takes place in activity systems (Engeström, 1987; see also Virkkunen,

Engeström et al., 1997). This was also related to new thinking about the relationship between research and competence development that was coming on stream. The desire to come up with a more relevant contribution to innovation gave rise to building links between universities and the external community (see Chapter 10 by Augustinaitis on recent innovation initiatives taken in Lithuania). Involving universities in local or community economic and social affairs was referred to as the 'third role of universities' (see Chapter 12 by Hofmaier) complementing their traditional roles of teaching and research. Many universities began to carry out this function through research and development partnerships with local industry, consultancy to SME networks (see Chapter 14 by Totterdill and Chapter 12 by Hofmaier) or through participating in setting up science and technology or business parks often in close proximity to the university campus. Many countries established regional colleges/institutes more closely related to local business and industrial concerns. In parallel with the above developments there was new thinking on the nature of knowledge development. Gibbons et al. (1994) demonstrate that knowledge has multiple sources (see also Nyhan, 2002).

The work of the OECD around the turn of the century also stimulated development of the learning region concept. One only needs to glance at the titles of OECD publications, such as: *Regional competitiveness and skills* (1997); *Economic and cultural transitions towards the learning city – the case of Jena* (1999); *Cities and regions in the new learning economy* (2001a); *Learning how to innovate – knowledge regions* (2001b); *Learning how to innovate – the role of social capital* (2001c) to appreciate the level of interest in the learning region concept ([7]).

1.4.1. EU structural fund programmes

The EU structural fund programmes (Regional and Social Funds) during the 1990s gave a major impetus to regional development programmes in which E&T activities played a key role. In all these programmes there was emphasis on multipartnerships. The notion of local cooperation as a strategy for competitiveness, employment and social cohesion was outlined in many European Commission documents. For example, local partnerships and

([7]) An earlier OECD report (1996a), prepared by Dr Charles Sabel of the Columbia Law School, dealt with a very successful local partnership approach devised by the Irish government in the early 1990s to respond to the needs of socially marginalised groups. The approach adopted, which in the report is termed 'democratic experimentalism', gave the 'socially marginalised' community much control over the design and management of their projects. E&T made a significant contribution to these projects.

networks were put forward as having a key role in forming 'territorial employment pacts'. Many reviews showed that local partnerships contributed to economic and social cohesion, to greater efficiency in using funds and reducing the democratic deficit.

Through establishing 'public-private partnerships', local development strategies were seen to mobilise new actors and provide new financial resources for development projects. These entitled bottom-up initiatives involving all the economic, social and cultural actors; enterprises, trade unions and 'civil society' associations. Local development was also seen as a way to promote greater efficiency in using public finances through transparent and efficient self-management.

1.4.2. Lifelong learning (LLL) at EU level

The EU 'Year of lifelong learning' in 1996 stimulated a wider view of education in line with regional development including the EU-US exchange project and conference in Akron, Ohio in 1998 (see Nyhan et al., 2000). Later on the lifelong learning (LLL) memorandum (EC, 2000) and LLL communication (EC, 2001) stressed the importance of linking E&T policies with regional development policies. The memorandum on lifelong learning (EC, 2000, p.19-20) stressed the need to 'use lifelong learning as a driver for local and regional regeneration' and to build 'mutually beneficial learning partnerships between education and training providers, youth clubs and associations, enterprises and R&D centres'. There was a commitment in the LLL communication (EC, 2001) to establish an LLL action dealing with learning regions which became known as the R3Ls project (2003-04) (regional dimension of LLL).

1.4.3. Various E&T sponsored 'learning region' projects

Following on from EU and Member State E&T policy initiatives, several programmes and projects were implemented under the broad heading of the learning region. The R3L programme, also known as the *European networks of learning region* programme, sponsored 17 European projects between 2002 and 2004 ([8]).

Many other projects supported by the EC Leonardo da Vinci programme addressed regional training and employment issues. The EQUAL initiative of

([8]) The Grundvig initiative of the EC Directorate General for Education and Culture (DG EAC) supported this programme.

EC Directorate General Employment, Social Affairs and Equal Opportunities also supported many regional development and learning projects (for example see Chapter 3 by Stahl, Chapter 5 by Filgueiras-Rauch and Chapter 6 by Stamboulis and Psycharis). This Cedefop project had an interesting exchange of views with participants in an EC local employment project known as the IDELE project ([9]) when both projects happened to have separate network meetings in Thessaloniki on the same dates in April 2005. Many initiatives were also supported by Member States. The German programme entitled *Learning regions: providing support for networks,* which ran between 2001 and 2004, deserves special mention ([10]).

However, an analysis ([11]) of these and other E&T sponsored projects using the term 'learning region' revealed different realities. Although this analysis was not rigorous it did give some impressions about how E&T actors interpret and use the learning region concept. The typology presented below suggests four types of 'learning regions' (see Figures 4 and 5 which depict them by means of narrative text and symbols).

Type A is about cooperation between education and training (E&T) bodies in a regional context, for example establishing regional learning or educational and career guidance centres. Type B is concerned with cooperation between E&T and enterprises or other public bodies to deliver training on a regional/local basis. Both types follow a traditional linear and more formal approach to learning.

On the other hand, type C follows a more open approach to learning in that E&T bodies define a new role serving the community. This is a developmental approach and could entail, for example, adult education, community education, consultancy and research (the latter typically carried out in a special department of a university). Type D supports mutual interactive learning in which E&T bodies join with other bodies, for example economic and social actors and other (SMEs, etc.) bodies in addressing innovation at local level. This is the integrated action-oriented view of regional learning discussed in Section 1.3 of this chapter.

([9]) IDELE project (Identification, dissemination and exchange of good practice in local employment) brought together several projects across Europe in 2005-06 focusing on local approaches to lifelong learning for employment.

([10]) A major conference and exhibition presenting the results of this programme and the EC R3L programme took place in Berlin on 8 and 9 November, 2004.

([11]) The author wishes to thank Nadja Macek for her assistance in undertaking this analysis.

Figure 4. **Typology of learning region projects (1)**

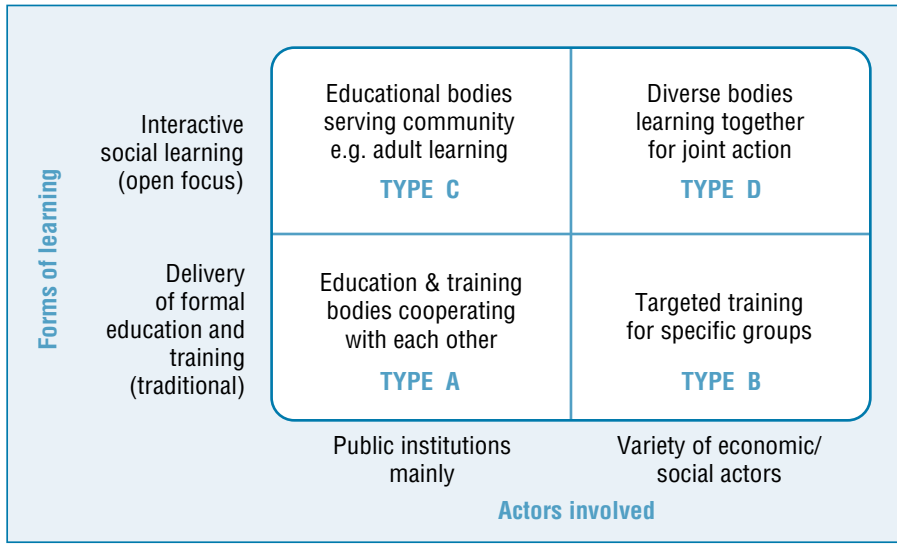
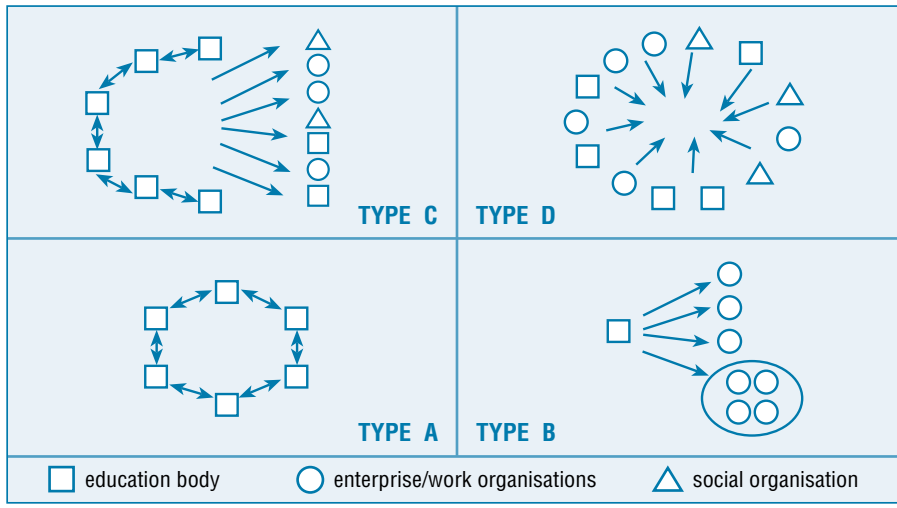


Figure 5. **Typology of learning region projects (2)**



Most E&T projects using the term 'learning regions' that were looked at fitted under types B and C. They were attempting to break out of their traditional ways of acting to meet the needs of their localities through devising innovative solutions to address the following:

(a) set up competence councils and centres;
(b) improve quality of working life;
(c) improve ICT competences;
(d) address needs of older people;
(e) carry out adult education;
(f) promote cultural activities;
(g) assist disadvantaged people;
(h) promote e-learning and digital knowledge management;
(i) promote exchange of knowledge across the EU.

In general there were not many E&T bodies that came to grips with the issue of joining partnerships along Type D lines. Those successfully engaging with a multiplicity of partners along Type D lines seemed to be battling against the mainstream.

1.5. Tensions faced by E&T learning region initiatives

Building learning regions along type D lines means engaging with learning that is collective and situational for which a training template cannot be laid down in advance in the shape of a formal curriculum. It is understandable, therefore, that E&T actors are faced with the tension of moving from a formal learning environment to an informal one. This in fact is part and parcel of an innovative institutional change and learning process. Engeström (2001) stated that learning is about facing up to the conflicts and tensions in one's activity system to resolve them rather than progressing along a smooth developmental learning trajectory. The tensions experienced by the projects, subjected to the above typology analysis, are similar to those experienced by those cases in this book which were situated in classical formal education and training settings. Two of these tensions are identified here for discussion. The first is the tension between 'formal' and 'informal action-oriented' learning approaches. The second is between 'top-down' and 'bottom-up' thinking about management processes from the policy-makers and funding bodies perspective.

1.5.1. **Creating frameworks for informal action-oriented learning**

The first tension is that between formal and more action-orientated (situational) approaches to project management, the latter entailing informal learning. Regions are made up of actors formally designated by regional authorities to undertake certain roles (e.g. education and training) and those

who 'voluntarily' join with others, including private enterprises, to address a regional issue. Innovation requires participation of both these types of actors. Hofmaier (Chapter 12) refers to the problem of finding agreement between those who think in terms of their formal authorised role and those (e.g. enterprises, social partners, researchers) who want to engage in experimental actions, perhaps stretching or even breaking the rules laid down by bureaucracy. How can these two groups build a workable coalition? The ethos of a region will determine the possibility of this type of coalition emerging. Hofmaier seems to paint a constant battle to maintain momentum. Is this normal? This tension is also related to where the different groups get their legitimacy to determine the shape of a project.

In the interplay between the formal and informal actors in society the role played by the passing of a formal regional law in Emilia-Romagna is quite striking (see Bardi in Chapter 13). Is this law designed to support companies and universities to cooperate along lines they want to go or is it intended to push them in a certain direction? This way of promoting innovation seems to be typical of Latin countries such as Italy but would not appear to work in other countries.

Generating the capacity of education and training actors to create frameworks for action-oriented (informal) learning is key if they are to engage in local innovation. In taking up the relationship between informal knowledge sharing (horizontal learning) activities and more formal learning activities, Stahl in Chapter 3 points out the problems related to the open sharing of experiences. This is the crucial issue facing moderators of learning regions and a real challenge facing education and training. Despite educational policy declarations about the importance of contributing to social and economic goals, the indicators used by educational policy-makers are still individualistic 'human capital' ones, leading to neglect of collective 'social capital' indicators. Education therefore has difficulty in justifying its role in collective exercises with other bodies when this cannot be justified in accordance with classical formal educational criteria.

1.5.2. Top-down versus bottom-up approaches

The second tension is most clearly articulated by Totterdill in Chapter 14 where he contrasts a 'technical rational' approach to managing regional development with a 'discursive' approach followed in the case he describes. The 'technical rational' approach is based on setting measurable performance targets/objectives in advance which can be evaluated in a technical 'scientific' way at the end of the project by external evaluators. The

'discursive' approach on the other hand is based on setting broad objectives at the beginning of the project through a collaborative consensus-building process with stakeholders, and then teasing out how these objectives can be implemented iteratively through joint learning processes during the project.

The first approach – the 'technical rational' one – is favoured by policy-makers on the grounds of offering greater transparency and accountability and thus has become the standard way for policy-makers to control projects in different countries. Even though there is a clear contradictory tension between these two approaches, many actors building learning regions have to somehow juggle with both these approaches, making a kind of strange hybrid.

Of course this is not just about managing and controlling regional development and the processes to be used: it is also about managing and controlling money. Actors on the ground in local projects will submit to the accountability reporting and control regime laid down because that is the only way they will get funding. But, is this 'hybrid' sustainable in the long run, as exemplified by the demise of the project in the East Midlands of the UK and also the cracks that appeared in the 'Rhine-Neckar- Triangle' German project described by Stahl in Chapter 3 which had to handle similar sorts of tensions ([12])?

What appears to be happening in many countries therefore is a kind of contradictory 'centralised and controlled regionalisation process'. This allows government civil servants to get a grip on experimental innovation projects that otherwise would have been seen as non-transparent if they were managed in accordance with a 'discursive management' approach ([13]).

Is there a way to build sustainable 'hybrids' through managing the tension between these two approaches? The Nordic cases appear to show us the

([12]) From a funding perspective this is where enlightened EU policies on regionalisation can come into play. As shown in the cases of Stamboulis and Psycharis (Chapter 6) and Stahl (Chapter 3) the EU can support employment and social innovations without national governments incurring too great a risk in venturing into the unknown. Governments do not want to risk losing public money in experimental ventures.

([13]) In his positive analysis of the 'Community employment scheme' in Ireland (from the mid-1990s until 2004) based on local partnerships for employment and funded by public money, Boyle (2005) comments on the way in which 'bottom-up' community activists came up with a successful ad-hoc way of working with 'top-down' policy and funding controlling public servants. He states that:

> 'The "Community employment scheme" galvanised a cohort of community activists which, through operating outside the framework of the political parties, was able to exploit the responsive, clientelistic nature of Irish local and national policies to secure the resources necessary to develop a sustained response to mass unemployment, and other social problems' (Boyle, 2005, p. 67).

However, he goes on to state that a reliance on this type of solution may have inhibited efforts at more fundamental reform of Irish social policy.

way in many respects, in particular when we look at Chapter 4 by Haga and Chapter 8 by Johnstad. Project actors and national policy-makers are talking a common language about innovation and learning. In contrast with other countries, Nordic policy-makers seem to be able to deal with discursive ways of managing innovation projects, so are happy to approve funding for such projects.

1.6. Concluding comments

Learning regions are about building innovative, competitive and socially cohesive local communities. They are based on cooperation, networking and partnerships involving all actors, social and economic. The key to launching and maintaining these processes is continuous collaborative learning to achieve practical community goals.

While the learning region concept is not derived from the world of education or educational theory, it demands the participation of education in the form of learning and research. Extra-curriculum learning, adult learning, continuing vocational training and action-research development programmes can become vehicles for cooperative problem-solving. Universities have a key role to play both as catalysts/moderators of action-oriented learning processes, undertaking supportive accompanying research and providing expert 'scientific' knowledge. The learning region activities are not meant to replace formal education and training functions but rather complement them through promoting practical learning activities to meet local needs.

The interfaces between different institutions and interest groups in a region or locality are the places where learning needs to take place: people learning with and from one another on how to work together. Innovation can only take place if there are forward looking institutions to take the lead in facilitating dialogue and cooperation between the different actors. Education and training can play a role by becoming the 'spider in the innovation-learning web'.

CHAPTER 2

Designing a European project on learning for local innovation

Bjørn Gustavsen, Richard Ennals

2.1. Understanding innovation

When faced with the task of creating a project on organising innovation through exploring the 'learning region' concept, there is a need to consider not only how to organise innovation, but also how to organise the project. Behind the idea of inviting several people from different parts of Europe to contribute to an anthology, there can be many considerations. The traditional one is to ask each contributor to present a case and then see what general conclusions can be made when the cases are looked at in combination. Such general conclusions can, in turn, be converted into recommendations that are applicable throughout Europe. Since this is the most common motive for European project studies, it is important to emphasise that it does not apply here.

General reviews and conclusions presuppose that such a complex phenomenon as learning regions can be understood and presented in relatively simple maps: 'this is what a learning region looks like, and this is a map of what you have to do if you want to promote one'. But is this really possible? The problem is not only that many details disappear, but such maps tend to be static. They presuppose that the shape and form of a learning region can be caught in language, and converted into a picture that can be frozen in time. The innovation process is presented as if it is ordered and finite, whereas in reality it is open ended and on the move.

This difference becomes pronounced when we compare the perspective of an external observer with that of an inside participant. A phenomenon, appearing to an external observer, as characterised by a kind of order, may be experienced rather differently by an insider. The world appears as events and processes, not as a static order. There are many descriptions of the Battle of Waterloo. What they have in common is they were all made after the event. But what did this battle look like from the point of view of a participant?

When the first efforts to understand innovation as a social and organisational phenomenon were made, largely in the 1950s and 1960s (Burns and Stalker, 1961), the assumption was that 'technology' was on the move, and not 'organisation'. Accordingly, the best way to organise an innovation process could be identified and made subject to the single 'best theory'. This perspective can, however, no longer be fully maintained. It is clear many innovations have become possible just because the innovators have been able to relate to one another in a way that is unique. In so far as this is true, it is the ability to break with what is generally assumed to be the way, that is critical, rather than the ability to apply it. This does not mean that knowledge about an issue such as 'organisation' cannot move between actors, but its form and application is far more complex than coming up with general statements that can be deductively applied to new situations.

Assuming that impulses can travel between actors raises the following questions:

How can impulses be communicated? How do we make people in enterprises, laboratories, venture capital institutions, for example, take the impulses to heart, and act accordingly?

Problems associated with deploying decontextualised knowledge in processes of practical organisation are not unique to the issue of innovation, but the latter tends to give them a particularly sharp form. The first problem is that theory and associated phenomena, for instance presentations of 'best practice' can set standards that are unattainable. As we will see from the following examples, not all innovation processes are part of the race between, for example, the global actors in pharmaceuticals, to come up with a new medicine to counter AIDS. In fact, most innovation processes take place in other contexts, and for other purposes. In the examples that follow in this book, some cases emerge from industrial settings, but they deal with the efforts of ordinary firms to improve products and services that are less dramatic. Some processes emanate from other types of actors, dealing with other problems, such as integrating ethnic minorities in an urban environment or promoting business cooperatives organised by and for women.

It is possible to see such situations as downscaled and pedestrian versions of high profile efforts to create breakthroughs of global significance, and consequently subject to the same perspectives. Although this is possible, it may not be particularly satisfactory. When looking at the cases in the book, it is easy to see that they are not just replicas of high science innovation processes, but have characteristics of their own. Consequently, it

is more appropriate to develop perspectives and guidelines for different types of innovation situations. This means that the issue of how to create innovation is covered by more than one view.

As soon as more than one perspective exists, boundaries between them tend to become blurred. What perspective to apply to each specific situation tends to become an issue in its own right (Eagleton, 2004). In fact, if we look at the notion of innovation, this is just the case. Many views compete for attention. No view is 'automatically' applicable, and this happens only after a discussion in which generalities and theories are matched against concrete circumstances. When discussion is raised, a further issue enters the scene: where should this discussion take place and who should participate in it?

It is clear that this discussion must take place directly between the innovation actors. Where the discussion takes place elsewhere, we are back to a situation where 'outsiders' settle issues pertaining to others, who then have no choice but to apply the outcome of their decision.

2.2. 'Innovation', 'hybrids' and 'best practice'

When actors explore the potential and fruitfulness of different theories, perspectives and impulses emanating from contexts outside themselves, they seldom choose one perspective at the expense of all others. What happens in most cases is that elements from various views on innovation are mixed, to form what Latour (1998) calls 'hybrids'. Such hybrids rely on mixing ingredients from several different sources, for example: theory; the practice of other organisations; existing practices within one's own organisation and so on. Each source provides ideas and possible building blocks that are brought together in situations in which certain important characteristics are unique.

This also explains why common words so often mean different things. A term often used by innovation actors is 'cluster', indicating a form of relationship between several enterprises. When going into detail, however, it is difficult to find two such configurations that are alike. The reason is the word 'cluster' does not stand alone, but is linked to other words, in such a way that the neighbouring words determine its specific meaning in each case.

The notion of hybrid opens up a new way of looking at 'best practice'. Although clearly fruitful, the notion of 'best practice' can easily deteriorate into conventional generalities, in the form of a specification of what is best,

with a claim to universal validity. However, practices are dynamic. So far in history there has never been a best practice that has not been overtaken by an even better practice.

If we link the notion of best practice to the notion of hybrid, we get a form of interplay between innovation actors, where each actor (for example, an enterprise in a cluster or network) constructs a practice based on mixing several elements in a specific way. This hybrid is made known to other enterprises, which use it as an input to construct their own hybrids, and so on. Existing practices function as impulses to other actors, by becoming elements in new hybrids, and not just being either accepted or rejected.

The main consequence of the points made above is to shift more and more the task of understanding and organising to the innovation actors themselves. Unless they can handle the construction of hybrids, including theoretical choices, they will not be able to make fruitful use of the innovation impulses available.

2.3. Innovation as a process

The need for local actors to be in control of the 'understanding' that determines their actions, is strengthened by a further point. Innovation is generally a process, and a process has time as a core dimension. This means that not all issues and challenges appear simultaneously, but in some form of sequence. For the actors involved in the process, it is often more important to get help to deal with the most critical challenges at each and every point in time, than to get an overall map of all aspects of a fruitful innovation process. When converted into action, such a map will have to be broken down into various components, and again it is only the innovation actors that can perform this task. Even when an overall map exists in the background, it must be subject to shifting 'figure-ground' relationships between its elements, as the process unfolds.

It is possible to continue the discussion along these lines, bringing to light more and more challenges associated with how to organise processes of innovation. The purpose is not to cover all issues, but to present some key reasons why simple general maps are not sufficient in bringing about innovation. Creating and using knowledge, and other impulses useful for practical innovation actors, implies a more complex challenge than simply collecting several cases and then deducting another 'general theory of innovation'.

In fact, it is the need to have discourse between 'the actors concerned' that is one of the main driving forces behind the notion of the learning region. The actors concerned need to take a stand on several questions, and they need to draw upon a wide source of impulses ranging from theory to practical experience. Mastering this is generally beyond the capacity of an individual organisation, particularly if it is not a global giant. The need for an individual organisation is to be embedded in a context that makes available the required impulses. However, this environment cannot be an abstract, 'long distance' environment. It has to be a 'near' environment of personal relationships, providing possibilities for verbal communication and for doing things together without high transaction costs. It is in this context that the notion of 'the region' has appeared. 'The region' can combine nearness and direct communication with the 'mass', and provide the richness of impulses called for to make innovation possible. In fact, the need for environments that can combine nearness with a reasonable level of resources and differentiation is so strong that almost all kinds of innovation processes today seem to be regionally structured. Even the major global actors in areas such as pharmaceuticals and information and communication technologies (ICT) no longer try to organise innovation processes across the globe. Instead, they develop innovation systems by giving each system responsibility for a family of products and technologies that are embedded in a local environment where similar enterprises and knowledge institutions are found (see Cooke in Chapter 15).

2.4. A pragmatic notion of region

What, then, is to be understood by the concept of 'region'? There is already a vast literature and more is on the way. The problem is that, since regional processes emerge because people need to handle innovation in concrete terms, there is little point in developing abstract views on what a region may be. Rather, we need to turn to practical cases to see the sorts of environments in which they can play. From the cases in this book, three points emerge clearly.

First, the environment of the innovation processes described is, mostly, far smaller than what is generally defined as a region in administrative terms. The second point is that a region is not something that exists or does not exist. Rather, it is a question of degrees of organisation and it is often a question of definition and judgment of whether something is to be called a

region or not. The key point is that innovation processes are embedded in some kind of local environment that goes beyond an individual organisation, while at the same time different environments show different degrees of organisation. To this can be added a third point; the notion of region can be applied to different levels of organisation. While answering to the notion of region in administrative terms, an area like Nordrhein-Westphalia in Germany, with close to 20 million people, is hardly a concrete context for development. It has a population greater than most European countries. However, units on this level have relevance from a 'learning region' point of view. On the level of governance they differ from nation states in having different agendas and political processes. They can, consequently, constitute one level in a series of levels that exist under the heading of a region.

2.5. Writing about innovation

How do we deal with the problems and challenges sketched above in what is, after all, a text? In presenting the cases, the purpose is not to bring them onto a common platform. Although they are written by researchers, the researchers are strongly associated with the cases, as partners, or intellectual supporters. They are in a sense 'insiders', and perform their writing from this platform. This implies that several researchers involved in the project approach innovation from the platform of a practical situation, not a theory. A case may eventually fit a theory, but is, as a point of departure, a 'bundle of practices'.

Since it cannot be taken for granted that a case can speak to other cases through a set of simplified general principles, other ways have to be explored. Of these ways, the direct way from one case to another is of prime importance. Unlike learning mediated by general perspectives, learning that takes place directly between cases is not dependent upon one case being like the other. They may be alike or they may differ, but learning can take place anyway. In fact, among practical actors, learning from differences is probably more important than learning from similarities. In direct case-to-case contact, each case can function as a background for the other in a 'figure-ground' relationship. In fact, if there is no difference between A and B, there is not much B can learn by comparing itself with A, since A only reflects what B already is. When the issue is innovation, the notion of learning from differences becomes particularly important, since the point about being innovative is to do things differently.

On the other hand, cases must be comparable. They must have something in common, for instance the aim to organise for innovation through developing the characteristics of a learning region. Often something more is needed, but this is to a large extent an open question. Learning from differences is an open concept and there are few givens in terms of what needs to be held in common or what the differences are. If we look at the development of organisations, networks and regions over time, there is a growing shift towards an emphasis on differences. Some years ago, most actors wanted to face actors much like themselves, before they were willing to enter into a process of comparison and mutual learning. This made for a narrow range of impulses. Now there is growing recognition of the need to apply a broader outlook and open oneself to impulses even from radically different situations.

For Europe, to utilise the heritage of cultural pluralism characterising this part of the world, learning from differences will have to be a core element in learning processes (Ennals and Gustavsen, 1999). Only by being able to cross strongly defined social boundaries will Europe be able to utilise actively its potential and become a network of networks that not only answers to learning, but brings Europe sufficiently ahead in global competition regarding innovation.

2.6. The cases in this book

The cases in Part II of the book start with one from Germany (Stahl, Chapter 3). It describes an effort to improve access to the labour market for disadvantaged groups, such as people with low education and immigrants. While the more abstract reasons why employment offices, training agencies and similar bodies should work together within a regional perspective are quite obvious, what can be done to make them work together is a different matter. To achieve concrete cooperation there is a need for somebody to take the initiative. There is a need for steering committees and work groups, for process plans and concrete targets and, above all, for collective self-reflection as events unfold. Measures of this kind constitute the operational side of innovation.

The next case is from Norway (Haga, Chapter 4) where a small group of medium-sized industrial companies located around a fjord on the west coast develop cooperation. A core measure is training development facilitators to assist crossing boundaries, not only between different groups within an

individual organisation, but also between different organisations in a network. This is followed by a case where integrating ethnic minorities in a district of Lisbon is the core issue (Filgueiras-Rauch, Chapter 5). The case shows, among other things, how such a process demands new roles to mediate between different cultures.

The fourth case is from Greece and deals with an effort to promote businesses in the form of women's cooperatives (Stamboulis and Psycharis, Chapter 6). The fifth case, from Sweden (Eriksson, Chapter 7) deals with an innovation-supporting public initiative called 'industrial development centres'. Through comparing two such centres, it demonstrates how the same initiative can evolve in different directions depending on context and circumstances. This is followed by another case from Norway (Johnstad, Chapter 8), dealing with the transition of an old munitions factory into 60 companies with different core businesses. These developed a network relationship to one another instead of the hierarchical one characteristic of the earlier phase. The seventh case (McEwan and Ennals, Chapter 9) deals with regional development initiatives in the UK, in particular in the area around London. Initiatives related to work centres for mobile workers are discussed.

The next case by Augustinaitis (Chapter 10) deals with the nation state of Lithuania. The chapter illustrates the challenges confronting a former State of the hierarchically organised Soviet economy as it moved to become part of a global market economy. It demonstrates that although the goal is to become responsive to the market, the market itself cannot act as a driver of the necessary changes. Initiatives and patterns of organisation have to be combined with other impulses, which can be taken from European regionalisation processes.

In the last chapter in Part II, the topic is the evaluation of innovation processes in a project which compare innovation systems in different European countries (Deitmer, Chapter 11). The main point to note is the way comparison is done. It does not attempt to create one single theory of what a good innovation system looks like, which is then used as a yardstick against which all examples are measured. Instead, each configuration of actors is approached on its own premise. This approach further implies that the researcher conducts conversations with the actors being evaluated. They are not asked to respond to a fixed set of predefined, closed questions, but rather to a set of open questions designed to trigger self-reflection among the actors. When the data are analysed, they are fed back for further self-reflection. The actors play a role in constructing the evaluation, and

comparisons across cases highlight the characteristics of one particular case, by holding it up against other cases.

2.7. Universities

To some extent, all the cases in the book refer to the role of 'the university' ([1]), mainly equated with institutions of higher learning and research. In Part III, the 'university' is the centre of attention. The reason is not only that the university, in some form or other, appears as a partner in many different innovation processes, but that the role of the university is at the core of the knowledge economy.

While innovation used to be seen as a practical process, driven by practical concerns by practical people, the post World War II period saw science emerging as a main driver. The idea was that science, through basic research, generates knowledge that can be exploited for making commercially relevant products and services. For many, Silicon Valley became the outstanding example. The problem is that very few similar examples have emerged. While most universities in the world are involved in innovation processes, few play a role comparable to Stanford University in relation to Silicon Valley. In fact, there is political frustration in many countries over the failure of huge investments in higher education to result in innovation-generating impulses in enterprises and public institutions. If, however, we see cases presented in this book as typical of innovation processes, it is clear that relationships and communication are at the centre. If private enterprises are to use research results for innovation in products, processes and services, communication and cooperation between research and enterprises is crucial. Where cooperation between universities and other actors is less focused on developing, say, a single product, but rather assisting a broader process of evolution and change, the demand for communication and other relational qualities becomes higher. Unless active steps are taken to meet these demands, cooperation between universities and other actors will not take place, and only limited impulses will flow either way.

In the first of the three cases in Part III we follow the slow emergence of an innovation supportive role of a regional university in one of the smaller regions in Sweden (Hofmaier, Chapter 12). This role is linked not so much to a single major innovation, as to the ability of a university to be present in

([1]) Most contributions in this book are written by people associated with this kind of institution.

many areas and provide impulses across a broad range of issues. In the next case we enter perhaps the best known of all learning regions in Europe: the northern Italian region of Emilia-Romagna (Bardi, Chapter 13). This region rose to fame, not least because of its social organisation that enabled, in particular, small and medium-sized enterprises to gain access to much more resources than they would ordinarily have been able to muster. Central to this were 'industrial districts', where enterprises formed networks, partly to exchange experience and competence with one another and partly to develop joint initiatives in the form of training and competence centres. However, these mechanisms were largely built on traditions of crafts and skilled work, in combination with a 'civil society' that produced trust and cooperation between economic actors. Today, the university is more and more taking over the role of a competence supplier, while some traditional 'industrial district' linking mechanisms are withering away. It is important to note, however, that even in its newly emerging role the university has a strong regional focus entering into relationships of trust with other actors. Science without relationships has little persuasive power.

The third case by Totterdill (Chapter 14) comes from the UK. It deals with the problems and challenges when a university provides support to enterprises and other innovation actors. The university needs to undertake not only research and teaching, but also develop innovation-oriented policies through creating appropriate forms of organisation. The chapter shows that this does not always succeed, even when there are clear innovation policies. The notion of 'innovating together' is not in itself so strong that it overruns all other concerns, making it unnecessary to take specific steps to put ideas into practice. This pertains not only to a university, but to all actors.

2.8. Theoretical reviews

Part IV deals with two theoretical reviews of the 'learning region'. The first is based on a classical theoretical orientation, while the second is representative of a more open and eclectic approach based on crossing disciplinary boundaries.

The first contribution by Cooke (Chapter 15) deals mainly with perhaps the most classical issue in the modern debate on innovation: how to make advances in basic research relevant to innovation. One important point to emerge is that, even when this is at the core, the regional dimension enters the picture in full force. Even processes that emanate from 'global actors' and

seem to have a global perspective (such as those leading to developing new medicines to deal with widespread illnesses) are in fact regionally anchored. The paper also raises a critique of the notion of learning: a point that is controversial for the researchers participating in this project. There is, however, agreement on one point: learning does not in itself necessarily solve any problem. All learning must have a direction, and occur within a context. While the proponents of such notions as 'learning organisation' and 'learning region' give direction to the 'learning concept', this contribution questions the wisdom of this, and points at some pitfalls when learning is thought to be a good thing without reservation.

The second contribution in Part IV by Asheim (Chapter 16) deals with innovation from a broad perspective. The point of departure is that innovation for a long time has ceased to be an exclusive concern of basic science, 'experimentalists', small groups of managers (particularly in 'advanced' firms, and venture capitalists) and has increasingly become a more broadly based activity in society. As innovation grows to encompass more and more people in a widening range of activities, it melts into its surroundings to encompass issues like participation and broad mobilisation, work organisation, communication and trust and confidence across the boundaries between different groups of actors. To organise innovation demands an ability to operate across a wide field of issues and, in particular, to see them in the light of one another.

In the concluding Part V (Chapter 17) the editors turn to what can be learnt from the cases in the book. The point of departure is not primarily the context in which they appear, nor the overall characteristics exhibited, but the measures that have been applied. Each case is characterised by actors bringing measures to bear on a practical situation, and it is these measures that are mainly discussed.

PART II

European regional learning cases

CHAPTER 3

The Rhine-Neckar-Triangle regional development partnership

Thomas Stahl

3.1. Introduction

This chapter deals with a development partnership between four municipalities from three German states (*Länder*) - Baden-Wuerttenberg, Rhineland-Palatinate and Hesse - that share a common border. Their close proximity to one another and their 'cross-border' interlinked socioeconomic interests was the reason for this cooperation project. The project was cofinanced by the European Union community initiative EQUAL.

The problems facing this part of Germany are typical of those in many areas of Europe undergoing economic and industrial change such as: struggling enterprises (in particular small enterprises); high unemployment; disadvantaged youth; and lack of integration of young migrants. The development partnership sought to address these problems by introducing innovative 'active labour policies' with strong emphasis on vocational education and training. The goal was to come up with new forms of 'bottom-up' learning, based on participants defining their own needs and learning together through joint problem solving and cooperative actions. This entailed moving away from bureaucratic 'top-down' labour market approaches towards more participative ones.

3.2. Genesis of the development partnership

3.2.1. 'Rhine-Neckar-Triangle' area

The Rhine-Neckar-Triangle (RND) area is characterised by a complex set of problems due to industrial and structural change and rigid administrative state boundaries, not reflecting the reality of people moving across these boundaries for economic and social purposes. RND is situated at the

intersection of three federal German states (Baden-Wuerttemberg, Rhineland-Palatinate and Hesse). With 2.3 million inhabitants and approximately 760 000 employees it represents the seventh-largest agglomeration in Germany in an area of 5 600 square kilometres. The largest city is Mannheim followed by Ludwigshafen and Heidelberg.

The Rhine-Neckar-Triangle is of great economic importance with companies such as BASF, Phoenix Pharmahandel, Heidelberger Zement, Heidelberger Druckmaschinen, SAP, Südzucker, Freudenberg & Co. and ABB having their headquarters there. The strong interconnection in the RND region is represented – among other things – by the high number of commuters. Mannheim, Ludwigshafen and Heidelberg are the dominant job centres in the region and provide work for more than half the commuters.

In spite of the economic and public transportation connections, and the feeling of having a common RND regional identity, the situation in the different parts of RND varies considerably. The problems differ in urban and rural areas. The share of employees in the industrial and service sectors in different parts of RND also varies as do the unemployment rates and the number of migrants. With 10.1 %, Worms shows the highest unemployment rate. The greatest number of unemployed persons live in Mannheim (16 000) which has a 9.5 % unemployment rate. Due to structural change about 22 000 jobs were lost in Mannheim between 1990 and 1997. This represented nearly a quarter of all the jobs in the manufacturing sector (24.5 %).

However, the unemployment rate of specific groups throughout RND shows similarities with the unemployment rate of young people below the age of 25, being about 10 %. Migrants in particular are threatened by unemployment and the long-term unemployment figure for this group amounts to more than 39 % of all unemployed. Unskilled workers are also seriously threatened by unemployment.

The administrative boundaries in this ‘natural region’ hinder development of a common job market policy. Besides the federal state borders, there are numerous employment office and chamber of commence districts and (higher) education authorities having responsibility for different zones. For particularly disadvantaged persons in the job market, these structural barriers represent an obstacle impeding mobility and do not allow them to make use of labour market programmes and measures beyond individual state or municipal boundaries. Therefore there are major benefits to be derived from a shared regional strategy bringing forward innovative ideas and resources.

The regional EQUAL partnership addressed the following needs:

(a) continuous loss of jobs due to structural change and lack of economic growth;
(b) mismatch between competences needed by enterprises and those of the unemployed target groups;
(c) high quota of unskilled workers in migrant populations;
(d) disproportional unemployment levels in specific local settings in the region and segmented labour markets.

3.2.2. Beginning of a partnership

During the 1990s joint actions took place across RND to address these problems. The association 'Rhine-Neckar-Triangle' was set up to strengthen the sense of regional identity and increase the region's attractiveness. Within this framework several associations dealing with marketing, economy and health across the entire region were set up. An employment initiative focused on establishing regional associations for different sectors. An integrated public transport system was put in place. But these efforts alone were not sufficient to solve the complex array of problems such as: continuous structural change; companies moving their headquarters outside the region (job relocation); shortages of skilled labour; high unemployment rates in some parts of the region; 'in fighting' between communities. Even though the job market protagonists in some areas achieved a certain level of cooperation, this was often confined to the boundaries of their municipalities and even this cooperation proved to be the exception rather than the rule.

In the late 1990s the local labour market actors formulated a need for a more coordinated problem solving effort. This led to forming small bottom-up networks. However, those isolated initiatives lacked financial resources and sufficient support from the regional authorities to implement holistic regional employment strategies. Eventually, in 2001, with support from the European Union community initiative EQUAL ([1]) a major regional project was put in place. The successful application by RND in the EQUAL initiative provided finances for implementing development activities between 1 January 2002 and 31 December 2004 with cofunding provided by RND authorities themselves.

This enabled four municipalities and two districts to join forces to form the EQUAL RND development partnership – RND DP. These were: from

([1]) This initiative promotes regional development innovations in employment policies with special focus on removing discrimination in the labour market. For more information on EQUAL see http://europa.eu.int/comm/employment_social/equal/index_en.cfm and http://www.equal.de/Equal/Navigation/English/dev-partnerships.html

Baden-Wuerttemberg the city of Heidelberg (139 285 inhabitants), the city of Mannheim (308 903 inhabitants) and the Rhine-Neckar-district (519 587 inhabitants); from Rhineland-Palatinate the city of Speyer (49 780 inhabitants), the city of Worms (80 492 inhabitants) and the district of Ludwigshafen (145 739 inhabitants).

3.2.3. **EQUAL RND development partnership**

The EU EQUAL philosophy which fosters cooperation, networking and multilateral learning suited the needs of the RND DP. The requirements of the EQUAL initiative were appropriate as the RND DP favoured a social rather than a neo-liberal understanding of economic development. The common operational pattern among the core actors favoured problem-solving in structured networks to integrate disadvantaged groups and promote employment. There was a willingness to exchange experiences among participating states (*Länder*) and learn from one another. All the partners wanted to improve the level of individual assistance for unemployed people and to introduce interadministrative structures fostering employment.

Forty-six partners signed up for the EQUAL supported development partnership, the core group constituted by the employment and labour market bodies in Mannheim, Heidelberg and Worms. Actors from 'civil society' (mainly 'third sector', i.e. non-governmental organisations: NGOs) completed the group.

Conflicts on budgets created problems for the emerging RND DP. Small organisations had cofunding problems although these were later solved through fund-raising activities of the DP coordination unit.

The EQUAL DP comprised two kinds of partners:

(a) operational partners: project organisers overseeing the management and operation of development projects within the network; and
(b) strategic partners: actors leading the various innovation projects.

The RND DP had nine operative partners and 37 strategic partners made up of a mixture of public and private organisations in the fields of employment, vocational training and regional development. The latter comprised local enterprises, vocational training providers, civil-society organisations and public or governmental bodies representing federal employment services, administrative units of the *Länder* and municipalities. The RND DP was coordinated and administrated by the Mannheim employment agency, assisted by a steering group with representatives from operational and strategic partners.

The constellation of operative and strategic partners concentrating on disadvantaged and discriminated groups made the RND DP a good example of an approach integrating bottom-up initiatives with top-down mainstreaming policies.

Characteristics of this bottom-up, self-directed partnership-building and development process are:

(a) a regional development perspective among the organisations and interest groups based on a social rather than neo-liberal understanding of economic development;
(b) an operational pattern characterised by problem solving in structured networks to integrate disadvantaged groups and mobilise jobs;
(c) a willingness to exchange experiences among participating 'Länder' on innovative approaches to integrate disadvantaged groups and learn from one another;
(d) a similar starting point of all participating actors who wished to improve not only individual assistance for unemployed, but also to innovate structures for interadministrative fostering of employment.

An independent research unit Institut für Sozialwissenschaftliche Beratung (ISOB) ([2]) [Institute for social science consultancy] had responsibility for evaluating the partnership. This was done by means of an action-research (accompanying research) approach offering scientific guidance and playing a moderating role at meetings. (The author of this chapter led this work.)

Seen from an organisational point of view, the complex structures of multilateral subnetworks in the RND DP would enable it to be called a 'self-directed horizontal innovation network'. To integrate not only the operative partners but also many strategic partners was a great challenge for the network coordinators. Nevertheless, many efforts were made to gain legitimacy for each partner through communication, winning commitment and offering practical support. For example the RND coordinators gave complementary administrative help to partners who lacked personnel and financial resources.

([2]) http://www.isob-regensburg.de

3.3. Establishing objectives and working groups

Workshops, in which all interested organisations (administrations, enterprises, NGOs) participated, resulted in the setting up of the following three working groups:

Working group 1: improving transition from school to vocational training and working life.

Three subprojects were established to support disadvantaged youth (with learning problems, social problems) about to enter working life. This involved cooperation between different organisations: schools, administrations, enterprises, training providers and youth welfare systems.

Target group: young Germans and young foreign migrants.

Working group 2: abolishing obstacles that impede heavily disadvantaged groups taking up low-skill jobs.

This entailed analysing this employment field and modelling ways to improve individuals' employability.

Target group: long-term unemployed.

Working group 3: preventative measures assuring employability.

Three subprojects were set up to assist SMEs to deal with organisational development, social problems with employees and training workers in public and private enterprises.

Target group: employees threatened by unemployment (in particular SMEs).

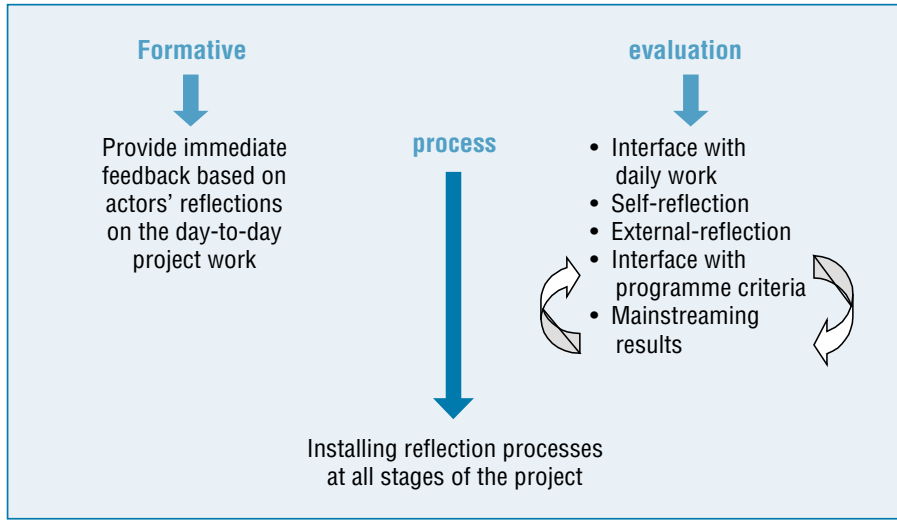
The following activities were undertaken by these working groups:

(a) producing a toolkit to improve the labour market situation of the different target groups. This toolkit comprised different instruments through which learning, competence development and vocational training could be undertaken by self-evaluation processes and coaching;
(b) undertaking a series of local studies analysing job options for low-skilled and disadvantaged groups. This analysis was necessary to prepare learning programmes for low-skilled workers;
(c) campaing to replace the partial interests of the diverse organisations in the RND DP with a wider, holistic perspective of their wider region.

3.4. Action-research support for the RND partnership

The action-research support provided by the ISOB research consultancy agency involved moderating self-evaluation reflections at project and overall network levels. In line with a formative evaluation process (see Figure 1) the aim was to build reflection and self-evaluation into the different stages of the network development. Feed-back loops on development and reflection took place at all stages, integrating project staff, practitioners and other stakeholders. Formative evaluation promotes and assists change rather than following a traditional external evaluation approach.

Figure 1. **Formative evaluation process**



Thus scientific guidance played a change-agent role as distinct from being a neutral evaluation vehicle. This pragmatic approach to scientific guidance assisted the partnership in exploring the practical knowledge required: addressing the problems to be tackled; examining how the required knowledge is generated; and supporting delivery of this knowledge in the day-to-day life of the partnership. A self-evaluation handbook was provided to assist this process (EC, 1997; ISOB et al., 2001). This handbook had a modular layout, providing step-by-step procedures as well as offering the option to jump directly to a relevant section.

3.5. A tale of achievements and problems

The lifecycle of the EQUAL RND DP came to an end in December 2004 when the application for a second EQUAL funding period was not successful. In this section the achievements and problems encountered by the actors and promoters of the partnership are discussed.

3.5.1. Successful outcomes

The diverse policy fields, organisational contexts and different interests, viewpoints and ideas of the actors stimulated multilateral learning, leading to productive results during the life of the network. The following two examples illustrate achievements in two areas.

The first example relates to 'transition between school and working life' in which new modular concepts, to assist students and job-seekers to undertake self-guided learning or find jobs, were developed. A multitude of actors from different fields of education, training and business cooperated successfully. Despite conflicts across administrative boundaries about how far innovation in schools can be furthered through informal problem-solving, actors developed instruments accepted by all. Different regional secondary schools integrated modular concepts in their curricula and established a new network, involving enterprises, to assist young people gain a better start in professional life.

During the job-orientation phase in the final year of secondary school, innovative workshop concepts were designed and put into practice through the close cooperation of school administration, teachers, NGO staff, enterprises and training providers. During these workshops a mixture of practical projects on art (music, theatre, painting and design), work in enterprises and individual counselling were implemented. These established a new pattern of communication and cooperation between schools and the social environment. The students/trainees welcomed these approaches which gave them new ways of learning and exploring job opportunities.

The second example relates to a regional network of training providers which developed a resource-oriented instrument to improve the qualifications of adult education professionals. This was based on an innovative learning methodology fostering self-organised learning using 'career management' tools. In addition, a consortium of training institutions was created to promote the competence development of their staff to address present and future professional challenges. Participants included people working in adult education, learning and labour market agencies in different organisational contexts (administration, NGOs, schools, vocational training providers).

Two innovative results are to be noted:

(a) a manual for professionals in adult learning to assist participatory learning and training processes; and
(b) (revolutionary for Germany) first attempts at networking regional training institutions, normally very competitive and not used to cooperating.

3.5.2. **Problems in the network**

The size and complexity of the RND DP hindered the creation of an open and participatory network. The overambitious self-directed nature of the project within a limited timeframe also did not help. More particularly, the three working groups did not completely succeed. These operated in isolation from one another without using opportunities to exchange experiences. In addition, each working group had its own working 'culture' which brought conflicts as well as agreements. Several actors thus felt the working groups meetings were time-consuming and non-productive requiring tedious travelling between different cities.

The coordination group felt overall that the three working groups functioned disappointingly. This had the effect of restricting the actors' identification with the network as a whole and inhibited development of a common understanding of the benefits to be gained from the project. The coordination group faced this problem and tried to solve it at its regular meetings. But due to the formal nature of these meetings it was not possible to establish platforms for the active exchange of experiences among the working groups.

Further, moderating the coordination group meetings turned out to be problematic. Conflicts about joint decision-making arose that endangered the legitimisation of the coordination process. The large number of participants, narrow timetables and the ambitious agenda of the partnership required highly professional moderation just to get through the meetings that many felt they were obliged to attend.

Another reason for lack of cooperation was the absence of an integrated structural approach to match low-skill job offers for disadvantaged groups that transcended administrative and local barriers. Partners from the different locations (administrative and governmental bodies) did not arrive at a common understanding to come up with an integrated approach. Instead, a bureaucratic approach was used to avoid conflicts and tiring discussions. Despite two useful studies analysing demands and offers in the low-skill labour market, the main objective of an integrated approach in pooling resources of all regional players was not successfully attained.

3.6. Concluding comments – lessons for future actions

Two years of financially supported networking turned out to be insufficient to overcome the RND segmented labour market practices. Thus the EQUAL RND DP as a whole did not succeed in promoting a sustainable level of regional development. This failure can be seen as a consequence of the lack of integration between 'top-down' and 'bottom-up' development strategies. In fact, for the time being at least, the EQUAL development philosophy of local or regional employment development is being challenged by a change in the German federal labour market policies which have introduced 'top-down' strong centralistic features placing little emphasis on participation of regional agencies and actors. This may change in the future, but for the moment RND is on hold and the most active individuals and organisations in the region have apparently learned a negative lesson, namely, governmental policies do not favour self-directed problem-solving.

Nevertheless, some positive news about future actions can be reported. In the final evaluation report, most EQUAL RND partners expressed willingness to rejoin or participate in new smaller networks. Some of these new networking activities are already operational. The final evaluation report also reported on the lessons that the actors learned from participating in the RND DP that can be applied in further innovation projects. The actors learned about the nature of the innovation process itself which almost inevitably entails a degree of conflict between the different participating groups. Innovation challenges traditional ways of working and the current professional status of the people involved. The wish to stay with well-known procedures provokes defensive behaviour and actors confronted with this phenomenon often react in a frustrated manner.

In the evaluation report the actors also identified some mistakes that had been made and were able to point to several key factors that need to be considered in forming further networks:

(a) need for open and free communication processes between all partners, including participation of representatives of all the target groups; shared interests have to be transparent. Only if all participating parties understand the added value of networking are they able to see it as an opportunity for everybody to win (a 'win-win' situation);
(b) need to have a supportive external environment; changes in German labour market policies (Hartz-Reform) challenged the RND network in the middle of its development process. The new governmental

regulations changed the attitudes of many participating partners radically. These 'top down' regulations raised a question mark about sustainable cooperation in RND and gave rise to a new sort of competition between public and private labour market agencies;

(c) need for the active involvement of partners in all stages of the network development process; active support of partners and stakeholders in managing innovation in everyday practices is crucial for sustainable regional development. The RND network suffered due to the number of passive partners (enterprises, employment services) that formally joined the network without taking active roles in the whole process;

(d) need for more emphasis on formative evaluation (scientific guidance) to promote self-evaluation and self-directed network processes; this entails consultancy, moderating discussions and providing feedback and assistance at all stages of the project. Formative evaluation specialists are needed to map and analyse latent conflict fields at an early stage, and whenever possible to avoid 'hot' conflicts. A scientific expert can raise awareness that defensive attitudes 'against innovation' were normal and what was termed a 'frustration-tolerance' is an important competence that network members must acquire.

CHAPTER 4

The role of development facilitators in company innovation in Norway

Trond Haga

4.1. Introduction

When innovation first started to attract attention as a key issue in economic development, much of the focus was on how to use bright ideas from bright individuals for economic development. As for organising activities, it dealt to a large extent with how to organise the commercial exploitation of scientific innovations. However, as discourse on innovation gained momentum, the circle of actors considered relevant to innovation widened. More and more groups and layers of an enterprise are entering the scene, so concepts such as the 'learning organisation' now focus on the innovative potential of the enterprise as a whole.

With this widening of perspective, questions on how to mobilise employees entered the picture with a range of issues associated with employee participation and innovative forms of work. This chapter deals with these issues, but in particular the question of how training can contribute to innovation. Recognising that classical forms of training have many limitations, efforts have mushroomed to find new ways to use training, focusing on content and methodology as well as who is to be trained and for what purpose. The aim of this chapter is to present and discuss the training of 'development officers' or 'development facilitators'. Before undertaking their new tasks, future development officers/facilitators underwent a training programme to enable them to take up their roles. The main responsibility of these actors was to help colleagues join in organisational development processes to share competence and knowledge across their organisations.

The chapter presents two cases both of which started the process of training development facilitators recruited from inside enterprises. In both cases these enterprises were participants in broader networks for interenterprise cooperation and exchange. Indeed, one exchange topic was

on the use of development officers/facilitators. The reported cases took place in sequence, meaning the second case was able to draw on the experiences of the first. In both cases, researchers played a role in training the facilitators and in designing and implementing the innovation efforts in which the facilitators were to play their roles.

The two cases are from two different networks of manufacturing enterprises in Hordaland county, first the industrial network in Sunnhordland (IfS) and second the Hardanger industrial network (INH). This county, located along the Norwegian western seaboard, is one of the most heavily industrialised parts in Norway and is vital to the Norwegian economy. There are several small regions in the county and the networks are located in two of them, Sunnhordland and Hardanger respectively.

4.2. Sunnhordland case

The Sunnhordland industrial network was founded in 1989, with 14 engineering companies as members; the present figure is about 20 and there are now close to 5 000 workplaces (Claussen, 2001). Six companies participated in the national enterprise development 2000 programme (ED 2000), a forerunner to the national Value creation 2010 programme (VC 2010) (Gustavsen et al., 2001). The aim of the ED 2000 programme was to improve the ability of companies to develop and change against the background of international competition and emergence of new waves of development such as total quality management and business process reengineering (Claussen, 2001, 2004)

The main focus of this programme was on:

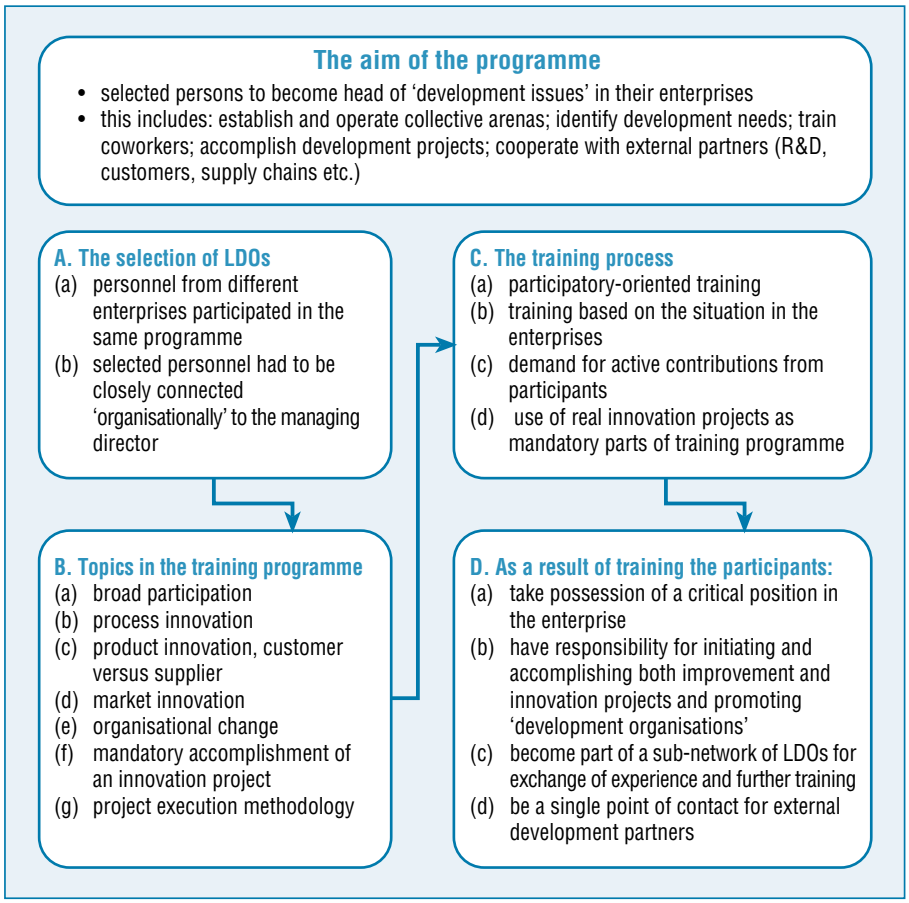
(a) total quality management, integrated with Scandinavian work life and work environment traditions;
(b) business process reengineering;
(c) developing new health and safety procedures;
(d) improving cooperation between labour and management;
(e) promoting broad employee participation in work improvement and innovation processes (Claussen, 2001).

A particular challenge for the Sunnhordland network was to provide SMEs the time and space necessary for development and innovation projects. These enterprises had great difficulties in giving development and innovation projects sufficient attention, so the idea of development agents/facilitators emerged. The aim was to establish a new role within each enterprise.

Employees filling this role were responsible for continuously analysing and assessing the development situation within their enterprises and taking whatever new initiatives were needed.

To qualify for this role it was necessary to have: (a) knowledge of the business sector in which the enterprise operated; (b) the ability to take the lead in internal development processes; and (c) the competence to promote cooperation between the enterprise and external development staff (Gandrud et al., 2004). Further, development facilitators needed to work in close cooperation with management to have an influence on decisions. To develop actors to fill this ambitious role, a training programme was launched. (See Figure 1 for a review of the training programme.)

Figure 1. **Training programme for 'lead development officers' (LDOs)**



To enable those chosen for this role to carry out their tasks, two measures were introduced. First, it was decided that development officers should spend as much as 50 % of their time on the task. Second, it was decided to create a common arena where facilitators in the different enterprises in the network could meet to exchange experiences and discuss new ideas (Gandrud at al., 2004). The network dimension was crucial. Introducing an arena for sharing experiences opened up dialogue between development officers that in turn created close relationships between participating enterprises. While this could be reported as a success, it was found that when the researchers withdrew from the network, the development officers were not able to carry through fully the necessary development activities. The researchers in the project were in charge of the training programme as well as organising joint arenas for exchange and discussion. They also assisted facilitators in their work, took minutes of meetings and wrote progress reports on the overall development of the enterprises.

4.3. Hardanger case

The idea of using 'internal facilitators' to increase the innovative ability of enterprises was transferred from Sunnhordland to Hardanger by the researchers working with the former network. Bringing this idea to bear on a new network was a major objective in setting up the Hardanger network (Gandrud et al., 2004). Another objective was to place greater emphasis on local or regional cooperation between enterprises, as many enterprises needed to develop new business areas. With offshore sector activities declining rapidly it became urgent to develop new products and markets. The Hardanger network consists of eight enterprises that differ in many ways regarding sector, size as well as role played within the network. Two of the largest enterprises are in the process industrial sector, while most others provide supplies to the sector.

The network was an initiative of the regional labour market bodies (employer and employee representative organisations) and supported financially by the VC 2010 programme, the labour market bodies' development fund ([1]), Hordaland county and the regional branch of

([1]) The employer and trade union bodies operate a joint development fund to support initiatives in their enterprises or networks of enterprises that promote broad participation among employees.

'Innovation Norway' ([2]). It was one of many efforts to foster enthusiasm and promote economic growth in response to negative local trends. The first enterprises approached reacted differently to an invitation to participate in a new network, with responses varying from enthusiasm to scepticism. However, one of the large process industry enterprises showed great interest in the network, becoming its 'industrial locomotive'; and as a result many other enterprises who were originally reluctant joined the network.

A network coordinator (project leader) was appointed and IRIS research (formerly Rogaland research) began to work closely with the network coordinator playing the role of the network's R&D partner. The main goal of the network was to launch development projects in individual enterprises, as well as joint projects between two or more enterprises. All activities, within and between enterprises, are in line with the principles of broad participation and cooperation between labour market bodies ('social partners'). There was a common understanding among management and trade unions about the need to mobilise their members to participate in the network's activities.

The steering committee emphasised the importance of training certain personnel to become 'internal facilitators' who would play a key role in promoting projects within and between enterprises. The main tasks of the 'internal facilitators', to be trained, were: establish arenas where employees could discuss issues relevant to their situations; train their coworkers in development project methods; and facilitate development projects. Selected employees from all participating enterprises attended the same formal training courses. The initial selection of employees, which was crucial, was jointly undertaken by management and unions. The aim was to select 'informal leaders' who had the capacity to promote development work.

As a part of the training programme, participants analysed the 'development project' described in Box 1.

By participating in the same programme, the ground was prepared for exchanging experiences between enterprises and for devising common development or innovation projects. Within the main network, a special subnetwork was set up for facilitators themselves. The main goal was to provide an arena where internal facilitators could exchange experiences about their practice, engage in further training, and create and monitor joint projects.

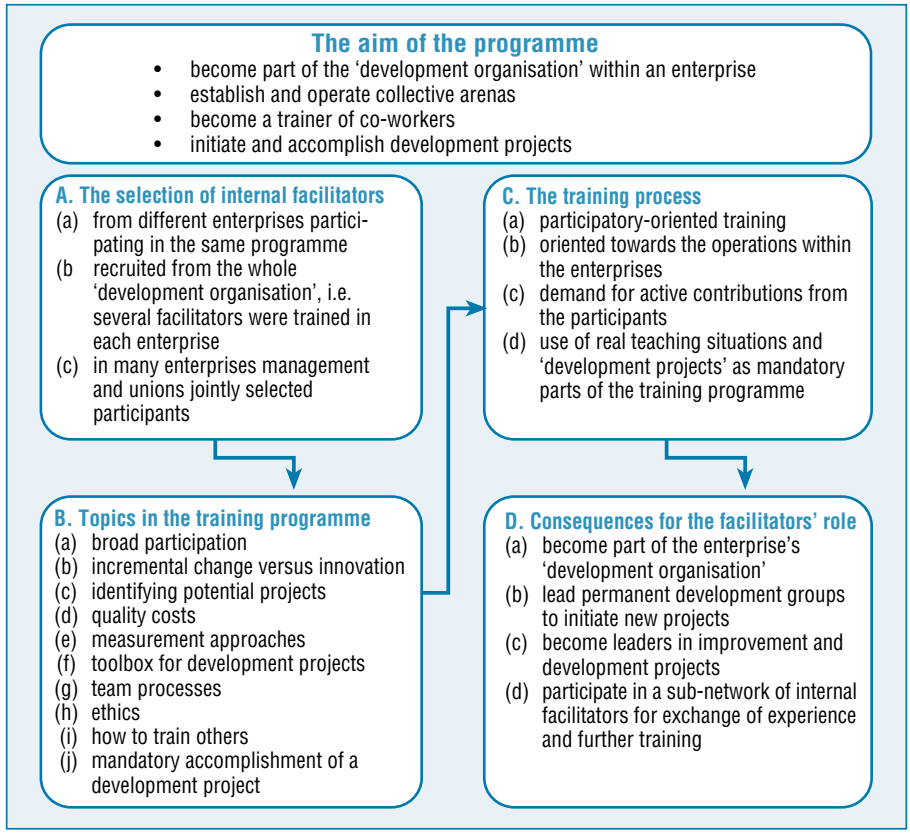
([2]) An important actor in regional development is 'Innovation Norway', a governmental agency with branches in the different counties in Norway. One of the most important new tasks recently assigned to the counties (second governmental level between the federal and the local authorities) was to manage the development of industry and commerce within the counties.

Box 1. **'Development project'**

One participating enterprise was a zinc works. Operators in the foundry found they had constantly to replace elements of the downspout in one of the foundry lines. They discovered this by comparing their line with another line in the foundry which needed to replace only a quarter of the elements. Based on this information, the internal facilitators launched an improvement project to reduce replacement costs. Through providing those concerned with a methodology to identify problems and draw up proposals for remedial actions (based on a cost-benefit-analysis) they were able to eliminate the replacement problem, and costs were reduced by more than 50 %.

The 'internal facilitator training programme' is outlined in Figure 2.

Figure 2. **Training programme for 'internal facilitators'**



An example of a joint project was developing a procedure to enable a zinc producer make use of the wastage (environmentally dangerous dust) created by the producer of titanium. This could be done provided a series of problems were solved. Facilitators not only assisted in helping identify the actions to take place in each of the plants, but due to their common training and shared outlook, coordinated the cooperation process between the enterprises. Although this project and others tackled in the network were not dramatic breakthroughs of global significance, they were important to the enterprises concerned. Most process industries operate with narrow margins, and the ability to come up with an innovation of the kind described above can mean the difference between profit and loss.

4.4. The concept of a 'development organisation' and role of research

It is important to note that in training development facilitators, the focus is not on technology nor on the problems technology gives rise to, but on 'development' and 'learning'. The point is to create learning spaces for themselves and their workplace colleagues. What sort of training did they undergo to equip them for this?

First, practical cases played a major role, an example of which was presented briefly above. Facilitators learned how to engage workplace actors in a process where they could look at problems, explore possible causes and find ways to deal with them. Second, the training drew attention to the significance of a 'development organisation'. While the notion of work organisation is well-known and has a long history, the concept of a 'development organisation' is more recent. The 'development organisation' concept draws attention to those aspects of an enterprise, including its external relationships, that are decisive in carrying out development and innovation, for instance, introducing work organisation changes. In fact, the difference between the two above-mentioned concepts is mainly based on how one analyses what is to be done in a situation; they both refer to the same reality but from different angles.

Third, within a 'development organisation', the relationships between internal and external resources are emphasised to make each enterprise aware of the advantages to be gained from using external resources such as other enterprises and research agencies. This is consistent with the trend towards building multiactor clusters, networks and innovation systems in

recent thinking about innovation (see Chapter 16 by Asheim and Chapter 15 by Cooke).

Research played a key role in the whole process. But it was a form of research that set out to contribute to practical processes within enterprises or across enterprise boundaries. This kind of research that can be called 'action-research', 'interactive research', development research', or research with 'hands-on' functions, played a central role in training the facilitators and setting up the network. In fact, a researcher designed the training programme for the development facilitators and was a teaching supervisor. Selecting and designing learning cases in the facilitator training programme was a key task performed by research support personnel. Research also played an important role in providing advice about creating learning spaces within an organisation and in moderating interactions between enterprises and other external bodies. In the Hardanger network there are special networks for managers, union representatives, as well as development facilitators, so research was involved in discussing a wide range of issues having an impact on the success or failure of innovation activities.

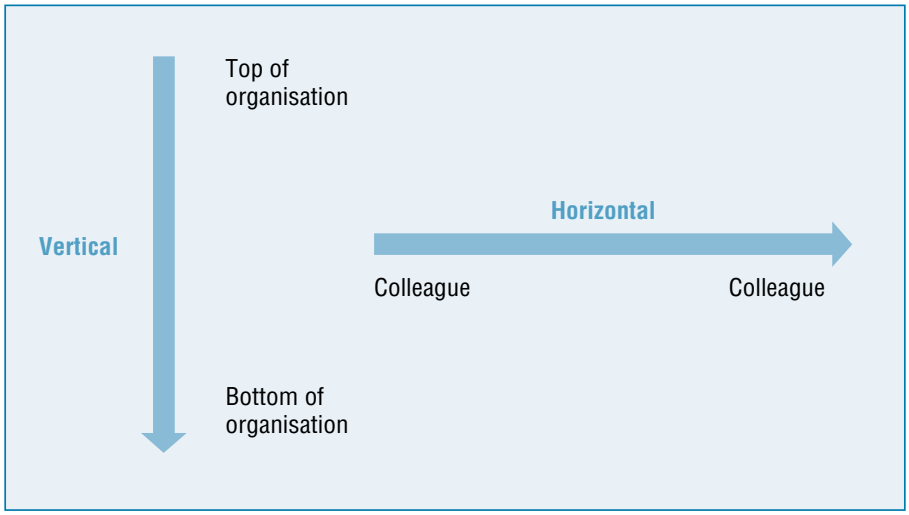
4.5. Dilemmas and challenges in workplace learning

The different approaches used in the Sunnhordland and Hordaland networks raise questions about the best way to disseminate 'development knowledge' and skills within and between enterprises. Both networks used a development facilitator training programme as a starting point, which meant training one individual from each of the participating enterprises. However, in doing this, the networks used different strategies. In the Sunnhordland network, the individual was someone close to management who distributed knowledge in a top-down fashion. It is clear that for such top-down processes to be successful, dialogue is necessary to create a common understanding between management and employees.

While Sunnhordland facilitators worked top-down, those in the Hardanger network operated horizontally. Thus, while success in the Sunnhordland case was measured in terms of the ability of facilitators to make employees understand and support management policies, success in the Hardanger network was measured in terms of the number of people the facilitators were able to involve in the development process.

The difference between the two approaches is outlined in Figure 3.

Figure 3. **Two models of knowledge diffusion**



The previous Norwegian enterprise development 2000 programme focused on incremental improvement objectives. However, in attempting to address more ambitious innovation objectives, the VC 2010 programme ran into difficulties by not providing sufficient opportunities for employees to participate in innovation activities. The aim of the development facilitators' project was to try and find a balance between these two objectives through launching improvement projects of limited scope, while also focusing on major innovation projects. The facilitator programme thus resulted in both large innovation projects and improvement projects that involved as many employees as possible as a deliberate strategy (Cole, 2001).

4.6. Concluding remarks

Redirecting innovation from being an activity that involves a narrow range of actors towards one that mobilises a broad base within an enterprise, means confronting issues pertaining to participation, cooperation and communication within workplaces. In this way, organising innovation processes becomes interwoven with activities under such headings as 'participation' and 'learning organisation'. Thus, the question of 'how to organise for innovation' loses its clear-cut and specific nature and becomes entwined in a broad range of issues.

The cases discussed here indicate that there are real dilemmas to face, one being that developing a strong 'innovation core' in each enterprise may be counterproductive from the perspective of the limited active involvement of employees at all levels. Further, such 'innovation cores' can easily collapse when the impulses that led to their creation are weakened or disappear. In the long run it may be more advantageous to go for a broad base from the beginning and face up to the wide range of interlinked challenges. The advantage is that the basis for innovation becomes more stable. With the active involvement of all levels of the organisation, in principle, there will not be any forces to undermine innovation efforts.

Disseminating 'development knowledge' and skills through facilitator programmes is, first and foremost, about developing facilitators skilled in promoting 'collectives' and relationships. The more successful the training, the better development facilitators can organise learning within their organisations. In network settings such as the two cases presented, developing collectives and relationships cannot stop at an enterprise's boundary as they have traditionally done. A common development language and methodology provide the foundations for establishing collectives and relationships that go far beyond the boundaries of an individual enterprise. Disseminating development knowledge and skills, through common network training programmes for personnel from different enterprises, may thus open new arenas for innovation, collectives and relationships.

In one network, there was a noticeable change in the way many enterprises looked at their operations. As a result of the training and networking between the enterprises, they are now exploring new opportunities together. New innovative projects involving several enterprises have been launched and successfully implemented. From a situation where each struggled with developing their enterprise individually, they are now doing so collectively through network collaboration.

While adding interenterprise networking to the challenges associated with the internal mobilisation of an individual enterprise might seem to create more problems, the cases presented here indicate another picture. Under certain circumstances, cooperation between enterprises can make handling challenges easier rather than more difficult. The main point is that networking between enterprises is a process between equal partners: it is horizontal rather than top-down. When network experiences are fed back into processes going on within individual enterprises, horizontal links and ties are strengthened. When issues are transferred from an individual enterprise to a network arena, new questions appear.

Many innovation programmes are regulated by law and, in particular, by agreements, where it is assumed that 'the enterprise' is the key actor and not the 'network'. To handle these problems, active involvement of labour market bodies is crucial. In the VC 2010 programme, the Norwegian Confederation of Business and Industry and the Confederation of Trade Unions are not only partners in the programme board, but they also share responsibility for the operational side. However, there is also a need for active support from research to help construct viable regional partnerships that give potential for restructuring decision-making processes in working life (Tønnessen, 2001).

It follows in turn why regions are of growing importance as units of development and learning. To handle internal challenges, individual enterprises need to join forces and form networks, although there is a need for a supportive infrastructure and redesign of decision-making processes. However, neither infrastructures nor new decision-making processes can be developed overnight; nor can they be developed separately for each network of enterprises. A wider arena is needed where the main organisations can meet and launch processes that are, in some respects, political in that they imply a broader reframing of major issues concerning work and enterprise policies.

4.7. Acknowledgement

This chapter is based on experiences within the R&D programme 'Value creation 2010' (VC 2010) in Norway. This programme is funded by the Research Council of Norway, 'Innovation Norway', the Norwegian Confederation of Business and Industry and the Confederation of Trade Unions. The main aim of the programme is to support enterprise development through partnerships and networks.

CHAPTER 5

The Amadora Lisbon agenda

Maria João Filgueiras-Rauch

5.1. Introduction

The chapter deals with three consecutive projects dealing with community development in the Amadora suburb of Lisbon from the mid-1990s to 2004. Problems in communities with significant immigrant populations have been addressed in many European Union countries, giving rise to learning across boundaries. The Amadora projects developed new facilitating roles, which can be compared with the new roles described by Haga in a different context of SME networks (see Chapter 4).

5.2. The municipality of Amadora

5.2.1. **Population**

The Amadora municipality in Lisbon's metropolitan area (AML) integrates 11 parish councils: Alfornelos, Alfragide, Brandoa, Buraca, Damaia, Falagueira, Mina, Reboleira, São Brás, Venda Nova and Venteira. The population is approximately 200 000. Amadora is the Portuguese county with the highest population density. Between 1991 and 1998 it had demographic growth of approximately 8 000 inhabitants.

Among the inhabitants, more than 20 % are migrants. The biggest group is from Cape Verde 83 %, followed by Angola 10 %, São Tomé and Guinea-Bissau 3 %, Mozambique 3 % and Timor 1 %. Additionally 2 000 gypsies and other groups have come there in recent years from Brazil and eastern European countries. The number of illegal migrants is unknown. Only a small part of the Portuguese population is originally from Amadora. The rest of the Portuguese population came as a result of migration movements from central and southern regions to the capital. Several Portuguese came from Africa after the April 1974 revolution and independence of the colonies. Thus, Amadora has a population with highly differentiated cultural and ethnic backgrounds. This diversity is a source of richness and development for the

municipality, but there is also potential social conflict.

There are currently 33 slum areas in the municipality of Amadora. Too many buildings, the bad quality of their construction, use of inappropriate materials, very small inner rooms, the proximity of houses to one another, lack of sufficient and unimpeded pedestrian access, and the poor infrastructure of the quarters, contribute to a bad quality of life. These quarters have grown indiscriminately, without planning, due to their location on abandoned land. Most people are under 20 years of age, and have serious problems in terms of schooling and work, having low levels of education and professional qualifications.

Most of the active population work in building and public works receiving low wages and lacking job security. Others work in services, as household maids and cleaners and table and kitchen staff, also with low wages. The African population is predominant, being 80 % in some quarters. Second and third generation migrants have problems with social integration as they feel discriminated against and affected by cultural problems. The social fabric has shown profound signs of degradation. On a socioeconomic level, there has been a growing decline in living conditions, with increasing numbers of incidents of violence, theft, prostitution and suicide. There has also been an increase in consuming and trafficking drugs and in juvenile delinquency.

Of the Amadora active population, 68 % work outside the area, mainly in other parts of Lisbon (53 %). Among the approximately 9 000 jobs created in the municipality of Amadora, nearly two thirds are occupied by people from other areas, in particular Sintra and Lisbon. Of those, 50 % work in industry and commerce. Industrial employment decreased in the past two decades. In 1981, the rate was 40 % and in 1991, 25 %. Main employment is in the commercial and non-commercial tertiary sector (65 %). The building sector represents 10 %. Unemployment is relatively high when compared to the national average, and it especially affects the disadvantaged population. The unemployed are mainly long-term unemployed men over 35 years of age.

5.3. Development of the Amadora learning region projects

5.3.1. First project

The General Direction for Employment and Vocational Training – DGEFP – is the Portuguese body of the Ministry of Labour responsible for evaluating and studying the labour market, employment and vocational training policy

measures. It analyses existing policies and proposes new ones to the government, in this case the Secretary of State. In the beginning of the 1990s, Portugal showed the first signs of reversal after a positive development period following adhesion to the EU, with unemployment rates rising. These first negative signs affected target groups such as less qualified people and those with social integration problems, which for migrants are cumulative.

The negative news highlighted the limited impact of traditional labour market policies and the lack of resources. This showed the need to experiment with new policy measures to create new approaches, using bottom-up processes that are more local actor-oriented. There was a need to empower local actors to make them active players in solving their own problems and developing their areas.

The European Commission launched the ADAPT community initiative action aimed at innovation in social policy around this time. DGEFP saw the opportunity to experiment with new policy actions. A project was prepared in cooperation with the UK (Institute for Employment Research) and Germany (Ministry of Labour) aiming in a first phase to analyse the policy measures considered to be good practice in the three countries, and to identify success factors. The result of this first phase was the basis for designing a pilot project to be tested in Portugal, accompanied by the transnational partners during the second phase of the project. The results pointed to integrated development models (holistic regional approaches) based on partnership approaches as in the case of 'learning region Chemnitz' in Germany and several measures in Warwick/Coventry.

The first step was to identify regions in Portugal in which traditional policy measures were not successful. The selected regions were Amadora and Oeiras, although the main intervention was in the municipality of Amadora (at that time ruled by the Communist party). To launch the second phase, a conference was organised to present the results of the comparative study to which the employment centres of the two municipalities Amadora and Oeiras were invited as well as several non-governmental organisations (NGOs).

The following actions took place. Courses for young people at risk of exclusion (spending the days on the streets) and courses in gardening were set up in Amadora. A marketing action for small companies took place in Oeiras. The actions in Amadora were the result of needs diagnosed by the municipality and parish councils with contents prepared by the partners together. This was the first common work between all the actors and the experience was successful and rewarding for all. The lessons learned were that only intensive psychological support for young people could strengthen them to face their problems.

5.3.2. Second project: 'integrated development based on local partnerships'

Based on the success of this project, it was decided to set up further projects to consolidate the partnership approach. This was based on a local, non-institutionalised development network, comprising the different social actors who organised themselves to come up with integrated solutions to solve their problems. The 'incentive measures programme', funding model projects in EU Member States, aiming at implementing the European employment strategy, appeared to be an ideal source for further development of this new policy approach.

DGEFP took the initiative to bring together the partners of Amadora to present this new possibility and to decide how to extend the project. The working group was reestablished to discuss the problems of the territory in a holistic perspective. The socioeconomic reality of Amadora was analysed by the partners, who concluded that there was a clear reason for the poor social integration of the migrant population: the population was living in deprived areas isolated from the community. In fact this problem was the origin of almost all the other problems in the territory. For some years the municipality had organised a rehousing process to reallocate these populations, but the 'ghetto' syndrome did not change, since no preparatory work was made either for the migrant population or the people already living in the neighbourhood.

The multidisciplinary character of the problem led the partners to decide on the need for an extension of the partnership to other actors in the municipality, such as those responsible for rehousing. During the previous project the municipality kept a low profile; now the partners were demanding stronger involvement.

5.3.2.1. *Developing the project application*

This phase, extended for almost two months, comprised several structured brainstorming sessions in which the partners settled the action lines along which the project would be developed. The objective was to start a local development 'bottom-up' model, through establishing a platform of practical actors and local organisations that would animate a network to address local problems/needs.

These brainstorming sessions identified the following problems:

(a) a lack of integration of the migrant population based on 'island living areas' without interaction with other inhabitants. As the municipality was moving the migrant population to other living areas, they were not able to adapt to new living conditions with new facilities, creating a cycle of

misuse and a consequent lack of maintenance. The result was bad living standards which made it more difficult to gain acceptance by the rest of the population;
(b) the poverty and social disadvantage experienced by most of this population created a problem of low self-esteem;
(c) the low level of qualification and education of young people, especially due to high drop-out rates from school.

To fight these problems concrete action lines based on the network concept were defined and accepted:
(a) creation of an 'information point' to inform local citizens about networking activities and encourage participation;
(b) training and intervention of 'intercultural mediators';
(c) training and intervention of 'community development agents';
(d) training and intervention of 'multiservice assistants' (with regard to building, installation, gardening);
(e) development of a network of local SMEs.

The partnership allocated responsibility for each of these subprojects to one partner organisation, who would elaborate a more detailed draft to submit to the whole partnership. Final applications were presented to the European Commission. Animation and moderation of activities within the network was carried out by an external consultant. In the beginning, the idea was to do this in cooperation with Amadora's town hall. However, it was agreed by all partners that it would be better to do this with an external organisation to ensure impartiality of interests, and for resolving conflicts.

Because the programme advocated a transnational dimension for exchange and learning, the following international projects were identified as interesting models: the 'learning region' in Germany (Chemnitz region), the 'area partnerships' in Ireland and the 'comité de bassin d'emploi' in France. This phase of the project lasted 22 months, beginning in December 1998.

5.3.2.2. *Project structure*

The project created its own organisational structure and each of the five subprojects established a working group to oversee their activities. A multidisciplinary working group involving partners with relevant competence and experience organised each subproject. The five groups reported on their activities in partnership meetings every two to three months.

Moderating the partnership, fostering synergies between the different partners and project areas and management, was the task of a subproject entitled 'establishment of the partnership'. This was to foster mainstreaming

and sustainability through teamwork and empowering all partners. Exchange, cooperation and mutual learning were important objectives. This subproject involved all the organisations present at the beginning, and grew with the constant enlargement of the partnership. The members were: the DGEFP, as promoter of the project, the municipality, four NGOs, two secondary schools, one professional school (municipal enterprise), one private professional school, two parish councils, 12 enterprises and the external consultant, who facilitated the network.

At the beginning the process was complicated, as most organisations were used to working individually in confined geographic areas in the region, dealing with a specific intervention. But, now the frontiers were not well defined and a high level of cooperation and trust was required.

5.3.2.3. *Intercultural mediators and community agents*

One significant problem was the encounter between the subculture of African immigrants living in deprived areas, and the dominant Portuguese culture in local institutions such as municipal administrations and the school system. This resulted in a lack of integration of the subculture, non-acceptance/misunderstanding of the dominant cultural values by the migrant young people and resistance from the local population, also due to misunderstanding the subculture's values. This was manifested in: school absenteeism; early school-leavers; parents unable and unwilling to motivate and assist their children in their schooling; children having problems in bridging the gap between the different cultures at home and at school; language problems; illiteracy. An interesting example was a young pupil who always looked at the floor when the teacher was angry with him. This is a sign of respect for elder people, an important value in the African culture. However, the teacher got more and more angry because she understood it as insolence and a refusal to face her. The intercultural mediators tried to bridge the intercultural communication gap between the family, the school and the community. The role of the multiservice workers was to create job opportunities for young people of the rehoused population in the neighbourhood and to prevent degradation of the area's housing.

The intercultural mediators proved a success in participating schools for young people and the migrant population as a whole. The practice-oriented training of young migrants selected to be intercultural mediators, dealt with a burning problem in Amadora. At the end of training most trainees got a regular but temporary job in schools in a new type of profession. Recognition of this new profession by a joint action of the Ministries of Labour and

Education, promoting trust and confidence within migrant populations in Portuguese institutions, was one of the successes of the project, since it was possible to get 30 young people employed in this new profession.

The main problem faced in the 'community agents' subproject was initial mistrust of municipality services towards this new profile. There was not enough shared information about the rehousing process, making agents' work difficult. It is only by building trust that it becomes possible to increase acceptance. However, these processes need more time than the life span of the project. Because sustained local development only takes place when all social and economic agents integrate, it was important to involve companies and their representatives, raising awareness of the need to promote common interest. This follows the holistic bottom-up processes along the lines of the learning region concept.

The objective of the SME network subproject was to develop a network of small enterprises in the municipality, to exchange experiences, problems and their solutions, and provide new management input to improve efficiency and quality. In the long run the aim is to develop social values and norms based on future scenarios, local identification of needs, foster trust and confidence to build up social capital.

5.4. Further developments – EQUAL PIDA project

The successful work of the partnership, highly motivated the actors to cooperate further within this model. The next step was to look for further funding to continue this cooperation. A new project was designed with the main role taken by the municipality and institutions such as professional schools. Most partners were committed and it was possible to develop a new concept for further action funded under the European Commission community initiative EQUAL programme.

The next step was to consolidate the partnership, by creating a formal structure supported by the municipality to provide all necessary instruments and tools for the further work of the partners along the lines of the previous project. The new EQUAL 'PIDA' project provided an integrated platform for developing the Amadora project. It had a development strategy supported by a consolidated partnership to create a sustainable development model by installing participative mechanisms.

Three units of 'proximity services' were created, located close to the population, where they could get a counselling service as well as information

about the potential offer of work or training. The main purpose of these units was to fulfil the need for job centres that normally have no resources to offer this personalised and local service. These units were located close to the population, one in an NGO, another in the church social service and a third in a professional school.

Because it was important to sustain the model and the partnership, a second block of the project was developing common learning events to empower the actors to participate in the project. The last block addressed development of the economic potential of the territory, and corresponded to the wish of entrepreneurs to have an association to dynamise the local economy. This pillar was a success, since it was possible to persuade the national employers' association to create a regional branch in Amadora.

Working groups were created, in which partners could discuss and interact with one another. Twice a year there was a board meeting, in which all partners were represented. A steering committee was installed with a specialised team to facilitate the activities of the working groups.

5.5. Conclusion

The three projects described here pursued the same overall agenda. In this final section some conclusions are outlined.

One innovative aspect of the first and second projects was the methods used were based on a non-institutionalised integrated network, in which the main regional actors were present (town council, parish councils, local development associations, schools, training centres, employment centre, NGOs and others). The projects used an integrated development model and a participative instrument to identify local problems and looked for solutions as the key factor for establishing a bottom-up regional process. The hesitant attitude of the town hall, which improved as the project developed, changed dramatically in the last few months of the project in the year 2000. At that moment the network was seen as an 'Amadora-initiative' by the town hall, which tried to ensure the sustainability of actions.

The most important results of the projects were:

(a) establishing a new credible development model for the actors involved;
(b) creating new recognised professions giving rise to the employment of 30 young people from the disadvantaged population;
(c) interaction between social and economic agents promoting harmonious development of the territory;

(d) mainstreaming training in participating organisations;
(e) the partnership approach was considered by DGEFP as 'good practice' and seen as a basis for mainstreaming policy programmes in regional networks;
(f) the project was considered a best practice case by the European Commission.

The main difficulties were:

(a) resistance in partnership approaches due to a lack of trust-building processes and insufficient human resources;
(b) as organisations traditionally had predominantly top-down working habits, it was difficult to convince them of the advantages of a bottom-up approach;
(c) integrating bottom-up and top-down approaches in practice is a step-by-step process that entails painful experiences, especially for innovative project promoters.

The third project began with a high level of commitment from all partners, and structures were installed as planned. However, problems arose in the first year which prevented achieving the final goal, namely consolidation and sustainability of the partnership. These problems began with a change in the political support from the town hall. Without a clear strategy, the old conflicts came back and the trust atmosphere was affected. Leadership was also a weakness as the professional school project promoter no longer felt legitimatised by the municipality, and the top-down behaviour of one of the strongest partners who tried to fill this gap.

Amadora is still one of the most problematic areas of Portugal, where social problems are cumulative, involving poverty, drug dealing, addiction and exclusion, and frequent acts of criminality. Although these problems are difficult to resolve, those involved in the Amadora projects are convinced they can only be handled through local participation processes and by empowering local actors.

CHAPTER 6

Women's cooperatives in Magnesia, Greece: taking steps in partial learning

Yeoryios Stamboulis, Yannis Psycharis

6.1. Introduction

The literature on learning thrives with examples of good practice. Here we attempt to follow a less travelled path: learning from partial success (or failure). Based on the experience of women's cooperative development in Magnesia, Greece, we present an interpretation of the elements that we believe did not lead to results matching expectations. We suggest this is mainly due to the nature and focus of learning as part of broader intervention and support activities. Insufficient learning at multiple levels, or rather the lack of it, has led to a problematic performance. However, as the first period of learning has passed, future prospects for cooperatives could become more promising.

The chapter starts with a brief description of the region and the women's cooperatives. The second part describes the policy support relevant to the case. The third part looks at the learning mechanisms and training activities and their roles. The results of policy intervention and support are presented in the fourth part. The fifth part is a discussion on the nature of learning and its impact on the cooperatives' activities and support organisations ([1]).

6.1.1. Background: women's cooperatives in Magnesia

The prefecture of Magnesia is one of the four prefectures constituting the region of Thessaly, in Central Greece. Its most prominent areas are Mount Pelion and the islands of Sporades, both popular tourist attractions for Greek and foreign tourists, who appreciate their physical and man-made

([1]) We are indebted to the members of the cooperatives who provided us with original material, and to the staff at Kekanam SA providing reports and background material for this case study.

environments. During the period of Turkish occupation the villages of Pelion flourished due to the merchant activities of local entrepreneurs. Their activities extended from Egypt and the Middle East to western Europe, exporting goods as well as having a cultural and political influence. These funded several schools and vocational training institutions in the villages. The architecture of most villages owes its character to this period of economic development, where the exposure of local communities to diverse influences is to be noted.

The region of Thessaly was also host to one of the first and most renowned cooperatives, that of the village of Ampelakia, at the northern entrance to the plateau of Thessaly. In recent years, cooperative forms of organisation have been dominant in rural areas, mostly in agricultural activities, but with limited success. Still, one of the most successful cooperatives is Zagora, in eastern Pelion. Its main product is apples, a local variety which has acquired an 'appellation of origin' status.

Since the early 1990s, there has been an effort to revive the cooperative movement through new forms of women's participation. With public funding (mostly through EU funded programmes) the region embarked on a journey to develop women's cooperatives, mostly in rural regions. It has been a long learning process involving not only establishing organisations and acquiring skills and other resources, but also changes in mentality and culture on the part of the women and their communities.

The prefecture of Magnesia is significant as it is home to one in 10 cooperatives in Greece. The first women's cooperative in the area was established in Zagora, as an agro-tourist cooperative, in 1993. The second was established in 1997 on the other side of the mountain, in the village of Portaria, a tourist resort attracting visitors both in winter and summer. Nine more cooperatives were formed in the following years; the last two on the island of Alonnisos in 2002 and in the village of Kerasia in 2003 (the last is still in an infant stage).

Of the 11 women's cooperatives, nine produce traditional food (sweets, mostly from fruits, marmalades, pies, pasta and bread products, etc.). One supports and commercialises local flower production, and another provides agro-tourist accommodation facilities. In addition some cooperatives provide catering services, two own and operate guesthouses and one occasionally produces gifts and seasonal decorative products for the local market.

Table 1. **Activities of women's cooperatives in Magnesia**

Name of cooperative	Place	Year	Activities
Agro-tourist cooperative of Zagora	Zagora	1993	Traditional sweets, marmalades, guesthouses
Agro-tourist cooperative of Portaria	Portaria	1997	Traditional sweets, marmalades, pasta, baked sweets, catering
Agricultural flower-producers cooperative of Makryrahi 'The Gardenia'	Makryrahi	1998	Flower plants, soil improvement material, flower-arrangements
Agro-tourist cooperative of Nea Aghialos 'Ahello'	Nea Aghialos	1999	Pies, traditional sweets, baked sweets, catering
Agro-tourist cooperative of Glossa Skopelos	Skopelos	1999	Traditional sweets, bakeries, catering
Municipal enterprise of Milies	Kato Gatzea	1999	Traditional sweets, marmalades, pasta, baked sweets, catering, guesthouse, pickled products
Agro-tourist cooperative 'Melissa'	Tsagarada	–	Rooms for rent and eating places
Agro-tourist cooperative of Pteleos	Pteleos	2000	Pies, bakeries, traditional sweets, gift baskets, fish-fillets, soap
'Aniliotika t' alliotika'	Anilio	2000	Traditional sweets, marmalades, treats, baked sweets
Agro-tourist cooperative of Alonissos	Alonissos	2002	Traditional sweets and local products
Agro-tourist cooperative of Kerasia in Pelion 'Dryades'	Kerasia	2003	Decorations, gifts, pies, traditional sweets, catering

6.2. Policy support for interventions

Most women's cooperatives in Magnesia have benefited from various policy measures and initiatives. At least two, those in Zagora and Pteleos have benefited from programmes of the Ministry of Agricultural Development, to acquire equipment and buildings.

Other forms of direct and indirect support, mostly intangible, have materialised through various local, regional and national programmes as well as projects supported by the EU 'community initiatives'. These have included the 'local employment pact' in the early 1990s, the 'employment NOW initiative' for supporting establishment of the cooperative of Makryrahi, the 'Leader' and 'EQUAL initiatives' and the 'regional development programme' of Thessaly. The latest project is the 'development partnership Active citizens' (Kekanam, 2004) in the framework of the EQUAL initiative. It develops entrepreneurial activities in the 'social economy' (the 'third sector') including support for creating a cluster of women's cooperatives in Magnesia.

Involving various actors in developing women's cooperatives in various programmes led to developing a network of support organisations that cooperate on a case-by-case basis. As a result, one may assume that common ground has developed on the role and support of these cooperatives and social entrepreneurship or the social economy in general. The most prominent among these support organisations is Kekanam SA (a vocational training and employment organisation, where the majority share is held by the prefecture of Magnesia) and ANEM SA (the development company of Magnesia, also with a majority share held by the prefecture of Magnesia). Other organisations involved in the various programmes include the development company of Pelion, the University of Thessaly, the municipal companies of Volos and Nea Ionia engaging in vocational training and related activities, and in the later projects the development company of the Chamber of Magnesia. Noticeable is the absence of private funding. Neither banks nor other funding organisations have been active establishing and developing the cooperatives (apart from arms-length lending transactions).

The only organisation that appears to have developed a view on the role of the 'social economy' and – in this framework – of women's cooperatives, is Kekanam. Following their first experiences in European projects involving partners from other Member States and interaction with the European Commission, the organisation's operational managers realised they had to address the issues of the social economy as a main axis of their intervention

policy for employment and equal opportunities. They believe that women's cooperatives may play a pivotal role in developing rural areas in particular. Cooperatives provide a means for women's entrepreneurship and improving the position of women in rural societies. At the same time, they may provide opportunities for increasing local added value in tourism and in processing agricultural products, creating synergies between the two activities. Important is developing identity both as tourist destinations and for their products, traditional ones often qualifying for 'accreditation of origin'. Thus the staff and management of Kekanam concluded that this form of organisation of production and entrepreneurial activity can contribute significantly to sustainable development of rural areas, alleviating unemployment for women and young people, while providing new windows of opportunity for women in local society.

ANEM has been involved in various programmes with its general mandate of offering support and planning development in the area. First, it did not have a clear strategy (specific agenda or plan) for developing cooperatives. Rather, as most other partners, they viewed these projects simply as projects, without any long-term planning in mind. However, this should not be attributed to the individual organisation(s). It is a result of the narrow-minded perspective held by most policy-makers and politicians. They tend to view the various programmes and projects as a means to obtain funds to sustain their organisations (as well as strengthen their political positions) and not as opportunities for realising long-term policy objectives.

A significant difference between Kekanam and ANEM has been the continuity of their intervention strategies. ANEM has been characterised by the active involvement of its political supervisors in project work and collaborative schemes. Operational management and most staff change with political changes. When changes occur after prefectural elections, a new President of the Board is appointed with new management. Their main concern seems to be the facilitation of clientelistic objectives for electoral purposes (as in almost all similar organisations), without direct involvement in the actual day-to-day work of the organisation. While these demands put an extra workload on the new leadership to keep in touch with the objectives and realities of the organisation, in contrast they seem not to have affected the management and staff of Kekanam significantly. Rather the drive for intervention and development initiatives have remained with those, who have laboured over the years to create employment, training and equal opportunities. As a result, Kekanam has managed to sustain and develop its strategy for training and employment creation. At the same time the

experience of the management team in managing projects and developing new proposals has not been destroyed, and networking competence has been extended. Thus, Kekanam appears to have sustained a trajectory of intervention (continuously inviting cooperatives to meetings and programme planning) while ANEM seems to have lost its momentum.

Kekanam has assumed a leading role in the projects on the 'social economy' and has been the main actor sustaining interest in women's cooperatives. Taking advantage of various types of EU financed programmes, it is the main actor in developing new partnerships and initiatives, becoming the centre of a network of local organisations for training, development and planning. Its members have tried hard to involve women and their cooperatives in various projects. Their concern has extended beyond the scope of individual projects; they have sought to maintain links with cooperatives (calling or visiting them) and inviting them to bid for catering services, sharing their concerns and problems and assisting them to find customers and distributors. Others, such as ANEM adopted some of their practices (e.g. using cooperatives' catering services, that has become standard practice for public organisations in Magnesia). As the Kekanam team has stressed, they have made a conscious strategic choice to pursue the role of champion and leader of partnership for the 'social economy' in Magnesia. They have sought to network with as many partners as possible formally or informally to develop agendas and build a common framework of cooperation.

6.3. Learning mechanisms and training activities

Developing these new cooperative activities in the region required enrichment of local actors' competences at several levels. At individual level, there was a clear need for developing women's skills in three areas:

(a) production processes;
(b) entrepreneurial activities, such as commerce, marketing, etc.;
(c) management (organisation, accounting, information systems, etc.) and governance (decision-making, rights, obligations, etc.) of cooperatives.

One of the most recent activities involved training organised centrally. Women were invited (one or two from each cooperative) to attend a series of seminars aimed at raising their awareness and familiarity with the issues outlined above. The emphasis was on theoretical training, although

instructors made substantial efforts to link the subjects with issues the women face in their cooperatives. Two shortcomings were identified. First, there were no provisions for sharing knowledge with the other cooperative members in an organised and monitored way. Second, follow up actions were haphazard, relying on the goodwill of Kekanam staff and their network of partners and funding from other projects. Hence, this led to non-use of the knowledge acquired. In cases where women with higher formal education were involved (as in Pteleos and, later, Zagora) there was a sustained effort to exploit the knowledge acquired from these seminars.

At the level of support organisations and mechanisms, the following gaps were identified:

(a) lack of specific knowledge and documentation on the position and problems of women in the communities of Magnesia;
(b) absence of experience and methodologies;
(c) lack of knowledge of good practices, both for cooperative practice and support.

From 1998 to 2000, Kekanam was the leader of a local partnership project addressing the above issues. The project was funded by the employment NOW initiative to encourage and support women's entrepreneurship in the areas of cultivation, standardisation and commercialisation of flowers and aromatic (herbal) plants. Two groups of women were selected for support, one group of self-employed women in south Pelion focusing on aromatic plants, and one in Makryrahi focusing on developing already existing flower growing activities. The former group soon run out of steam due to lack of cohesion and problems in acquiring land for cultivation. In Makryrahi, the project led to forming a women's cooperative.

The main actions in the NOW project were:

(a) creating new structures for orientation, skill improvement and consultancy for women and support for promoting women's entrepreneurship;
(b) training women in subjects relevant to their respective activities, in particular business and management of cooperatives, as outlined above;
(c) developing business plans and support for creating cooperative and self-employment activities;
(d) assessing and promoting good practices and networking both locally and internationally, for learning purposes.

Among the activities carried out, those that had significant learning objectives were: visits of some women to a flower market, flower shops and a processing plant in the Netherlands; visit of local government officials to

corresponding structures in Italy; and the contribution of German flower arrangement trainers to some training courses. Following the experience of the NOW project, Kekanam was invited to train members of the newly formed cooperative in Pteleos, where they applied their recently developed support skills and methodologies.

Another initiative led by Kekanam in Magnesia was part of a broader partnership (involving partners from the island of Crete) focusing on entrepreneurship in the 'third sector' (i.e. social entrepreneurship). It was funded by the EQUAL community initiative in the period from 2002 to 2004. The project had a broader theme, addressing the issues of social entrepreneurship. It also embraced entrepreneurship for disadvantaged groups and volunteer organisations. It addressed four areas:

(a) developing a favourable environment for social entrepreneurship including, among others:
    (i) establishing funding mechanisms;
    (ii) creating a network of mentors on entrepreneurship;
    (iii) forming a cluster of women's cooperatives;
(b) training programmes based on demand from members of existing cooperatives, as well as from women planning to form cooperatives in the future;
(c) developing business plans for all existing or new cooperatives;
(d) developing a framework and procurement accreditation scheme for social entrepreneurship actors.

In their transnational activities, members of the support organisations made field trips to Italy and other countries. In Italy, the main concern was to learn about managing cooperatives and support measures, especially in local government procurement.

6.4. Results

During the past decade, a significant number of women's cooperatives were formed in Magnesia. All are based in the rural periphery of the prefecture, constituting a new form of activity, which provided opportunities for employment and improving the status of women in local societies. In most cases, cooperatives offered a unique space of freedom and provided an opportunity for self-fulfilment. However, economic performance has been poor and most cooperatives have been on the edge of survival since their inception. In some cases, inability to pay their members for contributions has

led to disappointment and withdrawal from productive activities, leading, in turn, to cooperatives being unable to respond to the expectations of their members.

There are two main reasons for the poor performance of cooperatives. First, there are insufficiencies in the skill base for organising cooperatives. These concern both organisational and production-related skills. Most women have no higher education or business experience. This leads to a lack of self-confidence when it comes to taking initiatives and breaking out of the boundaries of the community. The situation is exacerbated because there is no sustained and continuous support mechanism for training cooperatives nor any organisational arrangement (such as a cluster or support organisation) that would take some of the burden off their shoulders.

Second, there is a tendency towards introverted behaviour. The orientation of activities appears to be limited to the local market. It is difficult to engage members in simple tasks, such as taking the products to the city of Volos (the capital of the prefecture), which might provide a larger and more stable market. This inward looking attitude is also reflected in the focus on production and cost as main concerns. The dominance of a 'productionist' mentality limits their ability to discern the opportunities in immediate and more distant markets. At the same time, there is negligence regarding investment in external activities and skills, such as marketing and sales. They tend to rely on merchants and intermediaries for access to final customers and distant markets.

It appears that this introverted, productionist mentality and lack of skills and commitment form a reinforcing loop, a vicious circle that has trapped both the cooperatives and support organisations in a cost and production focus. The inability to create a sustainable competitive advantage is viewed as a cost and production problem, rather than an inability to comprehend and take advantage of opportunities. However, there has been one significant exception. The cooperative of Pteleos has been consistently outperforming the others, and stands out as a successful example. Women are on a waiting list to join it and they have to go through a test period before being accepted as full members. The Pteleos cooperative has been more aggressive in its effort to seek and gain contracts with public organisations and establish itself as a reliable supplier. This may be attributed to the participation of a woman, with higher education and experience in large cities. This has been instrumental in creating high expectations and more extrovert behaviour. She has been a committed champion for the cooperative in the local community as well as liaising with local and regional authorities and decision-makers.

Her role has been critical in maintaining a high level of commitment and expectation.

Within other local communities there seems to be a negligible impact, especially if one ignores the broader impact on the lives of the members. In at least one case, the activities of a cooperative are seen to be in direct competition with local merchants and against the interests of wine and spirit producers in the broader area of Magnesia. Although not documented, there also seems to be considerable inertia in accepting women as independent economic actors, sometimes providing a large part of family income.

Still, the greatest failure is that despite the efforts of Kekanam and their partners, a cluster or network structure to assist individual cooperatives come out of the localities and exploit synergies has not been established. Although all cooperatives have recognised the need for such an activity, they have been hesitant in committing part of their scarce resources for this. One reason is the lack of self-confidence, but also the low level of trust that characterises the local economy as a whole. The latter is a result of past practice and experience, reflecting the lack of skills and competences to manage such collaborative relations. It is also a product of the absence of trust-building mechanisms.

The cooperatives' ineffectiveness can also be attributed to the principles of regional development strategy. Regional programmes and other relevant actions mainly focus on large and medium-scale projects in physical capital rather than small-scale community and human intensive local cooperation actions. This dominant mentality was the 'negative' catalyst in the learning processes of local communities and has accordingly driven (even unintentionally) women's actions in cooperatives. The 'productionist' and 'economistic' culture was an additional barrier to women as – in addition to labour market barriers – they were expected to succeed as entrepreneurs.

However, through this process women undertook 'half the learning' and this must be seen as constituting a new step in learning. The same can be said of local organisations aiming to secure financial resources from various European projects. Through interaction with different partners and cultures, the women experienced new ways of implementing programmes for local integration and development. Despite the differentiated outcomes the institutional capacity of development companies was improved and valuable experience gained, crucial for the future potential of local communities.

However, probably the most important result is that the mould has been broken. In discussions with members, despite difficulties and problems, women recognise cooperatives provide a unique opportunity for self-

fulfilment and a change of status in their local society. For younger women, cooperatives provide rare opportunities for employment in an environment where investment is sparse. Local communities and decision-makers now recognise women's cooperatives as viable and significant partners in the development process.

At the same time the region appears to have generated a committed agent of change in Kekanam, which has evolved into an organisation with experience and knowledge of the European policy agenda as well as competence in orchestrating regional resources and stakeholders. Its accumulated experience extends beyond its boundaries to a broad array of networking and negotiating mechanisms in the region as well as with other regions.

6.5. Discussion

The 'productionist' mentality has dominated support initiatives, shifting the focus of support to improving production skills, neglecting the necessary business activities. In most business plans and support measures (such as subsidies) developed for the cooperatives, the emphasis is given to investment in facilities and equipment, despite the clear need to address marketing, sales and market research. A corresponding bias is evident in the discourse on competitiveness. Both cooperative members and support organisations understand competitiveness as a price issue. Consequently resource commitments, organisational mentality and business culture are centred around this performance measure.

The above is also reflected in the structure of training programmes. Emphasis is on how to do things right (production, quality control, costing, sales even advertising). An 'economistic' culture about business and competitiveness dominates policy-making, support initiatives and business contact. There is little evidence of questioning the strategic direction of the business. In other words, an entrepreneurial perspective would raise the question about what is the right thing to do or what is the best strategy.

In other words, learning has been 'single loop' rather than a 'double loop'. Most support and training measures have focused on providing women with the appropriate skills to perform in a predefined strategy. This had two side-effects. First, the need to make the required commitments and sacrifices has not been clearly appreciated. When the focus is on cost and perceiving the market process as one of 'cost undercutting', the prospects for development

are inhibited. The rationale of cooperative creation was characterised by emphasis on ill-conceived cost benefits. Second, the conversation and reflection, on the value of products and services and how these can be matched with needs and expectations of potential customers, has not taken place. This has deprived cooperatives of the impetus that a clear mission statement with a positive, value-creating focus would have provided.

Still, a feeling of distinct identity is shared by women members. This may not be reflected in the business mentality and practice, but is evident when it comes to the value and potential generated by the cooperatives' existence. A shift to a more entrepreneurial perspective through support initiatives and training and reflection on the purpose and strategic intent of cooperatives as business entities, would provide two critical ingredients. First, it would provide a break from mainstream business mentalities that have proved unfruitful. Second, it would give a sense of direction and meaningfulness to the cooperatives' activities, in their rural, agro-tourist production environment.

The question that springs to mind is why this has not happened. How have the actors involved not grappled with the limitations of current practice? An immediate answer is the discontinuous nature of intervention efforts. Support organisations have been forced to treat issues on a project-by-project basis. While there is an element of continuation, the pressure for project deliverables and the objectives of policy programmes have acted as focusing devices, diverting from reflective learning. The same may be said of support measures, such as subsidies, which have a double bias away from investment in soft assets (e.g. mentality), and from learning from the market.

At the same time, there has been a deficit of political will to compensate for the piecemeal nature of policy initiatives. Despite all declared intentions, the political leadership has not responded with a sustained commitment to resources and leverage. There is scant acknowledgement of their role in local development and economic activity.

On the contrary, the fragmentation of initiatives among support organisations has led to a mentality of zero-sum games. Each partner appears to have sought its share of the pie. Instead of creating synergies, resources have been scattered in a way that reflects negotiation rather than dialogue. Management of the diverse agendas has been very poor. The mix of 'clientist' political practice with 'a divide and conquer' mentality has deprived the region of mechanisms of dialogue that would accommodate what Flood and Romm (1996) have termed 'triple loop' learning. Instead of a common basis of appreciation, the low level of trust among business partners

is reproduced at support and policy levels as well. The exception of Kekanam as a success story owes much to the commitment of its staff and the fact that interference from political bosses has not affected the line-up of its core team. During its history Kekanam has developed the competence to address and engage with the agendas of other stakeholders, while focusing on its mission. It has learned by doing as well as by interacting with like-minded agencies in European programmes.

6.6. Conclusion

The fact that Magnesia is home to one in 10 women's cooperatives in Greece may itself be considered a measure of success. However, a closer look reveals that the path has been full of problems and limitations. The main argument is that the limited success owes much to the mentality that has governed strategy, management and support. The lack of success of cooperatives in attracting resources and fully taking off is a result of a strategy focusing on cost reduction rather than value and opportunity creation. As a result, there has been a failure to provide sufficient inspiration to stakeholders. Policy and support interventions have fallen short of changing this course. Trapped in a mentality of continuous rather than discontinuous learning they could not provide sufficient leverage for a change in direction. This is also reflected in their own practice, which is the product of the limited collective (regional) competence to navigate change and learn in a sea of diverse agendas and change. It may be suggested that the lack of fit that undermines the sustainability of women's cooperatives reflects a lack of fit in the learning mechanisms and competences in the region.

A successful intervention would have to engage stakeholders beyond their immediate scope of intervention and address the need for change in their perspectives that guide their actions and particularly their interactions. Points of leverage have to be identified for a sustained shift in direction in everyday practice. These may be sought in the mode of interaction among stakeholders and the shortcomings of their views of reality that drive their actions. Pivotal among these is the need for mechanisms of self and collective reflection on past practice with respect to the value added to individual objectives and to the region as a whole.

Still, the steps accomplished should not be underestimated. In an environment characterised by lack of self-confidence and lack of belief in

collective action, where women have been in a disadvantaged position, exacerbated by problems of the rural economy and social condition, the region of Magnesia has witnessed successive attempts to provide new opportunities for economic and social accomplishment by women. Some stand out as significant examples of success and provide important lessons. In addition, the accomplishments of Kekanam represent an ensemble of institutional, cognitive and 'technological' know-how that forms a pivotal dynamic resource for the region's learning endeavours. Through its experience and involvement in local and European projects it has developed its capabilities to fulfil the role of a hub of regional partnerships promoting social entrepreneurship.

CHAPTER 7

Supporting innovation: case study of two Swedish industrial development centres

Marie-Louise Eriksson

7.1. Introduction

The learning region concept was introduced to describe regions that are successful in supporting collective learning among regional actors to enhance innovation capacity ([1]). A central question addressed in this chapter concerns the nature of policy initiatives that stimulate learning processes for regional innovation ([2]). It is claimed that to develop effective regional policy measures, initiatives must be adjusted to the specific regional context (Amin and Thrift, 1995b). These measures must be characterised by flexibility and adaptability to remain effective after the initial implementation phase (Gregersen and Johnson, 1998; Metcalfe, 1997) ([3]). Hence, regional innovation policy has to have a continuous learning dimension.

The aim of this chapter is to probe into how a learning dimension can be incorporated in regional innovation policy through the intervention of 'innovation support organisations' formed as 'regional development coalitions'. In presenting case studies of two regions in Sweden, in which so-

([1]) There is no clear definition of a learning region. The concept encompasses several other concepts such as 'regional innovation systems'. Boekema et al. (2001) prefer to treat the notion of the learning region as a paradigm rather than a concept.

([2]) There is general agreement that it is not possible to generate 'one-size-fits-all' policy recommendations based on the lessons of 'successful' learning regions (Nauwelaers and Wintjes, 2002; Rutten et al., 2001). It is difficult to single out factors that explain prosperous development. It appears that forces underlying regional development are often created spontaneously, through markets, social relationships and industrial structures. This means that it is very difficult, if not impossible, to create economic growth directly through policy interventions. As a consequence, governments across the world try to create the 'right' conditions to spur growth, e.g. through investment in education, innovation, 'champion firms' and 'start-up firms' (Eriksson and McKelvey, 2005).

([3]) This claim is based on the understanding that policy-makers have to adapt to new situations continuously, since innovation policy is essentially about changing the state of play.

called ‘industrial development centres’ (IDCs) were established, the manner in which these organisations developed their learning capabilities is examined.

7.2. Innovation support organisations need learning capabilities

A ‘development coalition’ (see Asheim in Chapter 16) can be described as a partnership characterised by broad participation and social mobilisation. For regional innovation policy, it is essential to involve firms in creating development coalitions that use a bottom-up approach as it is their future that is at stake. Interaction among actors in a development coalition is characterised by horizontal links based on an egalitarian structure (Asheim, 2002) that facilitates active participation and open dialogue (Ennals and Gustavsen, 1999). These organisational features are assumed to provide the conditions for continuous change, i.e. promote flexibility and adaptability. Thus, the development coalition appears as an appropriate organisational form for regional innovation support (Asheim, 2001).

However, studies on regional development coalitions have thus far not provided information on how an innovation support organisation, formed as a development coalition, can succeed as a long-term promoter of regional economic development. It is suggested that through examining the ‘learning capabilities’ of these organisations/development coalitions, it is possible to provide some answers to the above.

Three main types of ‘learning capabilities’, which can be divided into six subcategories, appear vital for regional development organisations (see Table 1) (Eriksson, 2005). First, it is important to examine an organisation’s ‘knowledge capability’, which can be further subdivided into ‘absorptive’ and ‘foresight’ capabilities. While the former refers to the ability to process existing knowledge (Cohen and Levinthal, 1990), the latter has to do with the ability to develop new knowledge to deal with future events (Keenan et al., 2001; Asheim, 2002).

Second, it is essential to investigate an organisation’s ‘communication capability’, which can in turn be divided into the subcategories of ‘connective’ and ‘coordination’ capabilities. The first captures contacts with external actors – making connections with other organisations (Grabher, 1993c) – while the second deals with internal cooperation. It is not only imperative to establish a broad spectrum of external contacts which makes it possible to

acquire new knowledge, but it is equally important to disseminate knowledge within the coalition. Moreover, the 'coordination' capability enables the organisation to create intraorganisational synergy effects (Ennals and Gustavsen, 1999).

Table 1. **Learning capabilities of regional innovation support organisations (Eriksson, 2005)**

Learning capabilities	
Knowledge capability	• absorptive capability • foresight capability
Communication capability	• connective capability • coordination capability
Action capability	• reactive capability • proactive capability

Third, it is necessary to analyse the organisation's 'action capability' which influences an organisation's ability to change continuously (Asheim, 2002). On the one hand, an innovation support organisation has to satisfy the demands of industry and public actors: a 'reactive' capability. But on the other, it is perhaps more important for innovation support organisations to foresee problems and issues that client firms are not yet aware of: a 'proactive' capability.

The key question underpinning the above typologies on learning capabilities is: whether they give rise to 'adaptive' or 'developmental' learning (Ellström, 2002; Ennals and Gustavsen, 1999). The balance between these two types of learning in an innovation support organisation determines how it carries out its work. In developmental learning (which is also called creative learning) organisations take up a critical approach to tasks and goals. This type of learning encompasses an ability to handle surprise, changing needs, and new visions through 'dissociation, questioning, reinterpretation, and critical analysis', i.e. a critical reflection ability (Ellström, 2002; p. 340). On the other hand, learning characterised by adaptability focuses on how individuals learn to acquire knowledge, solve problems, and act in relation to situations where goals and conditions are given. The focus is on maintaining the efficiency and stability of the organisation and thus learning is mainly about mastering procedures and routines (Ellström, 2002; p. 338).

7.3. Swedish 'industrial development centres' initiative

The rest of this chapter focuses on the establishment and development of two Swedish 'industrial development centres' (IDCs) (Eriksson, 2005) which aim to facilitate the kind of collective learning discussed above. These IDCs are organised in a way that corresponds in many respects with the 'development coalition' model.

The first nine IDCs were established at regional level in Sweden in 1997 ([4]). A key characteristic of the Swedish IDCs was involving regional firms as the main shareholders. But, IDCs also included labour unions, business associations, universities and other interested parties ([5]). IDCs obtained a commission from the Swedish government to assist SMEs to pursue product innovation and to encourage all firms to generate spin-offs through providing venture capital. To obtain this commission, IDCs had to comply with certain conditions, such as regulation of ownership structure limiting the influence of large firms and public actors ([6]). Moreover, IDCs had to develop a specific technological profile within which they could offer consultancy on a national basis. Apart from fulfilling this commission, IDCs could offer other innovation support services on a strictly business basis.

7.4. Case studies of IDC Öst and IDC Gnosjö

For a more in–depth examination of this policy initiative, two cases from IDC Öst in Finspång municipality and IDC Gnosjö in Gnosjö municipality are discussed. These regions are mainly rural, although not sparsely populated, municipalities ([7]). The two cases differed from each other in their industrial

([4]) In the following years, the number of IDCs increased to 21.

([5]) Swedish IDCs are consistent with the decentralisation and delegation of innovation policy to regional actors as proposed by Cooke and Morgan (1998).

([6]) According to these conditions shareholders were divided into three categories. The first included small and medium-sized firms (1-250 employees): these firms together could own one third of the shares. The second category encompassed large firms, which were also only allowed to own one third of the shares. The same condition applied to the third category: municipalities, unions and other interested parties.

([7]) It should be noted that these two IDCs started up in urban environments and only later encompassed rural areas. The IDC regions did not follow any administrative borders but were functionally defined. In some cases, these regions were mainly the result of networking pursued by the IDCs employees. Hence, in IDC Öst the region included the whole county and parts of adjacent counties, whereas in IDC Gnosjö three neighbouring municipalities, sharing similar industrial structures, formed the region.

structure (Braczyk and Heidenreich, 1998; Yin, 1994). IDC Öst, located in Finspång municipality, is situated in a region with an industrial structure characterised by the dominance of a few large firms. In contrast, IDC Gnosjö, situated in Gnosjö municipality has a high concentration of SMEs, very different to the picture in the country as a whole ([8]).

The idea to establish IDC Öst originated with the municipal authority in Finspång which is a typical Swedish industrial community with a long history of large-scale manufacturing. This was reflected in the formation of IDC Öst, with large firms playing a more prominent role than SMEs in determining the focus of the IDC. The impact of the largest firm in the municipality became even more pronounced later when it chose to spin off its educational department to the IDC. Immediately, the education section became the largest in the IDC accounting for 80 % of its turnover. Apart from offering competence development services, IDC Öst, through the government commission, provided support to SMEs for product development, acted as an intermediary between regional firms and knowledge producing organisations (e.g. the regional university) and provided expertise in the aluminium technological field. The IDC staff was small with 5 to 10 employees. Regional firms, the municipality, the local union and the regional university were active in the IDC as shareholders and board members.

In contrast, Gnosjö municipality has a long tradition of SMEs and the region is often referred to as Sweden's 'industrial district'. In fact, the initiative to establish an IDC was built on existing efforts by local entrepreneurs to start up a support organisation. Thus, entrepreneurs broadened their original idea of forming a unit offering qualified labour, to develop a SME research centre. The dominance of small firms in the region was reflected in the ownership structure of the IDC with as many as 69 SMEs joining as shareholders as well as three local unions. To comply with the conditions laid down by the government, IDC Gnosjö developed two technological profiles in metal cutting technology and polymer – the two dominant sectors in the region. These were developed in two separate daughter companies. An active network of projects was facilitated to focus on a broad spectrum of issues

([8]) The study on these two IDCs is based on interviews, written material and to some extent statistical data. Interviews were undertaken with CEOs of the IDCs, IDC employees and board members. The leading councillor of each municipality was also interviewed to attain an overview of the municipalities' industrial policy traditions. Written material included policy documents and previous evaluations based on surveys, interviews and IDC archives. Statistical data were used to provide an overall picture of the regions' industrial structures and economic development at the time of the policy interventions (Eriksson, 2005).

such as: competence development; implementing information technology in small firms; and promoting innovation processes. IDC Gnosjö also offered financial support for SMEs' product development. The number of employees shifted over time, but at the time of the study in 2005 the IDC employed about 15 people, including those working in the two daughter companies.

7.5. IDCs: 'reinforcers' or 'renewers'?

The aim of the Swedish 'industrial development centres' was to facilitate collective learning at regional level for industrial growth. The outlines of IDC Öst and IDC Gnosjö show that they followed different paths in setting about this task. IDC Öst mainly developed learning capabilities to support adaptive rather than developmental learning. For example, the IDC's 'knowledge base' was rather limited because it was mainly determined by the spin-off of the large firm's educational department to the IDC. Several employees who joined the IDC only had experience of working in the large firm which was the IDC's main customer and so were well able to identify its demands. However, employees were unable to expand the IDC's circle of customers to include smaller firms as they were not as capable of articulating their demands ([9]). Of course, a limited 'knowledge base' could have been counteracted by developing communication capabilities that facilitated knowledge input from outside the organisation. However, in IDC Öst this did not happen despite the IDC developing capabilities to support both adaptive and developmental learning. Supporting developmental learning was exemplified in the way the IDC made contacts with external actors. However, these contacts to a large extent focused on satisfying the demands of large firms. This meant that although the IDC Öst's connective capability supported developmental learning, it did not result in broadening the IDC's supply of services. The manner in which the IDC organised its internal work characterised by strong departmental divisions and top-down steering was also important. This type of organisational structure was also reflected in the character of the IDC's foresight capability. Much of the organisation's effort was spent on maintaining the present provision of services and activities. Thus, the IDC's foresight capability was largely limited to planning for and dealing with day-to-day activities and problems.

([9]) Accordingly, the IDC Öst's absorptive and foresight capability tended to give rise to adaptive learning.

The IDC continued to act in accordance with the prevalent regional industrial structure focusing on the needs of large firms, thus favouring reactive/adaptive learning. Promoting stability and efficiency was more important than taking risks. IDC Öst could have counterbalanced this by choosing a technological profile to address the interests of smaller firms, but instead chose 'aluminium', the technological profile of one of the larger firms.

In contrast, IDC Gnosjö was to a great extent characterised by learning capabilities supporting developmental learning. This was shown in the way that IDC Gnosjö developed its foresight capability. Accordingly, one of the IDC's most important tasks was to provide regional firms with analyses of future threats and possibilities. Based on awareness that there was a limited focus on long-term planning by small firms in the region, (partly due to the firms' limited resources), IDC Gnosjö promoted links between regional firms and the outside world. Metaphorically speaking, the IDC can be seen as a person 'with a long neck (looking beyond the horizon), large ears (keen hearing), large eyes (sharp-sighted) but with a small mouth (thinking before talking)' and with 'big feet' (a stable foundation to rest on) (Eriksson, 2005). Thus, the aim of the IDC was to establish a research and development centre focusing on the needs of small firms. In practice, part of the foresight work involved finding out about future development trajectories in the manufacturing industry ([10]). A characteristic of the IDC's foresight capability was the emphasis placed on including employees in discussions about developing the IDC's services. The strategy group included the CEO, the vice CEO and two employees.

Moreover, employees of IDC Gnosjö developed a wide network of contacts with both universities and research institutes. The view of the IDC was that its employees had to cooperate across various departments and projects to realise the organisation's overarching goals. This was important since the IDC's knowledge base was rather limited considering the lack of entrepreneurial or industrial experience. However, since several members of the IDC had a university degree, they could search for information in various ways and from many different sources. Thus, they compensated for their limited knowledge through cooperation with external actors. IDC Gnosjö managed to develop a proactive capability that challenged the organisation's original plan of action. Further, integrating the original idea to set up a 'core unit' from which firms could buy labour and expertise on an hourly basis, with

([10]) The IDC's foresight capability was supported by its coordination capability.

the broader IDC concept, allowed the actors in Gnosjö to go way beyond their original plan.

To sum up, an analysis of 'learning capabilities' provides us with a picture of two quite different development coalitions. On the one hand, the IDCs fulfilled many typical structural features of development coalitions – e.g. broad participation and a bottom-up approach – while on the other, there were significant differences in how the IDCs developed their organisational processes. The two IDCs differed in how they engaged employees in planning processes and how they set about intraorganisational cooperation. Thus, IDC Öst appeared as a kind of regional 'reinforcer' as it focused on existing technological trajectories and supported the traditional industrial structure through focusing on the needs of large firms. In contrast, IDC Gnosjö could be characterised as a regional 'renewer' as it challenged traditional patterns of entrepreneurship, attempted to uncover the latent needs of firms and persuade smaller firms to engage in future-oriented research-focused projects.

7.6. Concluding comment: importance of reflexive learning in innovation policy

The overall aim of innovation policy is to develop new ideas about products, work processes and organisational design. A common feature of innovation policy today is involving entrepreneurs in designing and implementing initiatives to ensure they meet firms' needs.

This chapter analysed two regional innovation support organisations formed as regional development coalitions that included firms, local unions, business associations, authorities (municipalities) and regional universities. The aim was to examine how this type of innovation support organisation might succeed or fail as a long-term promoter of regional economic development. Analysis shows that despite the regional embeddedness of the two IDCs, reflected in the broad participation of regional actors in decision-making and activities, the two IDC differed in the extent to which they developed services to meet the needs of their target groups. While IDC Öst mainly adjusted its services to fit the clearly articulated needs of large firms, IDC Gnosjö developed services focusing on the latent needs of small firms as well as their articulated needs.

Accordingly, IDC Öst mainly developed organisational learning capabilities to support 'adaptive learning' through focusing on traditional industrial development trajectories. Therefore, it can be characterised as a regional 'reinforcer'. In contrast, IDC Gnosjö developed organisational learning capabilities to support 'developmental learning' through focus on discovering future threats and opportunities facing the regions' firms. From this perspective, IDC Gnosjö could be referred to as a regional 'renewer'. Its main concern was not just to assist firms to become more competitive in the prevalent industrial trajectory but to help them adjust to new challenges.

The lesson to be learned from these two cases is that there needs to be a proper balance between adaptive and developmental learning. With the aim of an innovation support organisation being to develop a region's capacity for change and renewal, developmental learning in the form of critical reflexive learning becomes important. This entails continual evaluation of goals and visions and of how resources are coordinated to develop regional innovation policies.

CHAPTER 8

Raufoss: from a learning company to a learning region

Tom Johnstad

8.1. Introduction

Over the past 10 to15 years, the town of Raufoss in Norway has undergone a complete transformation, from being a single company town, with its core activity in military production Raufoss Ammunition Company (RA), to becoming an agglomeration of 70 to 80 companies producing aluminium components for the automotive industry. The challenge was to transform a large monolithic company and 'learning organisation' (Child and Heavens, 2003; Garratt, 1987; Garvin, 1993) into a networked local economy or 'development coalition' (Ennals and Gustavsen, 1999). The overall objective was to create a 'dynamic cluster' (Porter, 1990, 1998, 2000) or 'learning region' (Asheim, 1996, 2001).

8.1.1. Region in transition

Raufoss is a small town with 6 000 inhabitants, but providing 4 000 industrial jobs. It is not far from Gjøvik (with 27 000 inhabitants), the main town on the western shores of lake Mjøsa, and the centre of a functional region of 67 000 inhabitants. It forms part of the old Toten landscape. For more than 100 years Raufoss was the location of RA, which was the main supplier of ammunition to the Norwegian armed forces as well as a supplier to NATO. Raufoss was a single company town, with a 'fenced off' industry having 'closed' relations with its owner (Ministry of Defence – also its main customer – and the Ministry of Industry) in the Norwegian capital, Oslo.

Today, the new Raufoss industrial agglomeration has demanding global customers. It is innovative, developing regional industrial networks and continually developing its 'home base'. Transformation of the industry towards a dynamic cluster was strongly influenced by several factors, including networks and research organisations which fostered important

initiatives. The ‘industrial milieu’ in Raufoss was recently selected by the Norwegian government as one of six regional clusters in Norway in which to develop a ’centre of expertise’. This was important for transforming Raufoss into a learning region.

8.1.2. Strong industrial tradition

RA was established in a region with a strong industrial tradition. The Toten area is predominantly agricultural with large and medium-sized farms (in Norwegian terms). It has fertile soil and is part of the ‘grain store’ of Norway. There was early specialisation in production and sales which also opened up markets for craft industries locally and in other regions. From 1740, there was substantial production of grandfather clocks. In the 1860s, the first Norwegian sociologist, E. Sundt (1867), described this region as one of the most industrialised rural areas in Norway. Different home craft ‘industries’ thrived and supported one another in producing of wooden goods, tinware, knives, clocks and textiles. The example of one family inspired another and home craft activities took place in nearly every house. This created a substantial domestic industry generating considerable exports to other regions of Norway. Traders built a system of distribution and sales. They also brought back ideas on how producers could adapt their products to fit better the tastes of customers. Already then the ‘industrial milieu’ in Toten had the ability to learn, adjust and innovate, improve competitiveness and promote ‘value creation’.

The domestic and farm-based industry was strong from the mid-1700s through to the 1800s when Gjøvik began to grow as a town. It had power from a waterfall in a local river and developed wood processing and mechanical industries. Beginning in 1843, Mustad & Søn gradually became the cornerstone industry in the town. In the 1880s, the company produced fish hooks and became a world leader.

When RA was established at Raufoss in 1896, the location had a substantial handicraft tradition. Due to its spirit of entrepreneurship, innovation and its transformation skills it had the characteristics of a growing modern industry. Important for developing RA were the skilled craftsmen who transferred their handicraft skills to a modern industrial environment (Holmen, 2001).

8.2. ‘Raufoss Ammunition’ company

RA was part of a national effort to strengthen the ‘home forces’ of Norway during its union with Sweden. The arsenal and ammunition production at Akershus Castle in Oslo had been moved to the strategically safer location of Raufoss, behind the Skreia mountains and lake Mjøsa. With war possible over Norwegian independence, production and employment in the ammunition factory increased up to Norwegian independence in 1905. There were around 500 employees when the first ‘war-based’ business cycle came to an end with the peaceful settlement of the independence question. During the First World War there was huge increase in demand, with 1 000 employees in the company. The downturn after the war led to a change in direction with focus on civil production, and RA became one of the leading mechanical engineering companies in Norway (Johnstad, 2004; Wang, 1996).

8.2.1. **From military to civil production**

After German control of RA during the Second World War, the ‘boom’ during the Korean War and the early phase of the Cold War (1950s), the military industry entered into a slump. Thus, after being a military company for 50 years, with military leadership and ownership, a substantial change took place when RA became an independent ‘State-owned’ industrial company with civil leadership by engineers. This took place in 1953 when the Ministry of Industry became the owner. The challenge for RA was to develop synergy between military and civil production. In 1955 a committee was established to look at potential strategic investment in civil production. It proposed to focus on manufacturing aluminium components for the automotive industry, in particular Volvo. In 1957, RA got its first small contract with Volvo. This started a change in the company, which 50 years later resulted in Raufoss being one of the leading European aluminium automotive clusters.

It took 10 years before RA got a substantial contract with Volvo for producing aluminium bumpers. Meanwhile RA had developed profiles for the building industry and gained substantial military contracts, such as manufacturing parts of the engine for the Sidewinder missile. In the 1970s and 1980s, the company entered a period of intense development and learning across units and production lines. A whole range of new aluminium products for the automotive market was developed and in the first half of the 1980s the company succeeded in securing numerous contracts with the European car industry.

In the 1980s, RA experienced a rapid increase in civil production for international markets that required substantial investment. The export part of total sales increased from 30 % in 1968 to 80 % in 1994. In 1990, RA was partly privatised and introduced on the stock exchange.

The company had gone through substantial growth since it started in 1896 with just 70 employees. It grew from 500 to 1 000 employees between 1905 and 1940, reaching 1 500 at the end of the 1950s. With 2 500 in the 1990s and 3 200 in the 70 to 80 companies, forming a cluster, in 2005, employment had more than doubled since the 1950s. Military production, which previously occupied around 500 to 1000 employees, required no more than 600 in 2005. Growth in the post-war period was primarily due to an increase in civil production, in particular in the automotive component industry, which in 2003 had total sales of NKR 2 500 million.

8.2.2. Learning processes in RA

When military production was the core business at RA, development and learning took place in close collaboration with customers. This continued during the civil production phase when emphasis was also placed on transferring knowledge between the different departments in the company. RA had its own R&D unit and cooperated closely with leading Norwegian universities and R&D institutes.

In 1965, RA made a significant breakthrough as a car component producer with a contract from Volvo for 500 000 bumpers to be delivered over five years. Volvo demanded a high level of mechanical engineering and metallurgic competence. The surface treatment of bumpers had to be first class. After problems in the first phase, the delivery and quality specifications of Volvo began to be satisfactorily addressed.

From 1968 to 1972 RA enjoyed a creative development period. The different factories started to work intensively with their marketing units, and development took place in close contact with customers. A whole range of new products emerged that became important for RA in the 1970s and 1980s, such as new multipurpose ammunition, new types of couplings, various plastic products and aluminium products for the building industry. Further, they were able to use the knowledge gained there to produce new components for the automotive industry.

8.3. Fragmentation and learning

During the 1990s a process started that radically changed Raufoss. First, the Raufoss automotive division was sold to the Hydro company. Second, Nammo (Nordic Ammunition Company) was formed as a spin-off of the previous core business. Third, Plastal was formed in 1999, and finally in 2000 Steertec appeared through the sale of parts of the production business to the German Elbe Group. In 2004, after seven years of spin-offs, there were 35 companies in Raufoss Industripark (RI). Of these 13 were production companies mainly supplying the automotive industry.

In addition, more than 20 smaller service companies engaged in data processing, energy supply and maintenance were formed, such as RTIM (Raufoss Technology and Industrial Management) which is a key service company with advanced competence and technological know-how in materials, processes and management. It cooperates closely with northern Europe's biggest independent R&D institution, SINTEF (Research Foundation at the Technical University of Trondheim) which in fact is the majority owner of RTIM. Other companies in Raufoss Industripark are part owners of RTIM.

8.3.1. Core competences and interactive learning

While individual companies continued to have their own relations with customers, suppliers and R&D institutions, fragmentation of Raufoss required new forms of cooperation between the companies and local schools and university colleges to develop new knowledge on materials technologies. In particular, fragmentation made smaller companies dependent on one another's resources leading to the formation of 'inter-company' networks to share and develop know-how.

Over more than 100 years, a high level of competence had been developed in materials and production technologies. In 1986 development activities were centralised in a Materials Technology Centre in RA, although later, between 1997 and 2001, they were split between RTIM (Raufoss ASA), Nammo and Hydro.

The core competence of Raufoss is in 'materials technology': producing aluminium and other light weight materials (composite and carbon); managing high volume and high speed 'manufacturing processes'; and providing functional capabilities and innovative solutions to customers. The industry developed special aluminium alloys and is a world leader in 'high

speed stretch bending' and 'forging aluminium profiles'. An important core competence is a 'just in time' manufacturing production process with zero faults. Hydro Aluminium Structures (Raufoss) and Raufoss Technology are among the leading automotive suppliers in the world. The ability to do this is dependent on continuous productivity improvements generated through cooperative interactive learning between companies and technology research centres.

Several leading companies at Raufoss have close cooperation with Norwegian universities, especially the Norwegian University of Science and Technology (NTNU) and the SINTEF research institution in Trondheim. Through RTIM, and SINTEF's stake in it, this cooperation has been strengthened.

8.3.2. Higher education and vocational training

Raufoss high school is the main vocational education institution at Raufoss with 360 students and 80 teachers. The school was established in 1980 on the initiative of RA and cooperation with local industry has been very good. To address lack of interest in engineering education in 1997, a new four-year programme was established which combines general studies with special focus on mathematics, physics and production methods. Students acquire both general competence and vocational training.

Gjøvik technical high school serves both Hedmark and Oppland counties. It has 300 students and 60 teachers and educates vocational technicians. It provides a two-year theoretical course for people with a previous vocational qualification or long experience in production. This can take place over two years full-time studies or four years part-time, and a tailor-made programme can be designed. Through cooperation between the high school and two main companies in Raufoss, a company-based training programme was established which students attend two days every week, partly during working time and partly during their own time.

Gjøvik had a technical college offering engineering education that is now part of Gjøvik university college and has 1 700 students and 200 teachers. Throughout the 1980s and early 1990s, the college had good cooperation with RA, but with the fragmentation of Raufoss, ties became weaker and students' interest in engineering studies dropped. In 2004, RTIM, with support from Oppland county and the Gjøvik region, took the initiative to develop a new engineering education course with the college, to meet the challenge of engineer recruitment and the need for a new type of engineer.

In 2002, 'the study stairs' initiative was established as a cooperation between the TotAl group (inter-company network), the chamber of commerce and local schools. Through this initiative, training was offered to smaller companies, especially those needing to upgrade skills to become subcontractors to the automotive industry. Traditional training programmes were not seen as suitable for this group of companies, so 'the study stairs' programme was designed to be flexible, modular and tailor-made. Initially, it was directed at employees in SMEs with little formal education. Since then it has been developed further, and the aim today is to meet the educational and developmental needs of people at all levels in SMEs. The initial project was initiated and run by representatives from the local graduate school, the high school, the local university college and the companies themselves. This programme succeeded in providing a comprehensive training framework for SMEs (Leirvik, 2004).

8.4. Reintegration: building social capital via networks

Within a few years, between 1997 and 2003, RA went through a huge fragmentation process. It transformed itself into an 'industrial park' of 35 agglomerated production and service companies, while around 30 to 35 company spin-offs from RA were created outside the park. During the early years different companies did not have close relations. In focusing on their individual core businesses and indeed survival, they did not see the value in cooperating with one another. The great challenge in Raufoss, therefore, during the major change process was to establish relationships between firms. 'Social capital' (see Nyhan in Chapter 1 of this book) existed in the 'old' RA but eroded during the fragmentation process. Therefore there was a need to build new forms of cooperative relationships between companies in the industrial park through creating networks between the companies and R&D and education and training institutes. 'Civic entrepreneurship' which is dependent on dialogue between stakeholders needed to be built up (Henton et al., 1997; Johnstad, 2004). Many initiatives to address this have been described above. Other cooperation initiatives to reintegrate companies, in particular via networks are described below.

8.4.1. Institutions and projects to promote 'civic entrepreneurs'

Different networks, centres, institutions and projects were established as elements of a 'new associative economy' (Cook and Morgan, 2000) at Raufoss to bond fragmented companies. The regional chamber of commerce played an important role in the early part of this process in taking the initiative, with others, to establish the TotAl business network. Later it was instrumental in setting up the Gjøvik knowledge park to bridge relations between the university college and industry in dealing with more advanced and demanding entrepreneurs. In 2004 the local chamber of commerce was fused with two other similar organisations into a regional chamber covering five municipalities, including the city of Gjøvik. (See Box 1 for more information on the tasks of the TotAl group, Gjøvik knowledge park and two other initiatives Arena light metals and Raufoss Technology and Industrial Management Centre.)

Box 1. **Institutions and projects supporting networks**

The TotAl group is a business network of 35 companies, of which most are smaller companies. The network was established in 1998 on the initiative of the chamber of commerce, Toten Savings Bank and several companies. The network functions as a development arena and is involved in coordinating training programmes such as 'the study stairs' initiative. TotAl functioned more as an informal network until 2005 when it became a formalised business association.

Gjøvik knowledge park is an innovation centre, established in 2000 on the initiative of the chamber of commerce, with focus on innovation and entrepreneurship. It is located in the university college and the technical high school. The park established two incubators and employs nine people.

Arena light metals is the name of a project sponsored by the national Arena programme which is coordinated by Innovation Norway. It facilitates an aluminium industrial cluster in Raufoss-Toten with special focus on innovation.

Raufoss Technology and Industrial Management Centre (RTIM) is a service company and centre of competence. SINTEF is the majority owner. It promotes contacts between the national 'technology milieu' in Trondheim, SINTEF and NTNU. It also promotes cooperation between NTNU and the regional university college in developing a new master education course in engineering. RTIM coordinated the application to be a national 'centre of expertise' (NCE), and is the 'driver' of the NCE in Raufoss. It is managed by a 'civic entrepreneur' in the region.

8.4.2. The role of the VC 2010 research programme

Another programme servicing the region is Value creation 2010 (VC 2010) which offers organisational research-based support. The programme has 11 projects distributed over most of the country ([1]). VC 2010 participated in developing 'the study stairs' initiative and helped launch a quality assurance project, both under the umbrella of the TotAl network. VC 2010 played a role in organising six strategy seminars which resulted in establishing a formal network. During 2003 and 2004 VC 2010 was involved in analysing the Raufoss transformation process and developing clusters. This was important in the successful application for funding for an 'Arena light metals' project.

In cooperation with the Gjøvik knowledge park, RTIM, TotAl network and the Raufoss branch of the Metalworkers Union, VC 2010 organised an innovation seminar which took place for the first time in January 2004. Due to its success, it was repeated in 2005 and 2006, and has become an important arena for companies and unions to meet one another along with representatives from national and regional government and development organisations.

In cooperation with RTIM and the local metalworkers union, VC 2010 took the initiative to launch a project, based on an agreement between the Norwegian Confederation of Business and Industry and the Confederation of Trade Unions, to promote the active participation of employees in innovation processes throughout all Raufoss companies. Although Raufoss had a strong tradition of cooperation between unions and management, due to the fragmentation of Raufoss, the main labour union was also dispersed among separate companies. The focus of the VC 2010 project was to bring the social partners together to handle the human, social and organisational aspects of innovation in the Raufoss cluster of companies.

8.4.3. Raufoss 'centre of expertise'

In 2005, Raufoss was selected as one of three Norwegian centres of expertise (NCE). This centre, developed in collaboration with Innovation Norway and the Research Council of Norway, focused on light-weight materials and production technology. Raufoss and other regional partners are cofinancing activities that will take place over a 10-year period. The challenge is to develop NCE Raufoss into a dynamic instrument for developing and further strengthening the Raufoss cluster.

([1]) One of the projects covers the regions of Hedmark and Oppland which have their main focus in Raufoss. These are the only Norwegian regions with no access to the coast and for that reason they form what is called 'the Inland'.

8.5. Raufoss: towards a learning region?

Within a short period Raufoss has transformed itself from being a large traditional hierarchical industrial company into numerous smaller companies. Owners of these small companies were initially concerned with short or medium-term profit motives, with little or no interest in common innovation projects. However, a 'reintegration milieu' was gradually created through networks, partnerships and local, regional and national cooperation efforts.

Raufoss is now characterised by the growth of new organisational initiatives dealing with a range of issues. Cooperation is possible through cross-representation of the different actors on boards and project teams. A broad 'development coalition' is under construction which includes large and small companies in the industrial park, labour unions, schools, university colleges, national universities, R&D institutions and local, regional and national development agencies. A 'regional innovation system' focusing on aluminium and light-weight materials production processes is coming into being.

A regional cluster of 70 to 80 companies has been created. The discourse in Raufoss has gone through several phases, moving from relatively simple ideas about 'networking' to addressing more complex tasks, such as, how to successfully make use of public support programmes and how to create an arena for enterprises to provide services to one another. While there are major difficulties in ranking regions according to how close they may be to the notion of a learning region, there is little doubt that the Raufoss region is in the forefront of this development, nationally as well as internationally.

8.6. Acknowledgement

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CHAPTER 9

Promoting regional innovation through healthy working centres in south-east England

Anne-Marie McEwan, Richard Ennals

9.1. Introduction

The south-east of England economic development agency (SEEDA) ([1]) commissioned Kingston University to conduct a feasibility study on the concept and practice of 'healthy working centres' (HWCs). The study, cofinanced by the European Social Fund, investigated new forms of work organisation, which could have an impact on the productivity of individuals and companies by contributing to improved work/life balance, 'smarter' working practices and reduced commuting times. HWCs, if financially feasible, could benefit employers and employees alike. Offering such centres to employees could reduce the costs and pressures associated with commuting, and help employers attract and retain skilled personnel. SEEDA define HWCs as 'buildings in rural, suburban and urban areas where employed people can work remotely for various organisations from their home location'.

HWCs were investigated in the context of research into new forms of work organisation. These can be in enterprises, or can take the form of collaborative engagement in new working practices between enterprises. This chapter discusses new ways of working, including work organisation changes in other EU countries. It addresses the question: what would differentiate HWCs from existing facilities in the region, such as telecentres and if is it feasible to implement them?

([1]) By comparison with other European Union Member States, regional policy has been slow to develop in the UK, and especially in the prosperous south east of England, an administratively defined region which does not include London.

9.2. New ways of working

UK businesses are responding to the changing world of work undergoing rapid social, technological and economic change (White et al., 2004). New ways of working encompass new management practices, new forms of work organisation and new employment relationships.

9.2.1. 'New' management practices

The 1998 UK *Workplace employee relations survey* (WERS), covering 128 000 workplaces, employing 25 employees or more, identified 16 new management practices and employee involvement schemes (Cully et al., 1998). These included: teamworking, team briefing, performance appraisal, staff attitude surveys and profit-sharing remuneration schemes. Many of these practices are not new and can be traced back to the 'human relations' school of the 1930s. What may be new is clustering these practices, combined with employee involvement, to secure employee commitment for high performance. Cully et al. note that these practices used in combination, 'might be construed as a model of direct employee participation in decision-making'. Research in several sectors in the US shows that clusters of new HRM practices constitute a 'high performance work system' (White et al., 2004). However, new types of management practices linked with increased productivity and innovation and the uptake of high performance work systems, is limited in the UK (Cully et al., 1998; White et al., 2004).

9.2.2. New forms of work organisation

New forms of work organisation address how work is designed (Ennals and Gustavsen, 1999). A review of 50 innovative European organisations indicated that jobs are being designed to include 'employee responsibility for autonomous decision-making' and 'interactive problem solving' (UKWON, 1999). Organisational structures are being designed to maximise human interaction. Teams of people from different functions or departments are jointly responsible for problem-solving. Significant attention is paid to deploying people in a way that recognises and uses their ideas, provides opportunities for creativity and encourages the exchange of tacit and explicit knowledge.

New employment relationships are also emerging, such as part-time working and 'outsourcing work to self-employed freelance workers'. These arrangements, previously atypical, are increasingly becoming the norm (Baruch and Smith, 2002).

9.2.3. EU approach to work organisation

The Nordic countries have been particularly active in addressing work organisation and 'quality of working life' issues in a range of programmes involving national bodies, employers and unions outlined below:

(a) in Sweden, the 'Work life 2000: quality in work' programme involved the collaboration of Swedish national bodies, including the National Institute for Working Life (Wennberg, 2000; Skiöld, 2000; Ennals, 1999, 2000, 2001). The Swedish SALTSA programme (joint programme for working life research in Europe), involves collaboration with European researchers and institutions;

(b) in Norway, the 'Enterprise development 2000' research programme was initiated by the 'labour market parties' (unions and employers), to link networks of enterprises with research centres and generate exchanges of knowledge and experience (Gustavsen et al., 2001). The 'Value creation 2010' programme, builds on the Enterprise development 2000 programme (Levin, 2002);

(c) in Finland the Finnish Ministry of Labour has a well-established programme at the Institute of Occupational Health, and evaluations of the Finnish workplace development programme show the success of employee participation initiatives (Arnkil, 2004);

(d) Denmark has placed less focus on national programmes, but nevertheless boasts high levels of innovation.

However, employee involvement programmes have not addressed many workplace problems in Nordic countries due to inherent conflicts in workplace relationships. Financial investment in workplace development in Finland is small in comparison to support for high-tech technologies, although it compares well with other European countries. According to Arnkil (2004), 'only technology and research-based innovations have commonly been considered "real innovations"'. This is also the case in the UK (DTI innovation report, 2003). Workplace developments emerge from specific traditions of workplace engagement (Norway), or as a result of economic recession (Finland). Highly contingent factors mean that there is no one single model that can be rolled out and copied (Arnkil, 2004). Working relationships among potentially adversarial parties have built up over years among employers, unions and researchers.

9.2.4. Comparison with the UK

The Finnish, Norwegian and Swedish programmes, based on a social model of engagement between employer representatives, employees and unions,

indicate a focus on work life issues absent in the UK. Although, work life research in the UK continues to be promoted through numerous individual institutions, the lack of government-supported, national institutions to promote work life issues means that research is fragmented (Ennals et al., 2001).

In principle, regional development agencies (ROAs) have a key role in realising national innovation and skills policies, in partnership with the Trade Union Congress (TUC), the Confederation of British Industry (CBI), the Learning and Skills Council, the Sector Skills Council, and the Small Business Service (DTI innovation report, 2003). SEEDA, as the regional development authority (RDA) in the south-east, has an opportunity to give the lead in disseminating work organisation research and practice throughout the region. The need for regional policy direction is emphasised by Keep and Payne (2002) who give an account of the formidable social, political, and institutional barriers that have ensured continuation of 'poor work organisation' and job design in the UK. Their analysis of 'poor work organisation' in the UK identifies the predominance of 'low autonomy' and 'low skill' work as a particular problem.

9.3. Healthy working centres

SEEDA chose to adapt a practical approach in its survey, using a definition of a healthy working centre (HWC) focused on buildings. There are issues of sustainability and the lifecycle of a centre. The research identified different models of HWCs and mapped characteristics of healthy working practices against requirements. Centres could have a range of structures, norms, communication conventions and support requirements, arising from different contexts.

9.3.1. **Healthy working**

According to the European network for workplace health promotion ([2]), workplace health promotion involves providing employees with appropriate information and involving them in decision-making processes. In a survey of businesses in the region, people were asked what they regarded as beneficial about working for themselves, and what was problematic. Overwhelmingly, 'having control over all aspects of working life' was

([2]) See www.enwhp.org

identified as the main benefit of working independently. This includes 'choosing how work is carried out', 'when', and 'with which clients'. Not having to submit to unreasonable deadlines, decided by someone else, was cited as a benefit of working independently. Freedom, autonomy and choice were mentioned by a majority of respondents, especially in relation to making business decisions without reference to anyone else, and being able to have a sense of achievement following a business success. Flexibility is a key benefit, with the ability to manage time to suit the needs of clients and family. Not having to submit to inflexible working practices is seen as a benefit of working independently. Lack of control over working conditions is associated with poor health. Evidence from the US, Europe and the UK indicates that the pace of work is intensifying (Green, 2004), and management control systems are becoming more widespread, particularly computerised monitoring systems, in response to business pressures (White et al., 2004).

9.3.2. Healthy remote working

Remote working is performed away from a normal workplace, using telecommunications to deliver work. Healthy working centres (HWCs) could provide facilities for 'remote workers' whose circumstances prevent them from working from home, or provide social opportunities to people who do not like working alone. The loss of control due to the imposition of unreasonable deadlines, and the intensifying pace of work, can be exacerbated by the social isolation experienced by some remote workers.

Huws et al. (1990) caution against generalisations about how people experience 'remote working'. Some remote workers feel more in control of their lives, others feel powerless or isolated. Huws et al. state that the same contrasts could be found in any form of work. In our survey, 'one person micro-businesses' were asked about how the hours worked had changed in the past two years: 44 % said they had stayed the same, 33 % said that they had increased, and 23 % reported decreased hours worked. Where hours worked had increased, 72 % said it had no effect on their health, 21 % experienced negative health effects, and 7 % reported positive health effects.

Between 75 % and 94 % of respondents to the SUSTEL survey (2004) of remote workers reported a good, or very good, quality of working life. Reasons included 'increased job satisfaction', 'reduced stress', 'better work performance', and beneficial psychological effects due to a greater control over personal time. This was despite many respondents, especially from British Telecom in the UK, believing that their working hours had increased over the past two years. The perception of control over how and when work

is performed, brought about through remote working, is consistent with a reported sense of well-being.

Problems associated with working independently included a lack of peers with whom to discuss ideas and problems. Businesses supporting the concept of HWCs (as defined by SEEDA) identified 'human interaction', 'networking', 'cross-fertilisation of ideas', 'business opportunities', and 'the reduction of isolation', as being major perceived benefits. This was subject to reservations about cost, security, data protection, client privacy and the quality of shared facilities. The possibility of collaborative learning emerged as a benefit.

9.3.3. Centre facilities in south-east England

There are several telecentres that promote employment creation in rural settings, and provide training and access to technology, but none are consistent with SEEDA's definition of a healthy working centre: 'buildings where employed people can work remotely for various organisations from their home location'. There are many examples of centres in the region where businesses and people work together, for example in 'hubs', 'innovation centres' and 'managed office facilities'. 'Hot-desking services' are increasingly available, providing users with a base in a central business location, and companies offering 'managed office facilities' are growing in response to office outsourcing ([3]).

Healthy work involves social learning, employee involvement in autonomous decision-making and mutual social support. Oxford Innovation Ltd manages 11 'innovation centres' in Oxfordshire, and the Upper Heyford facility was visited during the SEEDA research. Each 'innovation centre', occupied by start-up businesses, on a month by month agreement basis, is different in character. The consistent provision of services to the businesses is key to the ongoing success of a centre. Centre managers must be networked in their own areas of expertise, have extensive knowledge of a range of businesses, and be able to provide practical business support, such as knowledge of funding opportunities or government-funded knowledge transfer initiatives. Regular coffee mornings are arranged to promote social relationships.

Although facilities such as 'innovation centres', 'hubs' and 'office services facilities' may lead to incidental social learning and mutual support, this is not their purpose. The core characteristic of HWCs, on the other hand, is the

([3]) www.flexibility.co.uk/issues/transport

coming together of partner companies who want to work and learn together. However, the majority of survey respondents, employers and micro-businesses, viewed centres solely in terms of facilities. But, in contrast those who saw the value of HWCs identified strongly with the research team's view of healthy work.

9.3.4. Subregional networks

Participative action-research with 'subregional networks of remote workers' could help to develop the social capital base of HWCs and capture the dynamics of healthy remote working. HWCs could have a range of structures, processes, norms and conventions. Observation from 'subregional networks' illustrate this, in particular the Ashford network, which was built on existing links.

9.3.5. Ashford network

Ashford in Kent is a focus for major development, with targets of 31 000 new homes and 28 000 new jobs. SEEDA is a partner in developing local and regional strategy. The Ashford network, led by the 'citizens advice bureau', brought together local stakeholders to promote employment that includes healthy work. Recently the demographic balance has been distorted by residents leaving at the age of 18 to seek better paid employment elsewhere. The facilities in Ashford need to be improved for current residents, as well as to attract newcomers. There is a need for local engagement, and the idea of HWCs found support. A financial feasibility study explored two different premises. In one, SEEDA is the landlord, and the agent responsible for the premises is a member of the Ashford network so the potential exists to create 'social capital' to promote new employment. Healthy working centres offer the prospect of engaging people where they live, in the town itself or in surrounding villages. They could be part of a major growth programme.

9.3.6. Assessing healthy working centres

SEEDA conceived the HWCs concept to address pressures arising from commuting, and to promote 'remote working', address work-life balance issues and to increase productivity.

Although travel congestion can be reduced by remote working, research on the long-term environmental impact of remote working centres is equivocal (Dodgson et al., 2000) ([4]). There are several reasons why

([4]) See also www.flexibility.co.uk

establishing centres to reduce commuting would not be feasible:

(a) in businesses where remote working is practiced, there is a strong preference for remote working from one's home;
(b) since much remote working is informal and ad hoc, as employees alternate between home and office, the case for centres to address social needs and isolation problems is doubtful;
(c) there are alternatives to HWCs, with local facilities reducing the need to commute becoming increasingly available, such as 'serviced office spaces' and 'hot-desking facilities' for temporary use. The 'flexible managed office' market (FMO) has grown rapidly in the UK in recent years, following a period of adverse criticism: characteristics of this are providing short-term, flexible office space managed by an onsite management team.

Could creating HWCs promote remote working within organisations, increase productivity and address work-life balance issues? Remote working is one component of new working practices. Although there is agreement that remote working is set to increase (Hotopp, 2002; White et al., 2004), much remote working is ad hoc and informal, and there is a preference for remote working from one's home. Where remote working was practised, there was support, from the majority of employers and 'one-person micro-businesses' participating in the survey, for working from home. The advantages of a centre, over working from home, were unclear. Organisations such as British Telecom report an average increase in productivity for home workers of 20 % compared to office-based colleagues. There are separate issues about the benefits of remote working unconnected to using a centre. In particular trust is required between employers and employees.

In the companies we encountered, staff working from home are volunteers. We assume that those whose home environments are unsuitable for remote working would not volunteer. The need for centres may become more urgent in future if remote working becomes more widely established. For the moment creating HWCs does not seem to promote the uptake of remote working within organisations, particularly where there are alternative managed service premises.

The concept of HWCs, intended to bring 'partner companies' to work together, is a different matter. SEEDA requested recommendations on effective mechanisms to increase the uptake of new forms of work organisation which could be within individual enterprises or a group enterprises collaborating for mutual advantage. If remote working employees from various organisations come together for the express purpose of social

learning and interorganisational collaboration for mutual gain, then HWCs would constitute a potentially powerful new form of work organisation to develop social capital, relationships and alliances. In time, these may give rise to innovation systems and regional developmental coalitions. In our view, the concept is innovative and sound ([5]). Although the majority of businesses did not support the concept of HWCs, their supporters were enthusiastic about the benefits of social learning and networking.

9.4. Conclusions

There are structural weaknesses in the UK preventing widespread dissemination of new working practices and new forms of work organisation. Regional development agencies (RDAs) have a key role in promoting national innovation and skills policies at regional level. They had an opportunity to promote new forms of work organisation, through supporting a pilot project on HWCs which involve the coming together of partner companies to work and learn together, believing that complementary skills and assets could add mutual benefits to their businesses. Despite the individualistic nature of business in the region, the HWC concept had support from some innovative businesses, who perceive potential benefits associated with social learning, social support and networking.

Experience from telecentre case studies raise issues about the management of such centres and their financial feasibility. Observations from subregional networks show that structures of such centres and procedural and communication conventions would have to meet the social and cultural needs of users. This would promote policies consistent with healthy work, such as ‘provision of appropriate information’, ‘communication strategies’, ‘employee involvement in job design’ (including negotiation of deadlines, outputs, how work is to be performed, when and with whom), ‘decision-making latitude’ and social support.

The HWC concept is sound in principle, and provides a potential mechanism for creating social capital for regional development. There are numerous existing informal subregional groups in the region that could form the basis for pilot HWCs. However, to date, south-east England, without

([5]) There is much to be learned from the experience of Nordic countries, where they have extended existing models of innovation to include inter-company collaboration, for example in Odda, Raufoss and Gnosjö.

London, has not shown itself to be a credible region. Diversity is such that there is no single 'region of meaning'. There are numerous networking opportunities, but no coherent strategy to engage the necessary partners, enabling them to go beyond individualism, towards learning together for local innovation in a learning region.

CHAPTER 10

Learning Lithuania: building a small country

Arunas Augustinaitis

10.1. Introduction

Lithuania faces west-east and north-south influences, different historical perspectives and political traditions, giving rise to mixed economic models, hybrid forms of life and work styles, and non-traditional political formations. The cliché 'transition economy' is too abstract to explain this melting pot.

This contrasts with the economic model of Emilia-Romagna, a region in the north of Italy with a comparable population to Lithuania. Despite historical similarities in cultural development, Lithuania is developing a different form of socioeconomic relations. However, its economic model is not sufficiently divergent, and lacks the set of relationships and reciprocal stimulations existing for years between leading Italian companies and local suppliers (see Bardi in Chapter 13). In contrast to the north of Italy, Lithuania lacks structures in traditional industries as well as in new technological and service-oriented sectors, interconnected in consolidated clusters or characterised by complex forms of integration.

In this chapter, Lithuania is treated as a single European learning region, because it represents a homogeneous type of economy and social life (Burinskiené and Rudzkiené, 2004). Lithuania is the only State featured in this book representing one of the 10 new EU Member States. Analysis of learning in Lithuania, as a post-Communist country and new EU Member State, presents special experiences, including new hybrid and complex knowledge formations which contrast with the 'standard' development of EU-15. Lithuania is more dominated by socio-cultural factors than techno-economical innovations and has been in permanent learning mode during the 15 years of its renewed independence. Lithuania could be characterised as a 'learning State', not only a region, because, during the post-Soviet period, it has learnt through processes of westernisation, Europeanisation, and globalisation. Lithuanian development is open to learning in the broadest sense.

The unity of Lithuania as a single 'learning State' is based on different methodological criteria. Lithuania is formally and strategically defined as a single EU region without specific regional differentiation. From a geographical and historical and economic perspective, it is one of the Baltic States, together with Latvia and Estonia. According to the EU formal regional classification system, Lithuania is one segment of northern Europe. In a broader geopolitical, interregional and economic sense, Lithuania belongs to the Baltic region. All these perspectives have an impact on communication and knowledge. For a comparison with other European learning regions, this chapter presents a concrete case of the 'Knowledge economy forum' of Lithuania.

Learning has a key role in bridging and promoting the growth of Lithuanian society and its integration into the European and global environment. Lithuania is more open to global influences and post-modern complexity than EU States that have not had a revolutionary socioeconomical development. Lithuanian progress/regression involved losing the former Soviet scientific contribution known as the 'Soviet silicon valley' (in quantitative and qualitative terms) but also not recognising mechanisms for converting dormant knowledge potential into a new format. Without classical critical success factors and necessary preconditions, this chapter discusses the Lithuanian 'formula' for success and growth.

10.2. Historical perspective

Lithuania is a new society, radically reshaped only 15 years ago. This took place in a revolutionary way, different to the evolution of the European west. Lithuanian society lost inertia and immunity in a changing environment. What are the main patterns of its mix of different forms of knowledge, various identities and cultural and ethical codes?

The sociological concept of revolution provides a methodological instrument to define the qualitative intensity of social changes (Saulauskas, 1999). The context of a permanent revolution for Lithuania, as a post-Communist country, includes the following five waves (or different paradigms) of social revolutions and economic patterns:

(a) socialist revolution as initial dominant ideology;
(b) independence and national revolution in the late Soviet 'perestroika' times;
(c) romantic nationalism transformed immediately into a neoliberal revolution, which brought expectations of classic capitalist developments;

(d) meanwhile, the information revolution came;
(e) post-modern revolution in the context of Europeanisation and globalisation, accompanied by accession to NATO and the EU.

These factors provide different strata and forms of knowledge acquisition and utilisation. Learning processes are varied and based on mixed paradigms. The absence of a traditional evolutionary development enables Lithuania to adopt the most modern economic models and innovations, but this demands the acceleration and modernisation of knowledge to achieve knowledge competitiveness. How could Lithuania manage, control and withstand the powerful pressure of multicultural influences to enable new effective models of knowledge to function? Attempts to harmonise local traditions and global demands at enterprise level become forms of learning for acquiring knowledge. A typical example of networking and integration is the 'Knowledge economy forum' (KEF), which is described in Section 10.7 of this chapter.

10.3. Trends in developing an information and knowledge society in Lithuania

Lithuania began to pursue the information and knowledge society goals late and in conditions related to a post-Communist environment. Compared to the EU average, Lithuania is a society at the beginning of modernisation in relation to information and communication technology (ICT). However, despite the abstract nature of its strategic plans, Lithuania has a vision of the knowledge society and knowledge economy which matches the European vision in line with the Lisbon process.

Lithuania has all the necessary preconditions to succeed in its ambitious plans. Strategic planning exists at different levels: a traditional highly developed education system that has a worldwide top ranking according to the percentage of students in education; a relatively developed scientific and research infrastructure; increase of ICT literacy and professionalism; one of the most rapidly growing economies in Europe (8.1 % of GPD in 2005); rapid growth in the number of computers in households; increasing number of computers and access to the Internet in Lithuanian enterprises. However, there are some significant gaps: discrepancy between the number of well-educated professionals and R&D activities; a gap between science and business development. According to World Bank data, there is a significant disconnection between the research community and the business

community. Around 90 % of R&D activities are publicly funded and undertaken by public institutions (World Bank, 2004, p. 20). The third gap is between increasing ICT implementation and the relative slow modernisation of the quality of working life. Although Lithuania has the potential to reach the average ICT development in EU countries, it is lagging behind in many areas, such as innovation, R&D, developing the Internet and ICT infrastructure.

10.4. Main traits of the learning environment in Lithuania

10.4.1. Institutional attitudes to learning

For initial general assessment of the learning environment in Lithuania, we use the typology of learning regions elaborated by Nyhan in this volume (see Chapter 1, Figures 4 and 5). How does Lithuania correspond to the four basic models in this typology? An examination of statistical data and learning policies, demonstrates a ranking in accordance with the following criteria of learning region types:

(a) TYPE A – dominant,
(b) TYPE B – complementary,
(c) TYPE C – rare,
(d) TYPE D – rudimentary.

With reference to the World Bank report 'Lithuania – investment climate assessment' (World Bank, 2004), regulation of learning processes by the State is dominant. These are learning activities conducted by State bodies: universities, traditional part-time learning institutions and State labour exchanges. In its formal State education, Lithuania adopts a linear approach to knowledge. The main suppliers of lifelong learning belong to the State education system. Adults appear to be less involved in education and training than in the EU as a whole and enterprise training is much less developed than in other parts of the EU. However, public learning institutions conduct targeted training for specific economic and social groups.

10.4.2. The role of interactive social learning

The most significant issue for the Lithuanian learning model is its inability to integrate social capital within the formal education system that is dominated by State and public institutions. The system of professional preparation and reskilling is not relevant to the demands of the labour market.

Although professional orientation for lifelong learning comprises an

important part of the education system, professional consultation and information measures are not well developed. Only a small proportion of students, employed and unemployed persons use the services. Not enough attention is paid to providing information and consultation for adults, and making this relevant to the labour market. A practical professional orientation is not integrated within professional education.

The current system of adult education and professional learning does not provide opportunities for lifelong learning to ensure a learning culture in society. The main barriers to adult learning are:

(a) State financing for distance learning is decreasing;
(b) there is no legislative background on employees' or employers' duties for qualification improvement and employers' economic motivation to finance studies for employees;
(c) there is no system of acknowledgment for non-formal and self-education;
(d) people from different social strata (based on income levels) have different learning opportunities. The gap between the wealthy and poor is becoming wider. Some groups in society are doomed to social exclusion. Members of such groups exclude themselves or are excluded from higher education and therefore are also excluded from the labour market;
(e) closed systems of formal education only fulfil their 'parochial' interests. Therefore adults without higher education have very limited possibilities to take part in continuing learning or reskilling studies at universities;
(f) there is no system to help people who have not finished secondary school. There is a lack of education programmes for other nationals, learning premises for the disabled, education services for those in the army and education services for convicts;
(g) services for reskilling and improving qualifications are not developed at vocational schools.

Professional training programmes do not match regional development plans. Some regions have relatively small numbers of professional education institutions, and the spectrum of specialties available in these institutions is too narrow for the demands of the local labour market. Most universities are in the two biggest cities (Vilnius and Kaunas). Regional universities do not fulfil their functions as regional education and science centres. They do not analyse the politics of strategic human resource planning and do not participate in creating relevant strategies.

The issues of social capital in the learning environment and 'building innovative knowledge' are quite new in Lithuania. However, there are

attempts to solve social and economic problems by building learning communities based on e-participation (Augustinaitis and Petrauskas, 2005). E-democracy and civil society developments are long-term priorities of the national strategy. On a practical level, the most prevailing approach is to accelerate Internet access and possibilities of e-participation in towns and rural areas. Every week there is an increase in communities, using various forms of Internet communications. Lithuanian interactive learning and community approaches are not developed enough: TYPE C 'rare', or TYPE D (see Chapter 1 by Nyhan, Figures 4 and 5) is in its initial stage of development ('rudimentary').

10.4.3. Developing civil society and social capital: preconditions for a learning environment

The Lithuanian cultural and mental environment is split, with cleavages between west and east, and a broad scaling of 'glocal' hybrid forms of knowledge. The main problems of Lithuanian growth are not a deficit of 'traditional' capital and finance, but rather building 'knowledge capital' and 'human capital'. Informal and continuous learning that underlie development of regional competitiveness and global knowledge networks (Tuomi, 2003) often remain invisible although hybrid forms mix different fragments.

Knowledge, normative and cultural values have a more important role than technological innovation. There are direct relationships between the societal model and the knowledge model. Finnish society is based on the interplay of three main formations with specific knowledge patterns and learning forms: information society; knowledge society; and 'knowledge value' society (Naumanen, 2003). This multisocietal strategy entails a multistakeholder approach. The communicative social structure paradigm includes permanent development of the learning environment, based on knowledge interactions among multistakeholders.

10.5. Key drivers and indicators of Lithuanian growth

Learning and innovation depend on the quality and development of human capital. Higher education and scientific potential show indicators on the direct relationship between learning and economic growth. At present the educational attainment of the Lithuanian population is higher than the EU average and Lithuania is ranked in the top 10 in the world. For instance,

Lithuania entered the EU with a much higher average level of educational attainment among its active adult population than many existing members. Its enrolment rates are higher than the other new Member States and are very close to the EU average. It has a considerably lower proportion of upper secondary students in vocational schools than most other accession countries and is below the EU average. Early school leaving is less of a problem than in many EU Member States. Compared to Ireland, often quoted as a model to emulate, many of the above indicators are remarkably similar for the two countries.

However, the situation is not unproblematic. Lithuania, having one of the highest rates of educational attainment in Europe, is lagging behind in R&D, innovation and patenting activities. There are fewer R&D projects in the ERA (European research area**)** sectors and scientific publications with ISI (Institute of Scientific Information) rankings than the EU average. Although Lithuania has one of the highest number of science and technology university graduates, knowledge conversion into innovation, collaborative and action learning is extremely ineffective. Lithuania has one of the lowest numbers of registrations of EPO (European Patent Organisation) and USPTO (US Patent and Trademark Office) high-tech patents in the EU-25. Demands for education are high among Lithuanian people and there is an 'instinctive' striving to create a modern knowledge environment. Although Lithuania is open for learning and creating new forms of knowledge, the education system is unable to connect the existing formal learning models to real social needs for integrating and developing social capital.

Scientific and technological potential has decreased dramatically in the past 15 years. The number of researchers and scientists remains at the level of 1965 and 1975. Despite an increase in the number of students in science since 1999 by 50 %, the number of teachers has sunk. According to World Bank data, 12 % of those working in the Lithuanian textile industry have undergone higher education, compared to 4 % in Poland (Nocius, 2005); 65 % of workers are low-skilled labour. Meanwhile, the high-skill sectors creating the knowledge economy comprise only 6 % of industry. Lithuania is the most educated but the least innovative country in Europe!

What can be done to break this closed circle? Political administration only recognises linear learning. Tacit knowledge is not recognised. The education system was not able to cope with the radical shift of society after 1990. Such a situation demonstrates a learning policy crisis and lack of a functional, practice-oriented education policy.

This is illustrated by the former military industry in Lithuania. High skill,

scientific and engineering competences have been destroyed instead of being reengineered into competitive sectors of a knowledge economy. Explicit knowledge and action-research projects, which were strong in military science and innovation, were not transformed. We can contrast this with the development of the military Raufoss region in Norway (see Johnstad in Chapter 8). While the Norwegian industrial region had strong historical traditions derived from the middle of the 19th century, and had time for a changeover, the military complexes in Lithuania were forced to terminate all connections with enterprises and research institutions of the former Soviet Union. Lithuanian military factories and research institutions were not able to consolidate the dispersed remnants of former Soviet military potential to meet the challenge of global markets. That was the moment to realise industrial interorganisational learning and knowledge transformation. However, the time to organise the industrial parks or intelligent clusters, has now passed. Projects like 'Sunrise valley' played a more symbolic role. Of course, Lithuania is a latecomer, and cannot expect to overtake or replicate the experiences of such regions as Raufoss in Norway or Emilia-Romagna in Italy. These regions are classic cases to draw lessons from about how to develop social capital for radical social and economic change in relation to global competitiveness, innovation and growth.

10.6. Lithuanian innovation landscape and policies

10.6.1. Innovation policy

Lithuanian innovation policy is based on a traditional industrial model of classic rationalism and invention. Using the Finnish criteria of innovation policy for the knowledge economy, the Lithuanian innovation concept fits the linear model (Romanainen, 2004). The Finnish model, based on R&D and global scientific and technical innovation, is the most desirable innovation policy model for many Lithuanian innovation strategists. Finland, like Lithuania, is a small northern European country with geographical, historical and cultural similarities. Finland was successful in overcoming social and economical crises and achieving the status of a global competitor.

Due to the absence of constructive innovation policies and knowledge economy development in the period of the 'neo-liberal economy illusion', Lithuania lost the chance to convert its huge military industry into an innovative and competitive high-tech economy. Military factories, with numerous and strong R&D departments and research institutes, were

destroyed in the 'wild' approach of the post-Communist restoration. However, the 'islands' of innovative companies that exist today are remnants of former Soviet military industries. We cite the laser industry (EKSMA/EKSPLA), the mechatronics centre at Kaunas Technological Institute, and attempts to create 'Sunrise valley' in Vilnius. The central role in this innovation is not played by private companies or industry associations, but by universities and scientific institutes, mostly supported by government. Their infrastructure, management system and financing is bureaucratic and inflexible. Thus, mobility, networking or collaboration on innovation among R&D actors is impossible.

Lithuania has a vital interest in facilitating and activating R&D development, learning modernisation and innovation policies, if it is to be in the leading group of northern European global competitors, driven by an innovation-based economy. Contemporary Lithuanian innovations are oriented not towards technological and scientific innovation, but towards applied knowledge, communication and interpretation, creating added value. However, considerable improvements are needed if Lithuania's income convergence with EU Member States is to accelerate.

10.6.2. Learning networks

Despite recognition from the main political, economic and scientific actors that networking the economy is one of the priorities for Lithuania, practical steps to create learning networks in the State are still tentative. There are only three or four nation-wide sectoral clusters in their initial stages (wood and furniture; milk and grains; textile and clothing). Two other national projects in complex R&D development areas, 'Sunrise valley' in Vilnius and 'Technopolis' in Kaunas, are based at Vilnius University and Kaunas Technological University. There are about 70 high-skill scientific centres (lasers, biotechnologies, ICTs, mechatronics, chemistry, etc.). There are about 20 science and technology parks, 49 business information centres and seven business incubators. Despite insufficient development of industrial clusters in terms of networking, high-tech developments and innovations, the World Bank stated that Lithuania fares quite well on the cluster front among its peer group. Such clusters have mostly formed in the low-tech and low value-added sectors such as textile or wood industries (World Bank, 2004, p. 14-15). The Lithuanian 'Knowledge economy forum' an umbrella organisation facilitating knowledge enterprises, R&D and innovation, played a significant role in this.

10.6.3. Labour force and working conditions

Two main factors have an impact on the labour market and working conditions: demography and massive emigration. The aging population, and its inability to renew and modernise its labour skills, preclude a high-qualified labour force. The demographic prognosis is that in about 50 years the Lithuanian population will decrease to one million inhabitants due to the death rate and migration. Unemployment is driven down by economic growth and emigration. A survey by the Lithuanian Free Market Institute shows that stable and rapid economic growth is the key factor in the decreasing rate of unemployment. However, the labour market is imbalanced by a disproportionate dispersion between higher school and vocational school graduates. In the Lithuanian textile industry, 12 % of workers have university degrees.

How can we overcome the linear approach to learning and implement a new professional model? It has to be based on managerial knowledge and a holistic attitude (Augustinaitis, 2002). There are some experimental interdisciplinary master programmes in Lithuania oriented to meet this challenge. One is the information society studies course at Vilnius University, which provides knowledge on modern critical social discourses and knowledge management.

10.7. Practical case: 'Knowledge economy forum'

10.7.1. 'Knowledge economy forum': pathfinder of economic modernisation in Lithuania

The association 'Knowledge economy forum' (KEF) is the most significant and influential non-profit and non-governmental organisation promoting the knowledge economy in Lithuania. It plays not only the role of a typical NGO but it is also a business association and economic cluster. KEF includes about 80 of the most successful firms in Lithuania.

Initial ideas on KEF were formulated in 1999 during intensive discussions between the Lithuanian Government and different public stakeholders on the future of Lithuania. How can Lithuania exploit intellectual capital in conditions where there is a lack of natural resources and a deficit of energy sources? The only way is to convert traditional industry and science into an innovative economy, based on human and knowledge capital and R&D. The KEF association was an initiative of the scientific and business communities to meet the challenges of Europeanisation and globalisation. Three different

branches – government, business and science – having different experiences, values and goals, came up with a common vision and an integrated formula for a unified knowledge environment. This 'triangle' structure of KEF is its key engine.

KEF, established in 2000, brings together the most progressive business firms and their leaders, as well as the biggest Lithuanian universities and R&D institutes. Members of KEF are academics, politicians, strategists and public figures who encompass the main scientific and economic fields: biotechnologies, pharmaceuticals, laser industries, information technologies, banking and consulting, law and management. KEF as a business association protects and promotes the basic interests of knowledge organisations and scientific institutions. It encourages the cooperation of business, governmental and scientific entities in developing a common strategy for a knowledge economy in Lithuania.

KEF's vision is about expanding the knowledge economy towards a European level of competitiveness. The main goal is to attain the European average of GDP per capita by 2015. One important aim of KEF is to disseminate and adopt the principles of a knowledge economy and knowledge organisations in the conventional sectors of industry. KEF provides examples of good practice regarding the key drivers of economic modernisation and growth in competitiveness. A further aim is to restructure and improve the national education system considering the ongoing challenge of the knowledge economy.

10.7.2. KEF as a learning network

The learning forms of KEF could be classified according to different types and levels depending on different audiences and goals. They are mostly integrated and based on participatory activities and sharing experiences. According to criteria provided by Nyhan (see Chapter 1, Figures 4 and 5), KEF follows non-classical and non-linear approaches to learning. Emphasis is placed on cooperation with political and employment bodies, as well as interaction between the academic and business worlds.

It is possible to specify three learning target groups for KEF. First, KEF is strongly oriented towards firms and organisations which see themselves as knowledge firms in the R&D, innovation and knowledge economy 'sectors'. The second group comprises universities, research institutions and the whole academic community. In a broad sense, this embraces the education system in Lithuania, including secondary schools and their teachers. The third group are the politicians and decision-makers. Educating political

bodies in promoting the ideas of the knowledge economy, the Lisbon strategy and a new management style in the global environment, is one of the main tasks of KEF which combines various networking activities on different levels. In terms of learning, this could be characterised as building development coalitions based on diverse knowledge interactions and communications.

10.7.3. Political network

As mentioned above, the network targets political decision-makers, high-level officials and administrators, to provide them with the most up-to-date information, knowledge and concepts for political decision-making. A first result of the lobbying activities of KEF in 2002 was that the development of the knowledge economy gained the status of a national political priority. In December 2002, a 'national agreement to promote economic and social progress' was signed by the main political parties and the most influential public organisations. This document created a common political platform for integrating different political, social, cultural and education goals. The document defined the main strategic priorities for the next 15 years for achieving a competitive knowledge economy at European and global levels, the most important being achievement of a significant growth in the economy and social welfare through increase in economic productivity and market competitiveness. The 'national agreement' inspired a series of learning actions at political level: seminars, debates and discussions involving different stakeholders and specialists. A highly-qualified group of experts and consultants was set up. KEF plays the role of catalyst engaging academic elites and business leaders in nation-wide programmes. To date, however, KEF has not had a substantial impact on innovation or producing knowledge within organisations, clusters or regions, although it has been influential in defining the priorities for using European structural funds.

10.7.4. Regional learning activities

Although the economy in Lithuania is largely homogeneous and there are not substantial differences at regional level, regions have their own individual traits and peculiarities. The most important goal is to awaken the intellectual potential of dormant regions to cooperate and learn from one another. The question is how to activate, renew and release the tacit knowledge which exists in Lithuanian regions. At regional level, KEF initiated hybrid forms of learning combining lectures on the knowledge economy, symposia, debates and research on regional development. For instance, in 2005 KEF in

partnership with the Innovation Centre of Lithuania presented a series of seminars and discussions under the title 'science and technology parks: visions, services and problems'.

Experts in the knowledge economy conduct regular seminars for representatives of local authorities, local industries and public organisations in the different regions and municipalities of Lithuania. This includes social interactive learning processes led by 'ambassadors' of KEF. Currently 35 ambassadors of KEF act as network leaders at local level, organising dissemination of good practice and knowledge.

10.7.5. Social network and 'third sector' activities

KEF's contribution to the productivity of Lithuanian industry to transform it into a European and global competitor, are manifested in different collective learning actions involving different social partners and stakeholders. For example, a typical KEF initiative is the UNICORP project which aims to create a common space between universities and businesses. The following agencies are involved in UNICORP: Department of Science and Higher Education of the Ministry of Education and Science; Entrepreneurs/ Employers Confederation of Vilnius Town and County; International Chamber of Commerce of Lithuania; Lithuanian Society of Young Researchers; Lithuanian Students Association; Lithuanian Free Market Institute. The four biggest universities of Lithuania are also involved: Vilnius University; Kaunas University of Technology; Mykolas Romeris University; and Vilnius Gediminas Technical University. UNICORP also attempts to link students' research and study paper results with business innovation projects.

KEF also plays the role of an umbrella organisation for 'third sector' organisations in developing the knowledge economy. Members of the board of KEF represent about 60 different stakeholders, political organisations, governmental and non-governmental institutions.

10.7.6. High-tech innovation network

An important step in developing KEF activities was initiating and launching 'Sunrise valley' in 2003 as a knowledge intensive cluster linking universities, R&D institutions and the Municipality of Vilnius with high-tech firms. The Sunrise valley knowledge economy cluster project is a joint effort of high-tech businesses and academia supported by public organisations. In May 2003, a public entity named 'Sauletekio slenis' was established to take responsibility for the Sunrise valley cluster set up by the following organisations: Vilnius University; Vilnius Gediminas Technical University; the laser technology

company ‘Ekspla’; the telecommunication operator ‘Bite’; and the IT company ‘Alna’. The aim of the Sunrise valley cluster is to promote the competitiveness of Lithuania worldwide, by promoting cooperation between businesses, research and education, fostering technology transfer, protecting intellectual property rights as well as launching business support services. The main objectives are to:

(a) foster quality education and research linked to professional activities and the business environment;
(b) generate employment opportunities for highly qualified university graduates, scientists and other specialists;
(c) promote favourable conditions for commercialising research;
(d) act as a link between science and technology parks and business incubators in Vilnius;
(e) source local and foreign investment money for research projects.

10.7.7. Academic network

One of the other important objectives of KEF is to make links between the political and business spheres. In this regard a survey on the competitiveness of graduate schools and universities in the labour market was undertaken ([1]). The second action concerns analytical reviews of policies such as strategic planning, innovation policy, competitiveness policy, education policy, R&D and regional development policies. A study on the competitiveness of Vilnius city is an example of the work undertaken under this action.

A third action deals with classical academic and learning activities such as lectures, training courses, seminars or national and international conferences. The first international conference ‘Knowledge economy: luxury or necessity for the national strategy?’ was organised in 2004 with the cooperation of Mykolas Romeris University and other partners. The second international conference ‘Lithuanian knowledge towards global competitiveness: Lisbon strategy relaunched’ was held on 6 and 7 October 2005.

10.7.8. Support of R&D priorities and high-tech breakthroughs

KEF stimulates and supports some leading branches of the high-tech industry, most deriving from former Soviet military science and high-tech industries. The latter are remainders of the huge Soviet military machine but

([38]) http://www.mokslas.lt/index.cgi?menu_item=open_more&news_id=235

they also constitute embryos with potential to be developed as global competitors. Businesses involved in ICT are among the most innovative and dynamic in Lithuania with telecommunications being one of the success stories. The ICT sector has close links with 'INFOBALT' which strives to ensure favourable conditions developing the ICT industry with the aim of raising its share of national GDP to 20 %. It protects the interests and copyrights of its members and represents them in dealing with public authorities and in international forums. It also coordinates joint public projects and an annual international ICT exhibition and trade fair.

Other actions are focused on biotechnologies, lasers, electronics and mechatronics, physics and nanotechnologies. The biggest share of the biotechnological industry is concentrated in Vilnius where there are three companies: 'Fermentas', 'SICOR Biotech' and 'Biocentras'. The main focus of these companies is on gene engineering and biotechnological pharmaceuticals.

Independent Lithuania inherited traditional electronic and mechatronic industries. The annual turnover in this sector is about EUR 550 million. Innovation and R&D is focused mainly on semiconductors. This sector is directly supported by the Semiconductor Physics Institute (about 100 scientists with a PhD) and the Institute of Chemistry (about 100 scientists with a PhD).

10.7.9. Findings

KEF demonstrates a movement towards new learning concepts in Lithuania. It is oriented towards innovation, competitiveness and building a knowledge environment based on informal learning interactions. Lithuania tends more to the model of the Nordic countries, where innovation is steered by public and private policy-making actors, than to northern Italian traditions where networks are based on shared traditional values.

In Lithuania there are two disjointed strata of knowledge. The first is based on a traditional linear approach and steered by government, and the second is based on social capital interactions and shared values, and moderated by such organisations as KEF. This verifies the initial assumption put forward about the social model of a 'post-modern, post-Communist society' – a specific case of hypertrophied development – that lacks economic, social and political maturity.

10.8. Conclusion

There is a contradiction between the dynamics of radical societal change in line with globalisation and the rigid ways of resolving problems characterising Soviet ways of thinking. However, instead of creating innovative social and economic models, Lithuania and the other new EU Member States could be immobilised in taking over the rigid model of the EU-15 'in accordance with European standards'. It could simply mean the displacement of the 'Moscow model' with the 'Brussels model'.

The Lithuanian case 'building a small country' shows similar trends to those of the other 'Baltic tigers' and particularly Estonia, which is one of the leaders in the former post-Communist countries in learning from the 'Finnish model'. Similar to its Baltic neighbours, Lithuania has serious ambitions to reach strong economic competitiveness and the welfare society in a short time.

Despite the vague nature of its strategic plans, Lithuania does have a vision of the knowledge society and the knowledge economy. From the formal standpoint, quantitative indicators look impressive, although less so with regard to learning quality because the education system is quite conservative, linear and formal. It has not adopted interdisciplinary and innovative teaching practices. There is a problem with the educational system in creating strong links with social partners, industry, enterprises and communities. The mechanisms of learning in Lithuania are based on a two-layer knowledge structure. The first layer has to do with the traditional learning system and formal knowledge based on linear relationships. It is a hypertrophied and relatively closed education system controlled by the State. The second has to do with the complex set of social relations and informal communications realised in networks. But, this is neither managed nor recognised by government or administration. Formal learning is disconnected from informal and social learning interactions. Overall, tensions and symptoms of crisis are growing inside the formal layer of learning.

Radical change in management and mentality are needed in Lithuania. For example, Lithuania can learn lessons from the industrial region of Raufoss (see Chapter 8 by Johnstad), where a centralised military industrial complex was transformed into a network of firms creating strong social relationships and an amplified 'glocal' knowledge environment. The socioeconomic model of Emilia-Romagna is also relevant to Lithuania (see Chapter 13 by Bardi).

Lithuania can become a learning society and economy, based on professionalism, ethics, innovation, a 'glocal' mindset, social capital and civil values. Learning is the way to overcome the huge gap between its post-Communist industrial past and its European future oriented towards innovation and global competitiveness.

CHAPTER 11

Making regional networks more effective through self-evaluation

Ludger Deitmer

11.1. Introduction

Collaboration between public bodies, research institutes and private enterprises is widely accepted as a necessary condition for innovation (Camagni, 1991; Lundvall, 1992). Creating networks is a crucial element of regional innovation systems (Cooke et al., 2000). This chapter focuses on how regional innovation networks could learn to be more effective. It is based on the results of a European research project entitled 'Covoseco' ([1]) which developed and tested a self-evaluation instrument to assist network members make their networks more effective. The self-evaluation approach adopted in the project is illustrated here through a brief outline of the self-evaluation process that took place in three networks.

As well as drawing on the results of the Covoseco project, the approach to developing regional networks presented here also draws on the extensive research and development work of the Institute of Education and Technology (Institut für Technik und Bildung, ITB), University of Bremen ([2]) (see Deitmer and Ruth, 1999; Deitmer, 2004; Manske et al., 2002) ([3]).

Successful regional innovation networks bring together actors from different fields (Braczyk et al., 1998). Innovation requires a 'strong' and balanced interaction between 'scientific' and 'practical' knowledge and between the public and private sectors. In line with OECD definitions (1995,

([1]) This project received funding under the European Union 'Strata' programme. See www.itb.uni-bremen.de/projekte/covoseco.

([2]) ITB is a research and development institute that understands vocational education and training and work organisation development as key shaping factors that determine the effective utilisation of technology. Thus, education, work organisation and technology interact with one another to generate organisational or regional innovation.

([3]) See also Rauner and MacLean, 2007; Rauner, 2005; Fischer and Roeben, 2002.

1998, 2002) the latter type of initiative can be termed 'public-private-partnerships' (PPP) for research and development (R&D). PPPs generate a 'synergetic surplus' regarding knowledge, wealth and welfare in regional communities (see Chapter 15 by Cooke).

11.2. Different actors working and learning together

PPPs which often take the form of regional networks are organised in accordance with a rather complex multiactor (MAP) structure (Baumann et al., 2004). In this MAP environment experts with different, theoretical and practical knowledge come together to plan, design, construct, test/evaluate, adapt or implement new artefacts to develop 'constructed advantages in an economy of scope'. Cooperation between actors from different backgrounds is dependent on exchanging tacit knowledge, trust and 'face to face' contacts. All relevant actors in a region – for example researchers at universities, engineers, managers and workers – have to take part in the innovation process bringing together different types of knowledge and experience (Attwell et al., 2002).

But this is not easy because innovation processes in regional networks face uncertainty, complexity, and different development perspectives that require the right decisions to be made at the right time (Manske et al., 2002; Smits and Kuhlmann, 2003). The success of innovation processes heavily depends on whether the knowledge of those involved in the process can be rendered relevantly. Good working partnerships offer advantages but the risk of failure cannot be ignored, because partners from different economic and scientific worlds are required to get together in areas for which they are not prepared. The language they speak and their approaches may be rather different. Researchers often follow a 'publishing orientation' whereas industrial partners may tend to have the market success of a product in mind. The more complex the task, the larger the network and diversity of interests of the actors, the more easily difficulties arise.

Innovative partnerships between industrial and scientific actors require tools to assist them to improve their cooperation. The diverse concepts and experiences of all main actors in the process have to be elucidated and brought forward in the course of reflexive interactions. What is needed is a method which enables partners to self-evaluate and exchange their perceptions about the network goals, members' perceptions, partnership structure and communication and learning processes. This type of discursive

and participative process can help the actors to develop a clearer view of the objectives and status of their project.

11.3. Promoting learning through self-evaluation

This chapter gives an account of the development of a self-evaluation reflection process that took place in the Covoseco project ([4]). The objective of Covoseco was to contribute both to evaluating and improving public-private-partnerships in science and technology, particularly in research and technology development (RTD). The major focus was on collaboration between universities, research bodies and companies. The network developed and tested an empowerment evaluation tool (EE tool) which had a computer-based interface to enable users to put the results of their self-evaluation in the computer. The implementation of this EE tool in three regional PPP development networks in France, Germany and Slovenia is briefly presented below ([5]).

11.3.1. Evaluation strategy

Most evaluation approaches focus on input (e.g. money) and/or on output data (e.g. new market products) because these factors are easy to quantify. Such evaluations are often done by external evaluators (experts and scientists) and usually take the form of final or summative evaluations. Although such evaluations provide valuable insights into cost benefit issues, the missing link is they do not deal with the 'innovation process' as such. Also, they do not actively involve the actors and stakeholders of the PPP network.

([4]) Covoseco involved partners from universities and other experts from science transfer services: ITB (University of Bremen), project coordinator; SIC (Bremen); IAGO (England); ISEOR (University of Lyon II, France); School of Business and Engineering (University of Halmstad, Sweden) and the Faculty of Economics and Business Administration (University of Maribor, Slovenia). The project looked at new evaluation tools to assist private public partnerships (PPPs) bring public and private partners into stronger cooperation. The approach was tested in 15 PPP projects in five countries (France, Germany, Slovenia, Sweden and the UK). Three case examples are briefly presented in this chapter. For more details see: www.itb.uni-bremen.de/ projekte/covoseco. (See Attwell et al., 2002; Heinemann et al., 2003; Floren and Hofmaier, 2003; Deitmer et al., 2003b.)

([5]) The author wishes to thank Dusko Ursic, University of Maribor, Eric Davoine, University of Fribourg, Lars Heinemann and Fred Manske, University of Bremen for delivering the case descriptions following this evaluation approach. An expression of deep thanks goes to Prof. Fred Manske who died in November 2005. As a colleague and friend he was a great supporter of this European project.

When selecting appropriate regional innovation evaluation criteria one can consider four types of data (Smith and Blundel, 2001):

(a) input data – e.g. R&D financial inputs (e.g. number and quality of R&D experts employed and physical resources invested in the innovation project);
(b) output data – e.g. patents emerging from an innovation project;
(c) bibliometric data – e.g. scientific publications (including copublications by research bodies and industry and/or citation indexes);
(d) information on the 'innovation process' as such.

The criteria adapted for the EE tool belong to the fourth type. The aim of this type of evaluation is to assist the network actors access their individual and collective perceptions of network cooperation, in order to find out what is going or not going well. In other words the evaluation method tries to look at the 'inside' (the 'black box') of the innovation process.

The three key questions for network members are:

(a) What are the critical success criteria for assessing the performance of our regional innovation networks?
(b) Does the evaluation approach allow our network to clarify what has helped or hindered cooperation and communication processes?
(c) What is the link between input criteria (e.g. resources) and the knowledge sharing and collective learning effects of the network?

11.4. Evaluation criteria

The most important design element of the EE tool is the criteria-based questionnaire. The criteria were selected based on innovation theory research literature (Deitmer et al., 2003b, p. 137-170) and deal with the following five topics: goals, resources, project management, partnership development and communication/learning. These criteria are briefly expanded on below.

Goals

The goals of a network may not be completely defined at the beginning of the partnership, but good mutual understanding of and agreement on goals is crucial for the success of PPPs. The 'goals' criterion looks at both the goals of the network as a whole and at the level of individual partners.

Resources
This criterion looks at the different types of resources that should be available to a network such as a PPP. It examines whether the financial and physical resources as well as the level of professional resources are sufficient.

Project management
This criterion examines the process of managing the partnership and is broken down into three subcriteria: clear allocation of tasks, fair distribution of work and clear rules and procedures.

Partnership development
This criterion groups the following three subcriteria: developing trust; the social competences of partners; and their organisational or decision-making competences. Trust is a precondition for cooperation. Social competences such as the ability to function as part of a team are also important. Persons involved in a PPP should have sufficient standing within their organisations so that decisions made by the PPP can have the maximum level of impact within their own organisations.

Communication and learning
This criterion brings together the following subcriteria: effectiveness of internal and external communications; encouraging learning; and improving innovation competences. Good internal communication is crucial to overcome barriers and ward off uncertainties. As innovation processes are learning processes, actors in a network must be willing to share their knowledge and learn from one another.

11.4.1. Review of the self-evaluation process

The moderator team, formed before the evaluation starts, should display a degree of independence from the specific interests of the different network partners. During the first half-day workshop, network stakeholders and actors weigh and score the five above outlined criteria. The evaluation approach is based on an individual and collective self-assessment of the actors. Based on the criteria assessment, the reasons for lower or higher scores are expanded by the actors in the discussion.

Through group discussion, insights about the different aspects of the network emerge. It is important that group discussions are not just about reaching a ‘compromise’ between the different actors but should enable everybody to have a deeper understanding of their position in the network.

Existing evaluation models do not elicit this understanding. Boden and Stern (2002, p. 13) state that: 'We do not have sufficiently developed models that explain the relationships between RTD (research, technology and development policies), other socioeconomic processes and mediating factors and socioeconomic impacts such as competitiveness, innovation, public health and quality of life'.

11.5. Implementing the self-evaluation process – three cases

The three cases presented are from the Maribor region (Ptuj) in Slovenia, the Berlin/Brandenburg region in north-east Germany and the Mulhouse Alsace region in north-west France. These self-evaluations were moderated, analysed and documented by Covoseco researchers (for more details see Deitmer et al., 2003b). The actors in these three projects were researchers from academic institutions, regional development agencies and research institutes on one side and local industrial actors (mostly from small and medium- sized enterprises [SMEs] and their associations) on the other. The main aim of these networks was to reduce research costs (especially for SMEs) through sharing resources with public research institutes or technology development centres.

11.5.1. Ptuj region: local farmers creating new markets

In Slovenia, drying home produced fruits had been an important activity for farmers in the Ptuj region. However, in the past two or three decades, drying fruits has almost disappeared because of social migration from farms to the urban areas of the country, e.g. the Ljubljana region. Regarding export-oriented agro-food companies, the Slovenian economy is shifting towards international industrial production.

Nowadays new market possibilities for agrarian production are in ecological food production. But there is an innovation gap in opening up these market possibilities for farmers in the Ptuj region. Traditional know-how about drying fruits is not enough and more technical food processing knowledge is needed. To be competitive on this market it is necessary to have a wider agro-technical knowledge for drying fruits. For farmers, it became clear that they needed new partners to overcome this knowledge gap. In looking for new strategic partners the Scientific Research Centre for Biotechnologies in the region (SRC, established in the town of Ptuj) came

into play. In the framework of the Covoseco project the University of Maribor was involved in evaluating this local farmer-research cooperation.

11.5.1.1. *Outcomes of the self-evaluation session*

Self-evaluation workshops showed the most important criterion for the success of the project was delivery of sufficient 'professional resources' (criterion No 2). Network partners see 'partnership development' as well as 'communication and learning' criteria as less important. This result can be explained because the partnership already existed for some time and their project is now coming to an end. Trust has developed so the communication process has developed well.

As a result of the self-evaluation process the following issue was highlighted by researchers and farmers.

There is a need for improved communication between researchers and farmers to secure adequate resources to support market-oriented investment. Technical advice has to meet the demands of farmers for new drying fruit technology. Regular discussions between farmers and researchers can offer opportunities to further knowledge and skill. More professional resources have to be provided, for example professional knowledge on financial investments to improve drying fruit products. The self-evaluation process emphasised the need to share practical knowledge on advanced food processing technologies between farmers and researchers as crucial for the success of the project.

11.5.2. **RIO project network in Germany: using hemp for vehicles**

The German RIO (*Regionales Innovationsbündnis Oberhavel*) ([6]) project network is located in the neighbouring region of Berlin in the Brandenburg state (*Länder)*. Some 80 partners from business, science, politics and public administration form the RIO network. RIO connects the agriculture sector in the north of Berlin (Oberhavel) with car producers in the southeast of the *Länder*.

([6]) The RIO, regional innovation alliance (www.rio-ev.de) received funding from 2001 to 2006 from the German regional innovation programme INNOREGIO (www.innoregion.de). This regional development programme was launched by the Federal Ministry for Education and Research (BMBF) in 1999 especially for the 'new Bundesländer' (former states of the German Democratic Republic). The aim of this EUR 300 million programme was to build up the innovative capabilities of the 'new Bundesländer' through partnerships between research and industry and other institutions (industrial associations and groupings, educational bodies, such as training bodies, etc.). INNOREGIO consisted of 23 large regional networks selected from 125 applications.

A group of research institutions from bio and production technology were looking for ways to use agro products for new purposes, for example using hemp and flax in vehicles. It is expected that the market for agro fibre raw materials will grow extensively in future ([7]). A network was established to develop and produce tailor-made fibre products using biotechnological methods. At the time of the evaluation workshop following the Covoseco evaluation principles, RIO was still in the implementation phase of preparing small pilot projects. Thus the evaluation focused on the RIO steering committee.

11.5.2.1. *Outcomes of evaluation session*

The self-evaluation showed that criterion 'goals' received the highest weighting. The partners concluded that the network goals were not sufficiently clear and that it was necessary to define them as concretely as possible. 'Resources' received a weighting almost as high as 'goals'. It was said that a minimum of resources was necessary to initiate innovation but it was then up to the network to develop additional resources.

11.5.3. 'Anechoic chamber' project in France: reducing acoustic noises of motorcycles and cars

The 'Anechoic chamber' PPP (Davoine, 2003) is a development venture between a local university and various actors from the French automobile and motor cycle industry (e.g. Peugeot and suppliers). The network aimed to build a laboratory for testing acoustic noises of motor cycles and cars to improve research facilities for local industry as well as improve the learning environment for technical students. The laboratory is located in the city of Mulhouse. Following studies on the region's industrial needs, the French department of technological support and industrial research and development decided that a PPP would be created to make more use of the technical and professional infrastructure available at the local University of Mulhouse.

The first meeting for the self-evaluation of the anechoic chamber lasted for approximately three hours. Five persons too part, a technical manager, a technician, two managers and a person interested in the method. The discussion was taped and written down to simplify the second 'feedback' session. At the second feedback session on the qualitative evaluation of the group, an analysis of the strengths and weaknesses of the network as well

([7]) www.bioresource-hemp.de

as a set of questions were presented by the French partner ([8]) in the Covoseco project network.

11.5.3.1. *Outcomes of evaluation session*

Two results stand out from the discussion between project actors. First, all criteria appeared to be relevant to project actors, one of whom stated: 'if you remove any of these five main criteria, then it doesn't work'. Second, the group gave particular importance in the weighting process to the criteria 'goals' and 'resources'. The high consensus in the scoring showed participants' satisfaction with the three main criteria: 'goals', 'resources' and 'partnership development'. The following answers were typical: 'We have kept within the project and the deadlines'; 'We made it but it wasn't easy'; 'Project completed without too much hassle'. This shows the partners are generally happy with the project implementation so far.

11.6. Impact of self-evaluation sessions on learning

The three evaluation exercises briefly outlined above had a positive learning impact on the different networks. The term 'discussion about new solutions' characterises the Slovenian and German cases. Evaluating the Slovenian case allowed network members to discuss problems they had during the project implementation phase. Individual consultancy was not satisfactory for project members and they had few opportunities to discuss their problems together. During the evaluation session participants discovered the potential benefit of well-planned meetings. The German evaluation exercise helped the steering group to produce a clear set of proposals to improve the relationship between the network and the programme administrator. They also understood that it is critical not to rely solely on public funding. The project learned to become attractive for investment from private sources. The evaluation session helped participants understand organisational difficulties better and the dialogue between partners helped them prepare for future projects. We can conclude that there is clear interrelationship between inputs (goals, resources) and process criteria (project management, development and communication and learning) in all three cases.

([8]) Eric Davoine, University of Fribourg, Switzerland.

11.7. Grid to identify typical problems in regional innovation networks

Based on the results of the Covoseco project a typology of encountered problems was put forward in the form of a grid (Davoine, 2003). This covers three main problem areas in regional innovation networks: goals, communication and organisation. These problems were found in the 15 cases ([9]) investigated in the Covoseco project. They are grouped in two levels: individual and collective.

If the personal goals of one partner in a network do not match those of the individual's institution, this presents a serious goal-conflict. The communication problems highlighted are directly associated with the different needs and aims of private and public partners.

On internal communication, exchanging tacit or 'context-rich' knowledge was critical. One of the coordinator's duties should be to help the group exchange tacit knowledge and/or make it explicit. This type of communication depends on the trust between partners and the cooperation culture of network members. Not all network partners are necessarily keen on being communicative. In one case a participant criticised the communication and management culture of a non-profit-organisation partner. The tradition of the limited involvement of employees in defining goals and routines in some organisations was also found to hinder cross-organisational cooperation. In other cases participants stated that regular steering committee meetings and informal contacts had slowly brought about a better understanding of the network project.

Many evaluation participants mentioned difficulties in the external communication of their network activities and called for a good communication policy. One major problem encountered by project partners in some networks was the lack of support of their own organisation or lack of impact of the project results on their own organisations. This is a classical problem for networks. Some partner organisations do not send sufficiently strong representatives to the network to operate effectively on their behalf.

Another problem was inefficient use of resources. Some evaluation

([9]) In the Covoseco project 15 case studies in R&D partnerships in five European countries were studied, covering 11 technology-driven cases in biotechnology, agriculture/biotechnology, IT sector, medical technologies; four service-driven cases dealing with health promotion and vocational training. All these partnerships took place in regional or local settings and were analysed using the EE tool. A partnership normally involved research bodies from local universities and companies and other institutions (vocational training institutions, associations, other intermediary professional institutions).

Table 1. **Potential dysfunctions in regional innovation networks (Davoine, 2003)**

Dysfunctions concerning goals	Dysfunctions in communication	Dysfunctions in organisation
Individual PPP actors perspective		
• Power-related interests of some network participants dominate the network. • Personal goals and organisational goals are not well balanced. • Network participants do not possess competences related to the process of innovation in a market economy.	• New knowledge is not shared. • The 'tacit knowledge' of some network participants is not used. • Too little informal communication between network participants because of lack of trust. • Lack of common understanding or common perspective between public and private project members due to bad project management.	• Network participants do not receive sufficient support from their own organisation or body. • Network participants do not hold sufficient authority in their own organisation.
Collective network perspective		
• Network goals are not clearly focused. • Network goals have little focus on business process and/or market orientation. • A lack of operationalising network goals. • Goals are not regularly reviewed.	• Lack of common understanding or common perspective of PPPs from partner institutions. • Underdeveloped communication and networking with other organisations. • The strengths and weaknesses of the network are not known. • Networking the networks is not taking place.	• Decision-making in the network is not based on input from individual participants. • Insufficient use of the network products (lack of external transfer). • The network does not incorporate opportunities for learning.

This grid can be used as a basis for discussion with network members during the feedback session to help participants reflect on the main weaknesses of their network.

participants mentioned loss of (paid) time because of useless meetings, insufficient coordination, wrong decision- making or administrative delays. Using inefficiently resources also covered inadequate transfer of knowledge between network partners. In some cases, evaluation participants considered that the network environment did not promote knowledge transfer.

11.8. Concluding point

All in all, the self-evaluation sessions helped identify the strengths and weaknesses of networks. Their main value was exchanging perceptions of the networks, members, structures and processes. The discursive exchange helped actors develop a clearer view of the objectives and status of their PPPs. The cases show that the Covoseco self-evaluation tool helped network members identify the main weaknesses of their networks and initiate changes based on this knowledge. Also, beyond identifying malfunctioning elements, weaknesses and improvement potential, the dialogue, triggered by the criteria, enabled network members to formulate a history of the network's practice.

PART III

Changing role of universities in promoting regional learning

CHAPTER 12

The winding road to the learning region: a case study from Sweden

Bernd Hofmaier

12.1. The setting

The region of Halland on the south-west coast of Sweden, located between two large expansive urban regions – Gothenburg in the north and Malmö/ Copenhagen in the south – is a beautiful, calm and prosperous part of Sweden. Since the 18th century, agriculture has been the mainstay of the region. The agricultural sector today consists of a few large and many small farms. Changes are underway due to European agricultural policies. Typical for the region are many small and medium-sized enterprises (SMEs), especially in the countryside not far from the well-known 'industrial district' of Småland. Four rivers provide transportation means for both products and ideas. At their outlets, four municipalities grew with distinct identities. The rivers are still important for recreation and have a highly regarded salmon population. Older people still remember when farm workers demanded not to be offered salmon more than four times a week! Early industrialisation, which in many other regions of Sweden started in traditional mills and iron works, passed the region by. No important natural resources are found in the region, and only a few large companies were established in the early days. It was not until the 1960s that some larger production units, which in the eyes of many were seen as foreign bodies, were established. Among them are a large pulp factory and paper mill, which is now the largest newspaper production plant in Europe. In the 1970s a large nuclear power plant was built. A few middle-sized companies were founded close to these companies e.g. Albany International, which is part of an international company producing equipment for the paper industry. In the region there are examples of highly successful companies such as Getinge and its various daughter companies, which are world leaders in sterilisation equipment.

Today the SME pattern is persistent, despite difficulties in achieving growth. The rate of establishment of new companies is relatively low, although when compared to the rest of Sweden the figure is rising. The problem seems to be the unwillingness of owners, often families, to expand. The dominant sector is manufacturing, often based on relatively basic knowledge, even if automation is reaching these companies. There are some minor high-tech companies in the IT sector, but in general compared to other regions, the figure is low. Small enterprises in Halland do not demand highly qualified labour, which results in a relatively low educational level of both management and workers compared to the rest of the country, although there are exceptions (NUTEK, 2002). An important sector, as everywhere in Sweden, is healthcare, which is both labour intensive and competence demanding. People in the region are practical and not very open to new ideas (Johansson, 1999). Perhaps this was a good thing in the 1990s when the IT-bubble burst and investors lost billions of Swedish crowns and IT sites were turned into wreck yards. Was there a crisis in the region? No, life went on as usual.

In general, people in the region are doing well, living close to nature and without stress. Life expectation in the region is higher than in other parts of Sweden; there is a saying that people in this region are healthier but less educated, but this is now changing slightly. There is an inflow of people for work from the expansive northerly parts of Sweden, looking for houses near the sea and longing for a peaceful life in pastoral surroundings. Elderly people, some retired former owners of SMEs in the countryside, are also moving to the coast to enjoy the sunsets and play golf.

12.1.1. Administration and politics

The region of Halland is seen as a functional entity and administratively it is one of 21 counties in Sweden. Since 1634 the counties were led by regional councils responsible for civil defence, social care, public communication, agriculture, fishing and the cultural environment. In addition, a regional development council (Region Halland) was established to focus on development questions. Region Halland is responsible for the 'regional development strategy' which sets objectives for the long-term development of the region. It is also responsible for the 'regional growth agreement programme', which concentrates on strengthening the business sector and the transport system.

The above picture, however sketchy, gives the impression of a region without any of the crises found in other areas. There is a willingness to

develop the region, but with a 'wait and see' attitude and an approach of not doing things until later. 'Things should take time': 'news may be interesting but it is best to wait and see if others are experimenting'.

12.2. The winding road to the learning region

The region is not isolated, and has been affected by national and global influences and trends. The industrialisation of Sweden was relatively late for a western European country, but it developed rapidly, and in the 1960s exhibited a well-developed conglomerate of export-oriented industries combined with high-tech and R&D companies. In the 1990s, Sweden's economy was hit by the turbulence of globalisation and deregulation, but fortunately it handled the crisis after the collapse of the high-tech boom in the 1990s. Even when the IT-bubble burst, the Swedish economy continued with higher growth than most other western European countries. However, politicians were forced to reconsider traditional political measures. There was discussion on the relation between investment in R&D and outcomes in innovations, patents, products and services. There were also discussions about the role of universities and regional politics. Such discussions are still going on, and the consequences of decisions taken then are still not clear. Central governance was not seen as appropriate in its traditional form; there should be empowerment and bottom-up strategies on regional development and innovation policies. Prevailing linear innovation theories were abandoned and a policy of systemic innovation, expressed in terms of innovation systems, 'triple helix formation' (i.e. cooperation between the business sector, the State and universities) and clustering were introduced.

The region embarked on this train relatively quickly, perhaps as a reaction to previous centralisation trends which were experienced as a burden. In contrast, there are regions in Sweden, especially in the north, which still have problems in changing their traditional attitudes towards subsidy policies. However, the new policy resulted in various initiatives in Halland which can be seen as the beginning of a development strategy. Even if the term 'learning region' is not used, activists in the region and researchers interested in such issues, identify a pattern which can be seen as a 'road to the learning region'.

12.3. Examples

Looking back over the past 10 to 15 years, there are several initiatives worth mentioning. First, there are public programmes aimed at growth development, which are largely traditional, but have elements that resemble the idea of the learning region. The 'regional growth programme' (RTP) was developed through a dialogue-oriented process in which politicians, the business sector, the public sector, including the regional university, participated. The outcome was development of three growth areas: healthcare technology, regional food industry, and the 'leisure-experience' industry. The latter is now one of the current fads in Sweden where every county or town is planning spectacular events. Halland embarked on this track but in a different way, with modest happenings and activities such as spas, horse riding and walking trails.

Second, there are many private and public initiatives, such as various networks and partnership activities. Some are initiated, or at least supported financially by public organisations; while others are typical bottom-up activities. Halmstad University plays an important role in the region, not only in education and training, but also in research as a knowledge and information node.

12.3.1. Halmstad University

The education system in Sweden was traditionally centralised with national educational policy decided by parliament. In 1977 a far-reaching reform of the higher education system took place with the creation of an integrated and uniform system for tertiary education, which included a widened geographic distribution of higher education. Since then, the educational and R&D landscape includes 39 universities and university colleges, which often have a regional focus, with many contacts and relations with regional business communities and regional and local authorities. The main objective of higher education institutions was traditionally education and R&D, but in 1993 the government added a so-called 'third task' which initially was about informing society about developments in research, but was later adjusted to 'promoting cooperation with society'. This is usually interpreted as working together with authorities, public sector organisations and private sector companies. Individual colleges deal with this task differently, but cooperation with firms and authorities is now seen as positive and enriching for all. However, in reality, this is not easy.

The University College in Halmstad set up several innovative educational programmes in engineering, where students worked closely with companies in the region and were successful in national competitions. The figure for student start-up firms was in many years exceptional. Today, the university has various educational and research programmes in business, engineering, IT, social sciences, health sciences and humanities. R&D has continuously grown and several recognised research centres were established.

The university was successful in building relations with surrounding society, especially companies. Thus in a more general sense, the so-called 'third task' has become an integrated part of the university. In cooperation with the staff, the university board has also produced several strategic documents on innovation and cooperation. With other organisations in the county, the university offers several external courses to meet the practical needs of companies.

Although so far the trend has been positive, there are several weaknesses. The university system in Sweden continues to undergo radical changes, and this has started an inflamed debate. National university systems today are part of international or global competition which forces them to diversify. This results in both public and private research money being allocated to a small number of highly reputable universities and centres of excellence, causing a shortage of research funding for regional universities. The latter are now directed to research foundations and organisations such as the Swedish Knowledge Foundation and Vinnova (Swedish Innovation Systems Agency) which still finance applied research. Maybe this is not too bad, but it creates another problem. Traditional universities tend to follow the 'Mode 1' production of knowledge model, i.e. formulate research problems and publish results in scientific journals (Gibbons et al, 1994). The focus on internationally recognised standards of academic excellence has an impact on the status of the university system. Even if perhaps it is not totally correct, regional universities are more open to what Gibbons called 'Mode 2' research, i.e. production of knowledge in cooperation with other actors which entails: networking; reflexivity; speeding up learning and innovation processes; interdisciplinarity, etc. As a consequence tensions and fruitless controversies, based on prejudices, arise between traditional and regional universities.

12.3.1.1. *The Centre for Working Life Development (CAU)*

Undertaking research and development in close collaboration with firms and organisations in a region is not easy for a university. This example shows the problems. Already before the regulation on the mission of universities was

launched in Sweden, regional universities were cooperating closely with firms and organisations in their regions. Interest was not only from the side of universities but also from regional politicians, and organisations promoted the establishment of universities in their regions. The strategy in Halmstad University was to establish various R&D centres of which the Centre for Working Life Development (CAU) was one of the more successful. With about 15 contributors from economics, technology, sociology, psychology and communication experts, the centre engaged in research and development activities for regional organisations and networks of firms. The basic approach was 'action research', which gave the centre a good reputation in Sweden. CAU participated in several national programmes such as the LOM development programme (leadership, organisation and codetermination) in which networks of firms developed new learning frameworks in collaboration with researchers (Naschold, 1992).

At the end of the 1990s, the university reorganised itself and closed down all its R&D centres including CAU. These were expected to be reestablished later in another form in larger units combining education and research with the so-called 'third task'. Where CAU is concerned it is interesting to comment on the arguments for closing it, which took much longer to close than other centres and gave rise to much tension. CAU was not only successful in attracting finances, which of course gave rise to jealousy, but also worked successfully with a practical 'action research' approach, which was not well accepted by other university departments. Opponents in the university pointed to a weakness of action research in that while action-researchers produced many reports directed at people engaged in practice, they neglected to write for scientific journals. At that time publishing materials in scientific journals figuring in citation indexes was seen as the main goal of researchers. The result of this debate was to close down the CAU centre. The personnel of the centre are now scattered over several university departments and only a few attempt to continue working in the CAU way in the university's larger research environment.

12.3.2. Partnership for leadership and learning (PALL)

Another example of cooperation between different regional actors in Halland is in leadership training. Traditional leadership training is organised in courses, where companies or authorities buy packages from consultancies. For many years the university organised leadership training in sports (combined with pedagogy and psychology) and leadership education in business administration. Swedish military schools located in Halmstad also

offer excellent leadership training courses, some of which are open to non-military participants.

A discussion initiated by the municipality of Halmstad and the university resulted in a meeting with representatives of regional bodies from business, military schools, police and healthcare where leadership training was needed. The idea was to put people with different experiences and from different sectors into small groups. An experience-based curriculum combining lectures and study visits was designed. During the programme participants were asked to reflect on experiences in their own organisations and learn from one another. After the course, people continued to meet in informal groups to exchange experiences, so a kind of community of practice emerged where leaders from different sectors could get help and support from one another.

The programme, in which about 140 leaders participated, was quite successful and there are plans to expand activities to other communities. For the police force, the programme was so appealing that they have integrated similar activities into their ordinary HRD programmes. However, there are weaknesses, for example there are relatively few SMEs participating in the programme, even though this was one of the important objectives of the initiative.

12.4. Healthcare technology alliance (HTA)

Another example of a regional learning initiative in Halland is HTA (Healthcare technology alliance) which is a response to the policy initiative of two central authorities Vinnova (Swedish Innovation Systems Agency) and NUTEK (Swedish Agency for Economic and Regional Growth). HTA was a joint initiative comprising enterprises, the university and the public sector. From the beginning Halmstad University played an important role using its theoretical and practical knowledge of organising cooperation processes for innovation.

The HTA initiative is part of a wider strategy involving both municipalities and other actors in the region. In the autumn of 2000 the municipality of Halmstad began to profile the city as 'Innovationsstaden' (Innovation city). This process entailed collaboration between the municipality, industry, Halmstad University and the schools of the Swedish military forces in Halmstad. The vision for Halmstad was to become a natural centre for innovative companies and a base for entrepreneurial activities. This included offering incubators to start-up companies, setting up training courses for

young entrepreneurs and offering entrepreneurial training in schools. The 'Innovationsstaden' project also identified opportunities for development in the region and healthcare technology was one of these.

In 2001, Vinnova issued a call for bodies to apply for financial and other forms of support to set up projects leading to economic growth. Even if HTA were only to be granted a small amount of funding, the decision was to build up a network of firms and other organisations dealing with healthcare technology. The first step was establishing an operative group consisting of representatives of the university, the municipality of Halmstad, the business sector and some well-known people with entrepreneurial experience. The main aim of this group was to develop ideas about healthcare technology products and recruit firms and organisations to participate in developing an innovation network. The main activities were: organise arenas where people could meet; initiate and stimulate discussions about products and processes; find interested people in public sector organisations. An application was prepared in response to the Vinnova call which was precise in making the following demands: identify and describe an innovative economic growth area; establish a sustainable development organisation which could carry through development work for up to 10 years; organise learning processes. At the same time, as this application was going through, the Halland regional growth programme (RTP) was engaged in developing new industrial policies in the region, and among the three most important areas decided on was healthcare technology, so support from the region could be expected.

Unfortunately, the application to Vinnova was not successful. The winners from 25 applicants were three innovation projects with a focus on nationwide recognised growth areas and having close ties with recognised university research. HTA was seen as 'lightweight' and instead of receiving financial support, was merely invited to participate in learning and support activities organised by Vinnova and NUTEK. The negative decision nearly caused a crisis in HTA, but as often happens in such situations, people transformed their anger into more constructive activities and the result was to reorganise HTA and start fundraising on a regional and national basis. HTA, which is a non-profit organisation, was at that time run by a board of 10 members representing the participating organisations. There was also a process-managing group, which consisted of four persons representing the member organisations. Members from industry, R&D and the public sector ('triple helix') are represented in HTA. People from all levels in the member organisations participated in HTA network meetings. The idea was that people from all organisations should actively participate in some activities of HTA.

Approximately 50 enterprises are members of HTA. Some actors are involved in R&D activities, the most important of these being Halmstad University, although research is also undertaken in companies and in certain departments in the county council and Spenshults rheumatic hospital. The third category of actors in HTA is the public sector dealing with healthcare. The municipalities of Halmstad and Varberg participate in HTA as political actors dealing with homecare and handicap issues. The county council of Halland is also a member, having responsibility for healthcare and dental care in the region. Until 2005 HTA employed a network coordinator from Halmstad University.

12.4.1. Reorganising to deal with problems

During the relatively short period of its existence HTA has been successful. However, several problems had to be addressed. First, there was a lack of money for network activities and a lack of venture capital for developing new products. A second problem arose from the fragile nature of the network making it sensitive to external and internal influences. When, for instance financial resources for joint activities were unavailable, participants tended to regress in adopting self-promotional behaviour.

Lack of financial support ([1]) resulted in reorganising HTA at the beginning of 2005. The most important change was in the role played by Region Halland because it was the main financial contributor (see Figure 1). At that time, Region Halland, which had responsibility for regional industrial and economic development policies and for implementing the 'regional growth programme', became, in their own words, the 'process owner'. This covered financing the daily work of HTA including a communication officer post. A steering group consisting of representatives of HTA organisations was also set up to develop strategy processes and initiate task-oriented processes. However, the end result is that HTA is now organised more as an interest and support organisation, with representatives participating in certain steering groups and in joint network activities but otherwise working independently on their own healthcare innovation projects.

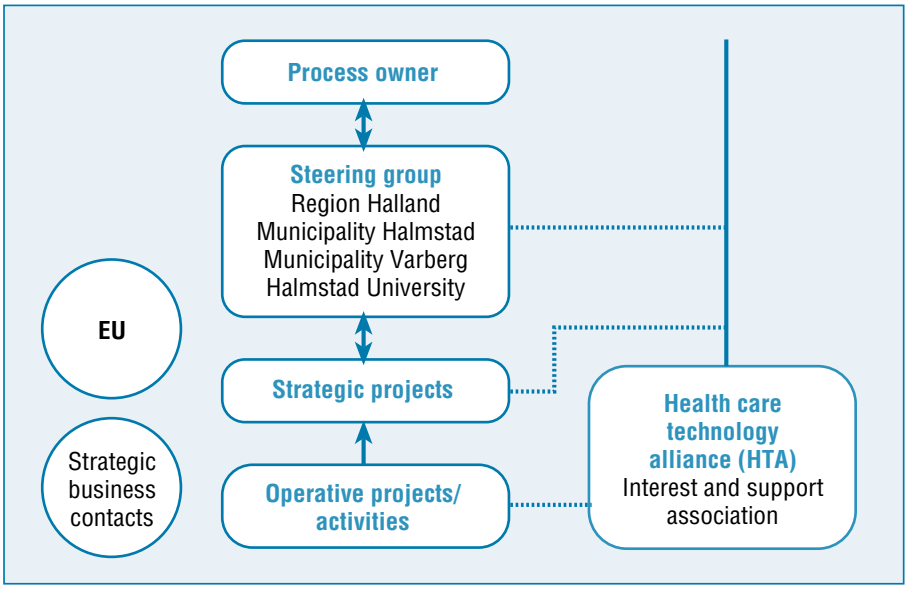
This raises several issues concerning the setting up and running of innovation networks comprised of autonomous actors, with their own interests and aims even when participating in joint activities. This means that no one person in HTA had legitimacy to direct participating members on their

([1]) This required various fund raising activities but the support received was often offering one's time (e.g. participating in meetings, undertaking market research) and not cash.

roles which presents a governance problem. A model for organising network processes did not exist. To address this, researchers from the university introduced a self-evaluation tool called 'support and evaluation tool for innovation network' (SEVIN) that was an outcome of the EU Strata programme in which the university participated (Deitmer et al., 2003a; also see Deitmer in Chapter 11 of this book). The purpose of this tool was to improve the effectiveness of the network through providing a structure for members to evaluate how they were contributing to network activities in terms of project management, partnership and communication processes.

The question of who should moderate the network remains unresolved. Initially, the university undertook this job but for economic and other reasons the Halland regional development council took it over in 2005. This gave rise to a collision between two network moderation principles: bottom-up approaches based on self-organisation as proposed by the university and an administrative, bureaucratic rule-based approach preferred by the regional council. While the university moderators led the network as a bottom-up process where people engage in processes characterised by uncertainty, despite the best efforts of the development council, the risk is that bureaucratic rules take over and the network is dominated by rigid top-down project management thinking.

Figure 1. **Reorganisation of HTA**



12.5. Is the winding road straightening?

Many initiatives have taken place in Halland led by the university (educational or research activities), regional and national authorities and private initiatives. The Halland regional council initiated the 'regional growth programme' that dealt with health technology, the 'leisure-experience' industry and food production. The university has organised a range of programmes for a long time in cooperation with organisations, such as business start-ups which have been successful. Students and young entrepreneurs regularly win awards for new products and business ideas in national competitions.

The Swedish administrative county borders are no longer a hindrance to informal or formal cooperation between Halland and other regions, in particular with the region of Gnosjö, the famous SME dominated industrial district in the inland part of south Sweden (see Chapter 7 by Eriksson in this book). Halmstad University played a significant role with its educational programmes attracting engineering students from Gnosjö and other nearby regions.

In general, even if activities appear isolated, we can see the emergence of what can be called a 'regional development organisation', standing for an ensemble of development activities. To assess progress, a 'bench learning' project is taking place in cooperation with Norwegian regions. Overall two main weaknesses in network development can be identified. The first has to do with governance. According to Asheim (2001), 'development coalitions' are important for learning regions; however, they bring two very different principles of governance into play. One is the formal political process with democratic rules, and the other is informal in line with network thinking. So far attempts to combine these two processes in coherent action programmes have not been successful. There is a risk that democratic principles are being undermined. Formal rules exist for democratic organisations, but networks shape their own rules.

An important issue arising in this context concerns the participation of women, or perhaps more correctly, hindrances to their participation. In formal institutional systems, participation of women is guaranteed and even if there are many hindrances of a formal or informal character, mechanisms exist to address this. In contrast, development networks which participants voluntarily join are characterised by flexibility and informality with no predefined rules; participants from different environments and knowledge cultures have to create something new. Because there is no formal system

and no mechanism for handling problematic situations, the risk of discrimination is high and there can be problems in providing equal opportunities for women.

The second weakness is that many firms and individuals lack the capability to participate in innovation networks. This raises complex questions regarding work and 'learning organisation' processes, work roles, competence and participation. Much work needs to be done here. The 'work science programme' at Halmstad University, where students learn about participation and 'organisational development' processes, is perhaps a first step in addressing this.

Perhaps the question whether the winding road to the learning region is straightening is not the correct question because the learning region concept is based on tension between bottom-up and top-down processes and informal and institutional processes. There is no masterplan, and no individual or group has the legitimacy to decide how to proceed. There is a need for patient work that should only rarely be placed under the political spotlight for politicians to declare 'we are embarking on the learning region'.

12.6. Conclusion

The above reflection will likely not appear helpful to bureaucrats who like to plan and organise regional development processes according to rational principles with clear rules and principles. Perhaps we should be more modest by suggesting to bureaucrats and politicians that the concept of the learning region should be seen as a *Leitbild* or guiding vision (Dierkes et al., 1992). Such a vision is open to people's own interpretation, with questions of where, what and how to be addressed by people working in the field. The important thing for policy-makers is to propose guidelines for cooperation, for example along the lines of a 'triple helix', but without giving detailed instructions on how to proceed, which often results in tensions with devastating consequences for collaboration.

Of course, to counteract what might be seen, by some politicians or bureaucrats as loose ideas, there is a need for broad strategies based on dialogue. Arenas are important where people can reflect, discuss and decide what to do. There is a need for resources to facilitate such arenas.

The case of Halmstad presented here leads one to draw certain policy-oriented conclusions – outlined below – on developing a 'learning region'. However, these should not be seen as universal policy recommendations

which are not useful as all organisations are constrained by bounded rationality and learning is usually path-dependent (Grabher, 1993a). Policy recommendations therefore should outline general policy principles such as: identify resources in the region to promote economic development; develop mechanisms for coordination across departmental and governmental (regional, national) responsibilities; develop strategies to foster social capital (OECD, 2001a).

Keeping the above reservations in mind, the following conclusions drawn from the Halland case are put forward as general pointers for regional policy-makers:

(a) the 'learning region' concept contains structural and process elements. It includes both top-down and bottom-up processes. The promoters of learning regions should be aware of the specific governance problems this entails;
(b) the 'learning region' follows different forms of logic: market-oriented business logic of firms; rule directed bureaucratic logic of public authorities; political logic of municipal and regional authorities; academic/scientific logic followed by R&D organisations. To handle such different logics, high levels of expertise and sensitivity are needed;
(c) innovation networks are characterised by strategic and action-oriented processes that follow different organisational and management principles. The challenge is to combine them, with trust a necessary bonding factor;
(d) organisations (firms, R&D organisations, municipality departments, regional authorities) need to develop many capabilities if they are to participate effectively in learning region processes.

CHAPTER 13

Emilia-Romagna after industrial districts: regional policy implications

Andrea Bardi

13.1. Introduction

Emilia-Romagna is known throughout the world as the homeland of small firms and 'industrial districts' ([1]). Since the end of the Second World War, the region's economy has been characterised by the dominance of small and medium-sized firms, clustered in homogeneous industrial sectors, often confined geographically to a province or a municipality. With the average company size being just over four employees, the regional production structure is highly diversified ([2]).

This production system, created through endogenous processes, has generated significant levels of innovation, thanks to a socioeconomic structure showing a positive correlation between high rates of collaboration among companies (although at times entailing strong competition) and virtuous links with local authorities and associations representing business and labour. The region's capacity to generate wealth and innovation cannot be understood without considering the value of this well-constructed, superabundant and interwoven socioeconomic fabric.

([1]) An 'industrial district' is a territorial production system made up of small and medium-sized enterprises, specialising in single phases of the production process, that are interrelated by a dense network of horizontal, vertical and diagonal relations. Traditionally, 13 industrial districts dealing with the following sectors are considered significant for Emilia-Romagna: packaging machinery; motorbikes; soft furnishings and upholstery; footwear manufacturing; wood-working machinery; textiles/clothing; biomedical goods; farm machinery; ceramics; machine tools; food processing machinery; footwear; wood working machinery.
A 'local production system', on the other hand, which is different to an 'industrial district', is a set of companies concentrated in a circumscribed territory which directly or indirectly produce for the same end-market (Brusco, 1989). Thus a 'local production system' is broader than an industrial district (Brusco, 1989; Becattini, 1987; Cossentino et al., 1997).

([2]) In 2001, Emilia-Romagna registered 362 447 companies with 1 728 343 employees.

However, forces opening up markets today are now redefining both the geographic and relational spaces within which the region's firms operate. New, extra-regional connections with diverse actors have reorganised the patterns of cooperation and competition that traditionally characterised the industrial districts. Thus, traditional industrial districts are going through a process of radical change.

Transforming the region's production system has entailed reconfiguration of organisations at company (micro) level and the territory at meso level in which these companies operate. The emergence of connections and synergies between different sectors is bringing about a recombination of locally rooted production factors and skills, thus generating new innovation paths (Fondazione Istituto per il Lavoro, 2004a and 2004b). However, although these new paths represent the end of the traditional industrial district model, they do not necessarily lead to a lessening of the importance of the local context (Poma, 2003). On the contrary, it seems that the significance of the local territory, traditionally a central element for enterprise development, is growing in importance ([3]).

This chapter outlines the new regional policies evolving in Emilia-Romagna.

13.2. The regional production structure: between traditional and evolutionary processes

Emilia-Romagna, a traditional industrial region, mainly in manufacturing, shows positive economic indicators when compared with other regions in Italy and indeed leading regions in Europe. It is a region in which manufacturing seems to be gaining rather than losing ground ([4]). The view that traditional manufacturing is shifting from western European countries to countries with lower labour costs leading to growth in employment in services

([4]) Research carried out in the mechatronic industry in Emilia-Romagna showed that the most highly focused mechatronic firms have stable collaborative horizontal and vertical relationships with local realities. These firms are distinguished from those without a mechatronic strategy and without a link with the local territory (Centro di ricerca Antares, 2004). The research classified the firms of the district in relation to their degree of 'mechatronicity', respectively: firms that produce a finished mechatronic product; firms that produce a mechatronic component; and firms that produce a non-mechatronic component for a mechatronic product.

([5]) Where the industrial base is weak, services are weakened, dealing only with the distribution rather than the generation of wealth.

in western countries is not true for Emilia-Romagna, where advanced services are growing based on strong growth in industrial manufacturing ([5]). Economic data on Emilia-Romagna demonstrate that a strong manufacturing sector attracts advanced services (Aronica, 2004). There is a positive correlation between the two and recent research in the fashion industry in Italy (textiles-clothing, shoes, and leather goods) demonstrates this.

In Emilia-Romagna, the total drop in employment in the fashion industry from 1991 to 2001 was almost 27 %, above the national average. Notwithstanding, overall employment in Emilia-Romagna grew by 11.2 % in the same period. In the more downstream parts of the fashion industry, the drop in employment was almost always worse than the national average and similar regions. From this we can make an observation: where the base manufacturing sectors reduce their critical mass, whether in absolute terms or in the degree of regional specialisation, the multiplier effect on advanced and immaterial activities is reduced.

Based on the conviction that a positive correlation exists between traditional industry and advanced services, regional policy in Emilia-Romagna has been reworked on the basis that the renewal of the regional production structure depends on renewal of its traditional industrial structure's innovative capacity, rather than through its substitution ([6]). Thanks to growing power over economic development policy granted to the region by central government, the regional government has been able to focus on innovating its traditional production structure. The new policy has been implemented in concert with the social partners and the main actors. As this vision is shared by all, it reinforces and accelerates the pace of change and introduces new measures.

Policy is now focused on providing incentives for joint projects between businesses, research agencies and universities ([7]) resulting in close cooperation between the business and research worlds. The projects approved for funding have included a network of laboratories and innovation centres, specialising in cutting-edge fields having an impact on the region's industry.

To summarise, guided by the regional ministry for economic development, Emilia-Romagna has embarked on a new regional economic strategy

([6]) However, exceptions are sectors more exposed to competition from countries with low-labour costs regarding textiles, clothing, shoes, leather goods. However, these sectors are less important for the Emilia-Romagna economy compared to other regions.

([7]) Universities and research agencies play a 'fly-wheel' role of in disseminating innovation skills among regional businesses.

through creating networks made up of firms, social actors and the scientific community. Public actors and agencies dedicated to local development and businesses are activating development coalitions (Ennals and Gustavsen, 1999). Thus, in continuity with previous policies, the 'local dimension' remains central to the region's new economic development strategy. Reframing regional industrial policies, by approving a regional innovation law (with a newly formed regional agency for technological development - Nuova Aster – as its centrepiece) has supported interaction between regional universities, research institutes and firms. This has created 'labs' and centres for innovation with direct participation of universities. These centres formally created in 2005 represent the starting point for a new era of innovation policy in Emilia-Romagna. According to the new law, for the first time, a university is no longer seen just as a centre for high competence which firms draw from according to their needs, but rather as one of the players in local development. This change has been confirmed by the direct involvement of universities in the new organisational structures created by the law.

13.3. Emergence of a new production structure

The Emilia-Romagna production structure, traditionally organised in autonomous industrial districts, is becoming a network of interconnected clusters or technological *filieres* connecting sectors producing technologies with those using them. These *filieres* intertwine with intermediate goods sectors showing great production diversity. The mechanical-engineering sector, in which Emilia-Romagna together with Lombardy and Piedmont, is a leader, is now closely connected to the six most important *filieres* in the region (agro-industry; ceramics and building materials; automotive; fashion; furnishings; and health) and represents about 55 % of all regional exports.

Regional enterprises are promoting integration between sectors, in particular between mechanical and electronic engineering, generating mechatronic and information and data communication technologies. The result is product innovation and a reconfiguration of competence constellations and technological frontiers. This integration between different technologies redefines products and recomposes the context in which businesses operate, including subcontracting production and services.

At the organisational level relations between firms have become more stable with informal relationships becoming more formalised (Bardi, 2005; Poma, 2003). Integrated groups of businesses are emerging in a way that the

industrial district model is not able to create ([8]). The new context requires new services and instruments. Thus, an innovation centre, Piminet, was set up to support SMEs in creating networks ([9]). From this point of view, the experiences of northern Europe are of great interest to the Emilia-Romagna regional production system (see Chapter 4 by Haga).

Essentially, the industrial district has exploded from a closed to an open system. On the one hand, internationalisation of company networks, which in the past were entirely local, is taking place and on the other hand, foreign firms are acquiring 'pieces' of a 'district'. The 'district', previously homogeneous and egalitarian is being polarised and the role of local actors is changing. As a consequence of the global perspective, public policy based on the industrial district model is no longer adequate.

13.4. Tracing the evolution of the region's industrial policy

The first cluster initiative promoted by Emilia-Romagna in the 1970s involved setting up technical service centres to improve design capabilities, marketing and innovative entrepreneurship. In 1974, the regional government set up an organisation/corporation called Ervet to help implement sector-based economic and industrial policies. Ervet translated regional planning decisions into action, designing and carrying out innovative projects with the economic groups concerned.

In the 1980s, to foster the competitiveness of Emilia-Romagna's industrial system, Ervet set up a network of 'business service centres' tailored to the needs of the local economy. The Ervet system consisted of the parent organisation and the following specialised business service centres: Aster operating in the fields of technical and scientific innovation, technological innovation and information technology; Cermet a centre for product and process quality certification; Cesma and Democenter serving the sectors of machine manufacturing and factory automation; Cercal and Citer serving the fashion industry (Cercal for the footwear industry and Citer for the textile industry); Centro Ceramico and Quasco serving the ceramics and construction industries. These centres were created in collaboration with all

([8]) This is because in industrial districts, the traditional shared cultural ethos was the key factor.
([9]) For further information see www.piminet.org

the business associations of Emilia-Romagna. Their combined membership comprised almost 1 000 firms. The centres offered members a wide range of specialised services.

These centres were established for the following reasons:

(a) almost all entrepreneurs were first generation and had very basic education and technical competences;
(b) the private supply of technology services was very limited;
(c) dialogue between SMEs and universities and research centres was practically impossible;
(d) until that time local clusters did not have any institutions to represent them or with whom they could identify (Bardi and Bertini, 2005).

These initiatives were necessary to sustain the development of industrial districts in the light of emerging global competition.

However, with increased global competition in the beginning of the new millennium, certain companies started to directly access universities for assistance with innovation. It should be noted that at this time the majority of the regional SMEs were not capable of introducing process and product innovations. For this reason the role of the 'business service centres' outlined above were not adequate.

New initiatives were needed for the following reasons:

(a) firms were now managed by second generation entrepreneurs, better educated and more sensitive to management and technological innovation;
(b) the internal resources of firms dedicated to innovation had increased greatly;
(c) firms were strongly oriented to international markets, visiting exhibitions, contacting different organisations and many linked in group structures (Brioschi and Cainelli, 2001; Caprio, 2002);
(d) use of the Internet was strongly diffused;
(e) the private supply of technology and strategic consultancy had increased greatly;
(f) regional universities were more involved in technology transfer activities (Bardi and Bertini, 2005).

In this context, the business service centres had to find a new role to respond to market needs and to complement those actions which firms could now do on their own. The Emilia-Romagna region thus activated a reform of the 'business service centre' system by introducing a new law promoting research, technology transfer and innovation.

In May 2002, the region approved Law 7/2002 'Promotion of a regional system for industrial research, innovation and technology transfer', that called for the development of research initiatives related to the needs of industry in the region. These research initiatives were to be coordinated by universities or other regional research institutions, in collaboration with firms as well as business associations. This shows the shift from a district approach to an institutional company system. The end of 2003 saw the beginning of the operative phase with approval of the 'Regional programme for industrial research, innovation and technological transfer' (PRRIITT) to implement the above law (Regione Emilia-Romagna, 2003). This outlined regional services to support firms and production activities in national and European research and innovation activities. The following four intervention measures were implemented:

- measure 1: actions to develop a regional production system based on industrial and strategic research, including the development of industrial laboratories;
- measure 2: generation of new high-tech entrepreneurial and professional activities including university spin-offs;
- measure 3: actions for knowledge and technological skill transfer entailing contracts for technology transfer being established between universities, research agencies and businesses;
- measure 4: developing regional networks for applied research and technology transfer by establishing 'high competence' centres in scientific research favouring the development of knowledge, entrepreneurial activities and dissemination of knowledge throughout the region.

Measure 4 which activates Article 6 of the above law and interests us most here, embodies the innovative spirit of the law and its plan of action. In 2004, the regional administration cofinanced the setting-up of numerous structures, in particular, laboratories and innovation centres to foster industrial research and organisational innovation. These made up a network with 57 'nodes': 27 industrial research and technology transfer laboratories; 24 innovation centres; and six innovation parks. Five hundred and fifty researchers were to be employed in the network, of whom 236 had already been recruited by universities and research agencies.

Nanotechnology for environmental and energy applications, mechatronics, genome and biotechnology, information technologies for services and business networks are just a few of the advanced 'specialisations' that

characterised the new Emilia-Romagna regional network for research and technology transfer. The overall budget for R&D-related activities was EUR 77 million of which roughly EUR 35 million was a direct contribution from the regional government.

These structures spurred growth in demand for R&D by means of direct finance to companies. In the first round of contracts the regional government supported 188 companies giving them more than EUR 30 million in grants. The companies themselves invested around EUR 47 million making a total of EUR 77 million: 70 % of the financed companies were SMEs demonstrating that SMEs are capable of innovation and using the resources of researchers.

This new scheme, characterised by an agreement between the universities and social partners, transformed the traditional mediating role of the original business service centres, by bringing universities and firms into direct contact. It should be noted that this new scheme is indirectly managed by the public administration, unlike business service centres, which were directly controlled by the regional government. Thus, to a certain extent, the market is recognised as having a role to play in selecting innovation centres and labs considered capable of bringing resources together.

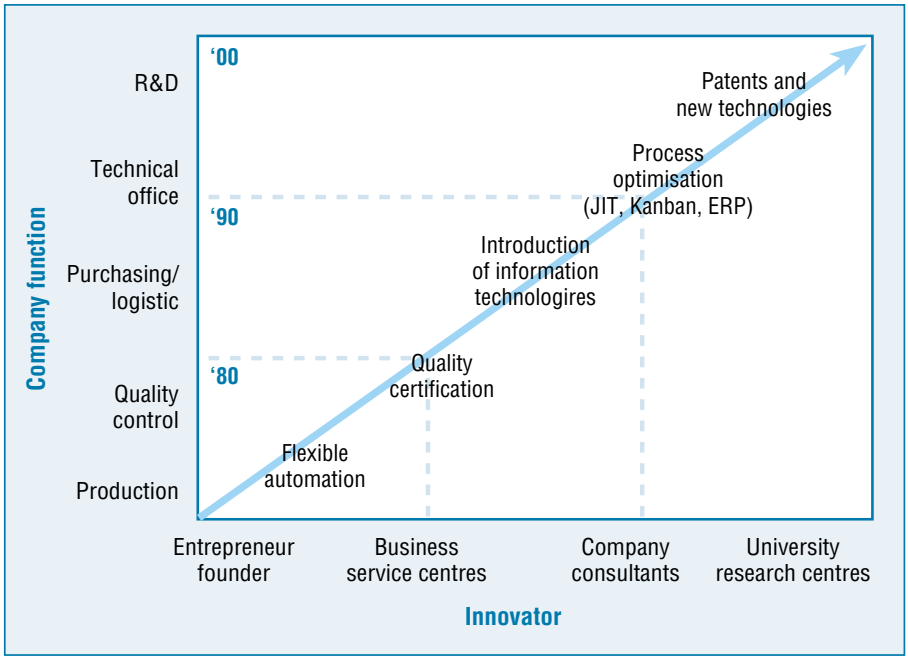
13.5. Conclusion

This radical change in regional policy gives a greater role to universities and medium-sized firms. The regional law explicitly states that projects must have a direct link with universities and regional research centres. Regarding changes in the regional production structure, large and especially medium-sized companies began to develop, while micro-firms, historically the strongest part of the region's economy, began to lose ground.

Figure 1 demonstrates the evolution of the innovation path of the region's companies in the 1980s, 1990s and the first decade of 2000. The direction of the arrow indicates the trajectory of the evolution with the principle stages outlined. Vertically, the company functions and the different stages are outlined. Horizontally, innovation actors, both internal and external to companies, are presented.

As the figure shows, in the 1980s there was a constant increase in regional production capacity, thanks to large investments first in basic automation and then in flexible automation. In the first half of the 1990s there was an increase in attention paid to product improvement (production

Figure 1. **Evolution of the innovation pathway in the 1980s, 1990s and 2000 decade**



upgrades) through a quality certification process. The second half of the 1990s and the first few years of the 2000 decade saw a search for new technological solutions and an increased orientation towards patenting. In this latest phase, one perceives a switching of gears to a new innovation model radically different to the traditional industrial district one. Circulation of 'free' information between all the companies, typical of industrial districts, is now supplanted by protection of confidential information, company 'secrets' and patenting innovation (Bardi, 2004).

This new scenario represents a profound break with the past. With the increasing role of medium-sized firms and strong *filieres* there is a corresponding redimensioning of other firms, for example in the fashion industry. This is a trend that characterises all western countries and cannot be stopped. While in the short term this is worrying, in the medium term it stimulates innovating the production structure. If strong links are being consolidated at local level, as is the case between clients and first line suppliers (in modularisation) or strategic partnerships formed among leading firms and regional universities, other actors are taking a more peripheral or

marginal position. In particular, this is true for mechanical firms that produce components for regional agricultural firms. These appear destined to disappear mainly due to problems linked to succession of ownership.

Thus, polarisation is emerging, separating winners from losers. Although the outcome of this process is uncertain, the egalitarian dimension characterising relations between local actors (entrepreneurs and development actors) in traditional industrial districts appears to be a thing of the past. The capacity of the region to manage this new trend and build a sustainable development model to benefit the entire regional system, and not just a few excellent cases, is the main challenge for the coming decade.

CHAPTER 14

Engagement of a university in regional development in the UK: a critical reflection

Peter Totterdill

14.1. Introduction

The nature of the political, professional and academic discourse surrounding the economic development of localities and regions in the UK has changed beyond recognition during the past 20 years. With origins in the dissenting research and polemic generated by community development projects in the 1960s, the idea that part of the 'local state' could be captured by progressive interests, and used as an instrument of economic intervention, was part of a highly politicised reaction against central government monetarism. This movement, which appeared during the late 1970s, came to full flower 10 years later at the height of Thatcherism. It did not, however, last long in its radical guise. Central government sought to depoliticise local authorities through the abolition of the metropolitan councils that had played a leading role in the renewal of local intervention, and through the imposition of tight financial and regulatory controls.

Yet this did not mean the end of local economic intervention. Towards the end of the 1980s local economic development initiatives had become an embedded characteristic of the national policy scene resourced by central government measures, by local authorities representing a wide range of political complexions and, substantially, by EU structural funds. By this time the discourse had substantially changed. The transformative promise of local intervention – in the sense of its putative ability to empower citizens and employees – was steadily replaced by a technocratic and programmatic discourse based on securing tangible deliverables in compliance with defined targets. The language of 'social inclusion' and 'labour market opportunity' subtly replaced earlier political visions which sought a substantial redistribution of power and resources to disadvantaged communities, lower-skilled workers and trade unions. Creation of nine

English regional development agencies (RDAs) by the incoming Labour Government in 1998 secured the primacy of this discourse. In each region the integration of principal funding sources within RDA strategic frameworks effectively ensured the adherence of key actors to a regime of strict performance management.

Universities have been tightly woven into the fabric of local and regional intervention throughout this period, though the nature of their engagement has also changed. As back numbers of journals such as *Capital and class* from the 1970s and 1980s demonstrate, critical academic commentary informed radical models of local intervention both at theoretical and instrumental levels. Individual researchers gave up their positions in universities to join the new wave of politicised local authority economic development departments, notably the Greater London Council (GLC), Sheffield City Council and West Midlands County Council, yet continued to contribute to academic debate. Some universities and polytechnics established, or permitted the establishment of, local economy units specifically intended to strengthen the interaction of research and policy practice in this field. As an example, the Nottingham local economy project which Dr David Gillingwater and I established at Trent Polytechnic with local authority funding in 1982 created a multidisciplinary team which worked for two years on sectoral strategies, dialogue with local trade unions and the creation of community-based worker cooperatives. The project was eventually brought in to the city council to form a core component of its new economic development department.

The programmatisation of local economic development policy was matched by a steady loss of interest from academic social scientists and by the consequent erosion of critical academic analysis. Instead other university actors started to become part of this technocratic discourse, drawn in part by perceptions of new possibilities for income generation and in part by the emergence of a policy concern with 'knowledge transfer'. Section 14.5 examines this in more detail.

This chapter argues that the dominance of technocratic approaches, linked to the relative absence of a critical-reflective dimension is a serious weakness in the current state of British economic development at local and regional levels. It reflects my experience as both a practitioner and a researcher over a 23 year period. In particular it critically examines experience from an East Midlands university, demonstrating ways in which alternative approaches might be developed while emphasising the serious structural impediments to a more organic relationship between academic knowledge and practice.

14.2. Modes of local economic intervention

In a paper (Totterdill, 1989) for a special edition of *Economy and society* on local economic intervention I argued that, following a schema proposed more than a decade earlier by Claus Offe (1975), UK experience could be understood in terms of the tension between three modes of policy production:

(a) the bureaucratic, in which the provision of support to individuals and business is essentially self-justifying and is allocated with minimal discretion according to carefully defined rules and criteria. The many local grant schemes, training subsidies and workspace provisions created since the early 1970s typically fit within this category;

(b) the technical-rational, typically characterised by a programmatic approach in which resources are allocated according to prescribed criteria in order to accomplish defined targets, themselves part of a hierarchy of aims and objectives. Harmonisation of actions and performance measurement are essential components of this approach, which can be exemplified by the notional operation of, for example, the European Social Fund (ESF) at regional level;

(c) the discursive, in which the principal intervention is to build inclusive coalitions able to act on the basis of working consensus grounded in dialogue free from domination or distortion. Evaluation, shared learning, reflection and continuous improvement are central to this approach, making action-research a characteristic tool. Internationally the increasingly iconic example of a discursive approach is to be found in the Norwegian Value creation 2010 programme. Within the UK cases are rare and isolated.

Each mode is characterised by specific limitations. Thus, in the bureaucratic mode, problematisation is taken as given. Grants to support business growth, for example, are seen as an inherently good thing. Moreover there are clear rules and procedures to protect against the inappropriate use of funds. However bureaucratic modes are stretched beyond feasible limits where there are multiple stakeholders and objectives requiring active reconciliation: for example business growth through the adoption of new forms of work organisation which lead to improved quality of working life. Bureaucratic modes are also inflexible and unresponsive to new and unforeseen demands.

Technical-rational modes are capable of addressing problems and objectives of far greater complexity. Strategic aims, often subjected to well-publicised consultation before adoption, are paramount in governing the

hierarchy of objectives, measures and actions. Legitimation for technical-rational modes is gained through: an explicit emphasis on expertise (often consultancy); the use of 'evidence-based' tools such as benchmarking against 'best practice'; quantifiable performance measures to ensure accountability to funders; and restricted forms of democracy in which external stakeholders are recruited to sit on programme monitoring committees. However there are major limitations to technical-rational approaches to regional development. First, it is inherently exclusive. Interests or ideas not articulated and recognised at the goal-setting stage are excluded from subsequent recognition and support, irrespective of the logic of individual cases. Second, it imposes a hierarchical distance between policy and implementation: targets are set and performance against them is measured; dialogue, reflection and learning are held in abeyance until the next strategic planning cycle. Thus those responsible for ensuring performance against targets are set in opposition to staff delivering projects at the front line who, daily gaining a deeper knowledge of needs and opportunities, may learn to question fundamentally the relevance of the indicators against which their work is measured. Third, the centrality of performance measurement and accountability leads to an overemphasis on those outcomes that can be quantified. At worst (but not uncommonly) the quantification of project targets can be absurd: for example measuring the number of participants at workshops, courses or meetings without any assessment of content quality or relevance. The most valuable and potentially enduring outcome from any project may well be the creation of social capital: intangible assets such as networks; intermediate structures; shared knowledge and reticulist competences. Yet because these outputs are not properly measured, they are likely to be invisible to the agencies responsible for project funding and therefore not valued and not sustained. Fourth, technical rationality ignores the possibility of conflict. Implementation is perceived as a linear process in which resistance is simply an obstacle to be overcome: a symptom of outmoded thinking or practice. This precludes the possibility of dialogue and creative experimentation geared to the achievement of previously unforeseen 'win-win' outcomes.

Discursive modes offer quite different challenges. Social capital building, dialogue and shared learning define the approach, but building such frameworks for consensual action can be painstaking and eventual outcomes tend to remain uncertain. Institutional actors in English regional development rarely include such roles in individual job descriptions, and rarely employ staff with the appropriate competences. A recent proliferation

of development agency and university job titles which include 'employer engagement' involve, on closer inspection, little more than the marketing of standardised products and services. However, as Claus Offe pointed out in the 1970s, the potential contradiction inherent in the discursive mode is that open and democratic dialogue may lead to the formulation of demands which state organisations are incapable of meeting without significant structural change, whether for economic or political reasons. Nonetheless it is in this tension that the real transformative potential of regional intervention lies.

14.3. A brief history

To understand the potential for mobilisation inherent in local economic development, it is worth examining the nature of local authority intervention during the early and mid-1980s. The majority of local authorities had 'intervened' in their local economies during the post-war period through, for example, the use of compulsory purchase to assemble land for employment purposes, the construction of workspaces for start-up businesses and SMEs, active marketing to attract 'footloose' companies and even the provision of business support grants. However it is common to trace the origins of the 1980s surge of activity to the publication of a widely-circulated paper written by the Labour leadership of the London Borough of Wandsworth in 1976. Analysing the de-industrialisation of Wandsworth and the ineffectiveness of central government policy, this paper advocated deployment of a little-known discretionary power to raise money which could then be used for the acquisition of controlling interests in local companies, thereby offering a means of preventing relocation and reversing declining competitiveness. The ground-breaking nature of this proposal triggered considerable debate among some Labour controlled local authorities, particularly those with a significant number of urban professionals among their political representatives. By the early 1980s, a leading group of metropolitan authorities had established energetic departments which gained profile both for their proactive approaches to economic development and for their vocal critique of the local economic consequences of Thatcherism. Such departments were notable for the diversity of staff recruitment, bringing together individuals with backgrounds in universities, trade unions and companies in ways which were profoundly uncharacteristic of traditional local government. Although this group of authorities was small in number, its political and intellectual influence spread more widely, stimulating varying

degrees of both innovation and emulation in the majority of British cities.

It is difficult to characterise the types of intervention developed by these authorities, not least because of the diverse range of issues and approaches which they were designed to address. However, recurrent strands included:

(a) the creation of sector strategies for 'key' local industries, focusing on the types of restructuring required to sustain competitiveness and employment in the medium to long term;
(b) establishing enterprise boards as a channel for providing equity investment to local companies. Enterprise board investment, often drawn from local authority pension funds, was typically linked to the dual objectives of improving long-term prospects for competitiveness and employment and working conditions, both regulated by detailed contractual clauses;
(c) support for trade unions facing industrial restructuring, including the creation of 'workers' alternative plans';
(d) initiatives to develop local public enterprise as a means of job creation;
(e) actions targeted at groups experiencing disadvantage in the labour market through the aggressive promotion of equal opportunities and the provision of specialist support and training;
(f) the development of social enterprises (such as employee or community cooperatives) as a means of job creation among disadvantaged groups;
(g) area-based initiatives targeted at localities experiencing large-scale industrial restructuring or high levels of unemployment.

Of these, sector strategies provide a particularly interesting example because they addressed a domain traditionally reserved for national industrial policy. The 1974-79 Labour government had taken some important steps towards national sector strategies grounded in dialogue with employers' organisations and trade unions. However the strategies lacked effective delivery mechanisms and were quickly abandoned by the Conservative government which took power in 1979. In the face of rapid industrial change, and of serious decline in some sectors, several local authorities saw sector planning as a potentially powerful means by which they could both understand the local economy and identify effective levers to enhance competitiveness and employment. Typically these strategies would involve detailed critique of existing practices at enterprise level based on extensive survey work tested through sustained dialogue with principal stakeholders. The London Industrial Strategy was perhaps the iconic example of this approach (Greater London Council, 1985).

Approaches to sectoral intervention proved contentious. A debate in the pages of *Capital and class* and *Local economy* between Jamie Gough of the Greater London Council (GLC) and Jonathan Zeitlin of Birkbeck College juxtaposed direct equity investment against the provision of specialist services as strategies for intervention (Totterdill, 1989). Equity investment, it was argued, gave the authority direct control over managerial decisions affecting competitive strategy as well as employment practices. This would lead to the creation of 'exemplary' companies demonstrating competitive success and good employment, encouraging others to follow. Opponents pointed to the difficulties of expecting public officials to 'pick winners', arguing instead for the creation of comprehensive business support environments typical of industrial districts such as Emilia-Romagna and designed to raise the performance of entire sectors. Broader objectives, such as the improvement of employment conditions, could be addressed by restricting support to companies willing to comply with an appropriate code of conduct.

In a very short space of time such debates were to sound quite esoteric. The abolition of the Greater London Council and the metropolitan counties in 1986, linked to severe restrictions on the budget and autonomy of the rest of local government, severely dampened enthusiasm for radicalism and innovation. Many authorities continued to maintain active economic development programmes but found that they were increasingly dependent on the attraction of external funding, both from central government and the EU, involving a constraining mixture of competitive bidding and target setting. Moreover from the mid-1980s new waves of central government initiatives began to appear which occupied much of the policy territory which local authorities had created for themselves. At the political level in Labour-controlled local authorities, hope was kept alive by the anticipation of a future Labour government committed to restoring their autonomy. Many authorities prepared carefully for such an eventuality in the general elections of 1982, 1987, 1992 and, finally 1997.

Yet the lasting significance of this era of local economic development lies precisely in its discursive nature. Politically motivated authorities initially driven by the non-interventionist policies of central government created new forms of dialogue within their own territorial areas, as well as between local actors and national bodies such as trade unions. Even though this dialogue was subsequently restrained within the confines of programmatic policy it remains a potential force for transformation.

14.4. English regional development agencies: not what we had hoped for

The intervening years since the 1989 *Economy and society* article (Totterdill, 1989) have seen technical rationality triumph as the dominant mode of policy in the UK, not just in economic development but in almost all aspects of government policy (a typical English hospital is expected to provide the national Department of Health with over 40 000 performance measurements).

None of this was foreseen at the beginning of the movement for establishing RDAs. In 1981, supported by advisers from local authorities active in local economic intervention, John Prescott (then Labour Party parliamentary spokesman on local government and the regions) published a discussion document on the future of the English regions. Drawing enthusiastically on local authority experience, Prescott and his team argued for the creation of regional development agencies early in the first term of a new Labour government, an event which was not to occur for another decade and a half. Mixed with a clear political belief in decentralisation, there was tangible excitement about the recent attempts by local authorities to intervene in ways which were creative, responsive to local needs and able to harness the knowledge and enthusiasm of other local stakeholders. RDAs were required because they would protect this local freedom from the centralising tendencies of national government, while at the same time enhancing local intervention by giving it a strategic dimension at regional level.

In practice, the 1997 Labour government adopted a very cautious and controlling approach to financial management. From a Treasury perspective, the English regions presented a picture of incoherence and fragmented governance. Regional expenditure was managed by several public agencies with little overall coordination, making it difficult to evaluate strategic effectiveness and value for money. RDAs would be given powers to ensure the closer alignment of expenditure from both national sources and from EU structural funds against strategic objectives and measurable targets.

An analysis of each regional economic development strategy from the nine RDAs demonstrates striking similarities. All contained strategic objectives relating to competitiveness and productivity, cluster development, skills, social inclusion, rural development, sustainable development and the renewal of strategic sites. Unsurprisingly the conclusion of a study

commissioned by the government to evaluate the first round of strategies (DTLR, 2001) concluded that most tended primarily to reflect national policy priorities with insufficient priority given to 'the distinct and particular characteristics and issues specific to their region' (p. 15).

In practice this means that the bulk of RDA expenditure is already prescribed and set against specific targets. While there is some discretion on how target outputs will be reached, the conditions under which RDAs operate do little to encourage innovation. During an interview in 2004, a senior official of one RDA made it clear that the 'overwhelming majority' of the agency's resources had been allocated to 'workhorse' projects; in other words those designed to hit quantifiable targets in as safe and predictable way as possible. Policy innovation and experimentation was restricted to a small and much sought after component of total expenditure. Likewise, during the negotiations for the 2005-06 budget round, the East Midlands Development Agency (EMDA) announced its intention to withdraw the delegation of locally-based expenditure from seven subregional coalitions, preferring to control funding allocation centrally. In short, English RDAs are characterised by all the limitations of technical-rational intervention discussed above.

In mitigation, it can be argued that the very existence of RDAs as regional actors generates a more discursive view of regional development. EMDA, for example, is developing 'cluster' strategies for six sectors (motorsports, food, textiles, healthcare, creative industries and aerospace) each involving dialogue between a cross section of stakeholders and actors. But such dialogue may be limited in its autonomy to explore the real concerns of actors, being heavily dominated by the strategic timetables and performance culture of the agency.

14.5. Why are universities seen to have a role to play?

If RDAs have not lived up to early hopes and expectations of their role as discursive agents, can universities fill the gap? The answer is ambiguous: from a formal policy perspective no; in practice, sometimes. Contemporary policy expectations of the role of universities in economic development can probably be dated back to the Conservative government's 1992 *Competitiveness white paper* and its anxieties about comparatively weak levels of innovation in the British economy. The problem was defined in terms

of transference: British universities are among the best in the world, but they lack the close industrial links characteristic of their counterparts in many of the UK's competitor countries. Brilliant ideas with great commercial potential were thought to lie locked in academic filing cabinets inaccessible to entrepreneurs possessing the skills and resources to bring them to market. Successive government initiatives – which demonstrate high levels of consensus between Conservative and Labour administrations – sought ways of filling the gap posited by this analysis: encouraging spin-off companies led by academic staff or students (perhaps in partnership with entrepreneurs); providing universities with marginal funds to explore ways of becoming more responsive to businesses in search of academic knowledge or consultancy; placing graduates to undertake time-limited development projects in SMEs. None of these interventions however come close to addressing the scale of the structural contradictions which separate academic and business practice.

The government sponsored Dearing report into the future of higher education (NCIHE, 1997) also saw a 'third income stream' generation through such activities as an important plank in the strategy to reduce universities' long-term funding gap. Faced by a consistent decline in core funding, a few universities such as Warwick have achieved benchmark status in higher education through the achievement of substantial private sector income by means of carefully designed products and services for large corporate enterprises. Other universities, though lacking the vision or political willingness to invest, nonetheless feel obliged to imitate Warwick's example in pursuing a third stream. In many cases this amounts to little more than cosmetic additions: perhaps the inauguration of a dedicated business helpline linked to a database of university 'expertise', but doing little to address the more fundamental organisational issues described below in Section 14.6. Moreover at the level of national policy there has been no attempt to address the constraining influence on external activity of government-imposed targets relating to teaching and research. The government's regulatory mechanism, the 'research assessment exercise', imposes a particularly restrictive influence on the allocation of research effort.

The patchy national policy framework that has begun to emerge during the last decade also muddies the distinction between a strategy for 'third stream' income generation and the 'third task' of universities concerned with resourcing economic and regional development (Brulin, 2004; Lantz and Totterdill, 2004). In the latter paradigm, the regional engagement of universities occurs because of: their organic relationship with diverse

partners; a highly developed corporate sense of stakeholding in their host regions; and sometimes an epistemology which values knowledge creation through such interaction. In this context universities might be expected to be driven by a different vision and to act in different ways than if they were principally focused on commercial income. In practice however the role of UK universities as animators of dialogue and sources of critique has largely been marginalised. Instead the policy vision has been defined in terms of universities' potential as creators of knowledge-based commodities ripe for the market.

14.6. Work organisation in universities

In part, this limited perception of the university role reflects the structure and culture of universities themselves. Universities have to invest heavily in building local and industrial development coalitions if they are to realise their potentially unique dual role as stakeholders and as the mediators of knowledge. Prior investment in universities' own internal structure and capacity, in networking, and in the development of new models of learning and innovation should be seen as essential prerequisites.

14.6.1. **Capacity building**

While universities have sometimes been in the forefront of studying changes in other people's workplaces, a model of organisational innovation within universities capable of sustaining closer partnership with external organisations is lacking. Doubtless there are people in every faculty of a university who can contribute something towards the regional development process, towards a new vision of the region. But universities typically lack corporate mechanisms to bring individuals together across academic demarcations, and to bring them together with external partners in order to build a local community of expertise. As a local policy-maker pointed out, 'the world is not divided up along faculty lines'. Universities therefore risk being perceived as lacking critical mass in key issue areas, that they are no more than a series of islands of activity in which the whole is less than the sum of the parts.

Like most institutions, universities erect walls and ceilings between different functional parts. Corporate partnership, research and commercial consultancy are often quite discrete levels of activity within a university's structure and potential synergies are rarely discussed or explored. This is

certainly not to argue that research effort and resources should simply be determined by commercial opportunities or instrumental policy interests. But there should be a mutually beneficial exchange between these activities and linkages built with the wider corporate dialogue that universities establish with partners in public policy and industry.

Ensuring an effective response across the whole university requires both proactive contact with partner organisations and the creation of new internal mechanisms for animation and horizontal coordination. As we will see in the case study below, some universities have provided a platform for the creation of 'hybrid' centres, committed to building synergies between research and the provision of practical assistance to policy-makers or companies (see the case study below). The rationale for such centres is that while academics often lack the practical or communication skills needed to work closely with practitioners, individuals from backgrounds in practice can lack the wider overview and the 'search space' needed to generate rigorous solutions. By bringing together integrated teams of researchers and practitioners it should be possible to create new forms of collaboration, with mutual benefits for each side as well as for the partner organisations or companies. Researchers have to demonstrate at least some utility in their outputs to the practitioners, but gain access to high-quality data sources. Practitioners are accountable to researchers for the rigour of their methods and outcomes, but gain access to a wider knowledge base and conceptually coherent models of change. In practice, of course, the creation of a common language and shared understanding can be painstaking and difficult, but the potential rewards are high.

Overall, universities are only rarely in the vanguard in developing or pioneering innovation in regional policy or workplace change. Innovations are generated from the new consultancies, the think-tanks, arts organisations and private sector firms. Universities are certainly anxious to promote the wider dissemination of their expertise whether through publication or commercial exploitation. But where are the academics in innovation processes? Some will write articles for social science or policy journals based on current practice, but overwhelmingly these texts attempt little more than a detached analysis of a recent initiative or strategy, or perhaps seek to reify practice from one location into a policy 'model'. Moreover much of this work exudes a sense of distance between academic and practitioner (and certainly policy practitioners speak with weariness of interviews by researchers, of the problems of characterising the struggle and ambiguity which inevitably accompany project development and

implementation, and of anticipated disappointment in reading the final article).

Several individual academics will, of course, always be found in close collaboration with policy-makers, change agents in companies, voluntary groups or business support organisations. Personal networks will become the locus of reflexivity and innovation: barriers between research and practical change will sometimes be broken down in informal workshop sessions or during after-work discussions in a pub. But where in the strategies of academic faculties and departments is this type of organic relationship between universities and the knowledge-based regeneration of cities and sectors reflected? Senior university representatives may often be asked to sit on the management boards of redevelopment agencies, but how does the collective expertise of their institutions actually seep into the design and implementation of policy?

Creating change in a regional economy demands the ability to engage with politics, to deploy knowledge as a means of building alliances, to compromise, but to refuse to accept that a report sitting on a shelf is a satisfactory outcome. It also means long-term engagement in learning and change rather than short-term consultancy. Do universities enjoy credibility in these types of activity? Indeed do they seriously want it?

14.6.2. Obstacles

Institutional barriers to innovation are easy to find. A report which I prepared in 1999 for the Pro-Vice Chancellor (External Relations) of Nottingham Trent University identified the following constraints to closer regional partnerships:

(a) interfaculty and multidisciplinary approaches have been actively discouraged in economic regeneration; this is a clear indication that new management cultures are required to encourage innovation rather than academic sectarianism;
(b) there has been no attempt to identify key areas where the university enjoys an actual or potential advantage in research, consultancy or policy development, or to target those areas with appropriate support;
(c) while strategy may be made at the centre, there is a lack of executive capacity to pursue corporate initiatives in a proactive way and to ensure effective coordination between different parts of the university;
(d) in fields such as economic regeneration, regional development or work organisation relevant expertise is likely to be spread across several faculties; informal networks may develop, but these are both unusual and difficult to sustain without top-down encouragement; this means that

the university often fails to create the 'critical mass' of expertise required to make a serious impact on policy debates or potential clients;

(e) there has been no university-wide examination of the ways in which research funding could be used to boost commercial advantage, nor of the ways in which commercial activity generates a knowledge base which can be exploited to enhance research outputs; failure to achieve a synergy between research and consultancy undermines the unique competitive advantage which universities can enjoy in commercial markets;

(f) it is very hard to create space for teaching staff to invest time, build competence or develop knowledge required for commercial work; at the same time university recruitment policies are hardly conducive to attracting or retaining first-rate consultants or contract researchers.

There is no blueprint for overcoming such obstacles. Rather this presents universities with a classic organisational challenge, one which requires extensive dialogue with internal and external stakeholders, shared learning and, most crucially, the active participation of staff in the redesign of structures and work processes.

14.7. Universities as a locus for policy entrepreneurship?

14.7.1. **A case study**

In January 2005, Nottingham Trent University formally closed the Work Institute thus ending a story of collaboration between academic knowledge and practice in the field of work organisation, the origins of which lay in the late 1980s.

As this chapter has argued, the scope for policy innovation within a local authority context had seriously diminished by the mid-late 1980s. As a senior member of the economic development department at Nottingham City Council (and later at Sheffield City Council) I had made sustained but unsuccessful attempts to introduce work organisation onto the policy agenda. The drivers for these attempts were diverse, deriving in part from some of the labour process debates taking place within, for example, the conference of socialist economists (Hales, 1980) and in part from the experiments in teamworking undertaken by Peter Waldman of the industrial training research unit (ITRU). Experience of developing local sector strategies for industries such as textiles and clothing (Totterdill, 1992) taught

that public subsidies for skills enhancement, management development, product development or marketing were unlikely to produce a return while manufacturing processes were rigidly geared towards the mass production of standardised goods for price sensitive markets in which the UK enjoyed no possible competitive advantage.

Traditional forms of work organisation based on Tayloristic production lines could not deliver the versatility, innovation or quality required of higher value markets. Moreover working life in mass production factories was typically characterised by short cycles and piecerate-driven targets, resulting in significant levels of repetitive strain injury and stress-related absence. High employee turnover and recruitment difficulties were endemic in the textiles and clothing industry, which none the less entrapped many thousands of women in jobs with a poor quality of working life. The sector fast became a fascinating case study of the failure of traditional approaches to management and work organisation.

In contrast, the ITRU experiments appeared to demonstrate the potential of team-based production systems to combine increased productivity and versatility on the one hand with enhanced quality of working life on the other. Supporting evidence was beginning to emerge from the introduction of teamworking on a large scale by major textiles and clothing companies such as Coats Viyella, and during the late 1980s the tripartite National Economic Development Council actively encouraged the adoption of such approaches through organising seminars and publishing good practice guide.

Yet evidence suggested that implementation of such changes was difficult and the outcomes uncertain. Dissemination, especially among smaller firms was very limited. Between 1988 and 1990 I developed the business case for a pilot project situated within the clothing sector designed to identify the practical measures needed at enterprise level to promote the development and dissemination of team-based approaches. By 1991 a portfolio of funding had been secured from the EU and from national and local sources to undertake further research and to carry out experimental work in two Nottinghamshire companies. A local authority platform for this work would have imposed too many constraints: compatibility with short-term performance measurement regimes, the line management structure, strict financial regulation and a decaying culture of innovation would not have been conducive to the type of learning-by-doing approach envisaged. Contacts at Nottingham Polytechnic (then about to become Nottingham Trent University) were receptive however, and a persuasive case emerged for locating the project at that institution. The University would house the project, providing

accommodation and accountancy services free of charge; in return academic staff would be free to draw on project data for research and publication. During 1991-92 a virtual team (coordinated by me as an external advisor to the University) included social scientists (led by Chris Farrands from the Faculty of Humanities) and sectoral specialists (led by Professor Edward Newton from the Department of Fashion and Textiles) who delivered the initial phase. Activities included comparative research into practice elsewhere in Europe, a local feasibility study based on organisational audits of several textiles and clothing companies in Nottinghamshire, the trial installation of teamworking in one SME and improving an existing teamworking system in a larger company. This initial growth phase was both exciting and productive in terms of the bridge created between higher education, businesses and their employees.

By the beginning of 1993 a three-year funding package had been secured from Nottinghamshire County Council, the local training and enterprise councils, the European Regional Development Fund (ERDF) and the EU's new opportunities for women programme to employ a team of researchers and practitioners at the university. The three practitioners had come directly from positions in industry where they had each been responsible for the development and implementation of innovative approaches to teamworking. Their specific remit was to use this experience in advising companies on the implementation of team-based production, often using very 'hands on' methods. The role of the researchers was to analyse lessons from emerging practice across the UK and Europe, to develop evidence-based learning resources and, drawing on these outcomes, to shadow the practitioners as 'critical friends'. This last aspect was crucial. Experience during the developmental phase demonstrated clearly the difficulties inherent in using academic staff in designing and delivering change at the workplace. The inappropriateness of language, methods and materials, especially on the shopfloor, sometimes became very evident. But the decision to recruit advisors with recent industrial experience was far from unproblematic. While former managers could be found with relevant experience and an innate ability to communicate at all levels of an enterprise, there was a tendency to reify their own model of teamworking, imposing specific practices unreflectively on every client company. This could lead to particular tensions when advisors, working in pairs, fought over which had the 'right' approach to a particular aspect of organisational design!

In this context the role of the (relatively junior) researchers in informing practice was often hard to establish, and was initially mistrusted by the

advisors. Over a period of two years or more both sides learned to adapt: the researchers needed to identify and communicate the practical consequences of their findings, while the advisors had to acknowledge the boundaries of their personal backgrounds and experience. Above all the dialogue between researchers and advisors created space for reflection, both informal and through collaboration in workshops, network meetings and other events. As a progress report argued in 1994, the project was working towards common language and common understanding between researchers and practitioners.

This convergence was considerably cemented in 1995 with the acquisition of national government funding to establish a 'teamwork users group', essentially a soft benchmarking coalition of some 15 textiles and clothing firms. The operation of the group successfully blended the roles of advisers and practitioners seamlessly gathering, analysing and sharing data with the participating companies. At this stage some of the research team also began to play much more of a hands-on role in individual company change projects.

In parallel, the same contacts with local authorities and funders had led to important gains for other parts of the university, notably three-year ERDF grants to establish an integrated package of support for textiles and clothing companies including:

(a) an innovative IT-based fashion intelligence service;
(b) technical services such as sample dyeing and textiles testing;
(c) customised vocational education and training;
(d) this package was to be delivered jointly through the Nottinghamshire International Clothing Centre, a County Council initiative in which the university was a key stakeholder and managing partner.

The 1993-96 period was significant as a period of learning and development, delivering tangible outputs for companies and employees, and contributing to the base of 'actionable knowledge'. Significantly it was characterised by sustained dialogue and coalition building involving key actors: local authorities, economic development agencies, employers' organisations, trade unions and the wider university, all of whom were represented on the project steering group. In 1995, the project was incorporated as a recognised university research centre - the Centre for Work and Technology (CWAT), later to become the Work Institute (TWI) - by then employing 11 staff.

In many ways this period exemplifies the potential role of a university in providing a platform for economic intervention which is both discursive and innovative. The conditions for the successful establishment of this platform

can, with hindsight, be identified as:

(a) a university culture characterised by sufficient slack and willingness to experiment;
(b) prior investment in building long-term relationships with key actors both inside the university and with partner organisations;
(c) securing relatively long-term core project funding (three years) which provided a degree of employment security and the ability to plan;
(d) a multivoiced approach based on close interaction and shared learning between researchers and practitioners: in contrast with the prevalent 'knowledge transfer' model which assumes a one-way flow between academic expertise and practice.

These conditions could, however, no longer be said to prevail after 1996. ERDF funding was no longer available, leading to the gradual erosion of all the university-based textiles and clothing initiatives funded in 1993. CWAT's immediate survival was none the less assured through creating a wider portfolio of shorter-term projects from local, national and EU funding sources, plus income from client companies which accounted for about 25 % of turnover. This substantially diversified the range of activities to include both intervention in workplaces well beyond the textiles and clothing sector and policy-related research (principally the European work and technology consortium, in which CWAT led the creation of a 16 partner, 10 country coalition to explore the policy implications for the EU of the divide between leading-edge practice and common practice in work organisation). Over the next few years the scope of activities was to include:

(a) research into leading-edge practice in work organisation;
(b) future-oriented thinking about work;
(c) public policy development;
(d) establishment of regional employer learning networks;
(e) developing innovative change methods and learning resources;
(f) workplace-based consultancy;
(g) contributions to university teaching and research.

The interdependence of these diverse activities became a source of strength. Staff engaged in high-level policy or research debates that were also able to cite current experiences of hands-on intervention in workplace projects could add weight and immediacy to their arguments. Likewise workplace projects benefited from the perspectives that this broader engagement could bring.

However diversification created its own problems. Funding-driven pragmatism continually threatened the coherence of CWAT's strategic

objectives. Retaining knowledgeable, experienced staff beyond the life of a project could pose serious financial risks in a short-term funding environment. The university's management accountants continually called for staff to be employed on short-term contracts on a project-by-project basis, while CWAT pointed to the importance of accumulating experience within a well-integrated team. Although the Centre was to continue in different guises for another eight years, this tension did not disappear and eventually proved to be a significant factor in its demise.

This case study also needs to be set within the context of the university's wider approach to external relations in which the dominant narrative since the 1980s (in Nottingham Trent University as in many other UK universities) was the struggle to generate a third income stream. Although the university's strategy proclaimed its commitment to work with external partners in supporting the regeneration process, there were no corporate indicators against which CWAT's contribution to these objectives could be measured. Financial performance remained the sole measure against which success could be judged.

A two-year secondment to the Pro-Vice Chancellor's office at Nottingham Trent during 1999-2001 appeared to offer me an opportunity to raise these fundamental issues within the university's corporate policy arena. The initial analysis (see Section 14.6 above) was well received by the university's strategic direction group, which appeared to accept a 'stakeholder university' model based on 'third task' engagement with regional and industrial partners. The agreed actions resulting from this approach are summarised in Sections 14.7.2 to 14.7.5.

14.7.2. Building multilateral relationships with the policy community

The 1997 Labour government established 'shadow' regional development agencies staffed largely by civil servants and secondees, preparing the ground for formal incorporation the following year. This 12-month period offered fertile opportunities for academic influence on the emerging strategic framework, though in practice academic institutions were ill-equipped to respond. While formal consultative structures were established (involving the creation of an East Midlands university association to represent all the higher education institutions in the region) only a small number of academics were invited to make their expertise available to the detailed policy discussions covering a wide range of economic and policy dilemmas. From the RDA perspective the problem lay in identifying individuals able to make a relevant contribution; for the individual academic there was no system of brokerage

able to provide appropriate signposting. The same issues were also evident in relationships with other public actors such as local authorities and regeneration agencies, as well as with national policy-makers.

In brief, the immediate result of my secondment was a proposal to establish economic futures, a cross-faculty regional regeneration network including academics with expertise in the arts, business, economics, public policy, social inclusion and urban planning. This internal 'think-tank' network would be used as the basis for dialogue with the RDA as well as for instigating proactive proposals and initiatives.

14.7.3. Sectors as focal points for interfaculty collaboration

The new Labour government's flirtation with Michael Porter led to a renewed interest in sectoral policy, culminating in the Sainsbury report on 'clusters'. Clusters, groupings of enterprises whose perceived link could be defined in a wide variety of more-or-less tangible ways, were subsequently expected by government to constitute a key policy focus for RDAs in their interventions to improve competitiveness and innovation. However that 'the world is not divided into faculty lines' posed further problems for university engagement. Even vocationally-focused academic departments such as fashion and textiles or engineering did not contain a monopoly of expertise in those sectors, which was also to be found in science, social science and business school locations. It was therefore proposed to establish pilot multidisciplinary groups for the textiles and clothing and food sectors. Each group would undertake a programme of knowledge sharing and team development, once again providing the basis for dialogue with policy-makers as well as the direct instigation of proactive proposals and business support initiatives for the sector.

14.7.4. Specific initiatives

Networking with other local actors had already led to the identification of opportunities for collaboration, of which one of the most interesting was the Greater Nottingham Observatory ([1]). Lack of an integrated source of economic intelligence for the conurbation was identified as long ago as 1982 by the Nottingham local economy project previously mentioned in Section 14.1. Each public agency – including the district and county authorities, the Training and Enterprise Council (TEC) and labour market agencies – collected separate data with no mechanism to avoid duplication

([1]) www.theobservatory.org.uk

or to ensure integration. The observatory, hosted by the university and supported financially through grants and secondments from other partners, was established as such a mechanism as well as to provide a bridge to academic expertise. However its significance lies as much in the processes which led to its creation as in its functions. Both the university and the TEC seconded senior staff to undertake the complex processes of concept development, networking and trust building, overcoming the territoriality and possessiveness of the different partners relating to 'their' data. Working beyond traditional job descriptions and lines of organisational accountability is indispensable to the creation of effective coalitions and partnerships.

14.7.5. Outcomes

This policy experiment met with mixed success. New relationships were established inside the university by creating resources and space for proactive networking. Economic futures attracted the active involvement of more than 30 academics from across the university, provided an important reference group for establishing the observatory and published *Greater Nottingham in 2010*, a contribution of essays designed to highlight key strategic choices for the conurbation. The sector groups undertook some useful work in mapping university expertise. However both failed to win support for a more ambitious agenda from academic line managers driven by research and teaching targets.

The unexpected retirement of the Pro-Vice Chancellor for external relations brought the third task agenda to an abrupt halt. An extended period of uncertainty followed, succeeded by a new structure designed with an explicit orientation towards 'third income stream' generation. The capacity for non-commercial 'third task' activity was explicitly restricted. A new Vice-Chancellor, appointed from the private sector in 2004, reemphasised this approach by requiring externally-funded university centres to generate a 25% financial surplus on turnover. As one university official remarked, 'third task activities are OK if we can make money from them'.

In this context TWI with its near-exclusive focus on third task activity became an anachronism within the university, too far removed from mainstream targets.

14.8. Challenges and propositions

It will not be long before the English RDAs face a crisis of legitimacy. Lacking direct regional democratic accountability (RDA board appointments are locally advertised but ministerially approved) as well the ability to tie intervention and expenditure to the outcomes of local dialogue, future governments will be forced to question the extent to which the agencies add value either to regional economies or to regional social capital. Early soundings about local government-led 'city regions' may already auger the start of a long-term withdrawal from the regional agenda.

Nowhere is the emerging failure of RDAs more apparent than in their inability to address the third task role of universities. The problem can be summarised in terms of their failure to:

(a) conceptualise the third task properly, and in particular the failure to distinguish it from third income stream generation;
(b) deepen university engagement with the regional agenda by investing in the active engagement of front-line academic staff through proactive networking and dialogue;
(c) create funding regimes which support university innovation and involvement, and in which outcomes are measured by the creation of social and organisational capital rather than through crude quantitative indicators;
(d) address the national system of performance measurement which steers university culture and practice towards narrowly defined research and teaching activities.

There are few champions of a discursive approach to economic development in the current UK policy arena, and a declining number of academics able to practise in this way within current performance measurement regimes. Those that do so require the strength and ability to act as 'guerrillas in the bureaucracy', sometimes tolerated but never in the mainstream.

Critical reflection and debate on the nature of regional development and its relationship to universities is long overdue in the UK.

14.9. Acknowledgement

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PART IV

Theoretical reflections on the learning region concept

CHAPTER 15

Critique of the learning region concept and reevaluation of regional innovation systems

Philip Cooke

15.1. Introduction

In this chapter the aim is to achieve three main objectives: first to understand why learning discourses have failed; second to explain this in terms of the new imperatives of knowledge for innovation in a new phase of knowledge-driven globalisation; and finally, to show how the problem of regional and institutional lags is one of asymmetric knowledge. The main question addressed is what are the main reasons why the promise of learning, and particularly in this context, 'learning regions' has waxed and then waned so swiftly? Institutional learning has a respectable pedigree going back at least to Argyris (1962) with his question about whether organisational hierarchy or heterarchy best nurtured it. Simultaneously, Arrow (1962) asked the neoclassical economic community about the productivity implications of learning that had hitherto largely ignored it. Following Lundvall's (1994) exposition of the idea 'that what will matter is how well one succeeds in developing organisations, which promote learning and the wise use of knowledge'; 'learning' became an injunction that was increasingly the first item on a wider developmental wish list. However, its initial impulse as a quest for organisational efficiency inside large corporations became submerged (Argyris and Schon, 1978).

Although 'the myopia of learning' has been condemned since at least Levinthal and March (1993), the most devastating recent critique of this comes from two sources. The first is by Hansen (2002) at the Harvard Business School who showed the failure of organisational learning, wrapped up in the language of 'knowledge management', to develop the organisation. The second comes from Aalborg University, Denmark, where Dirckinck-Holmfeld (2002) showed how e-learning failed as an alternative to the

traditional lecture-based pedagogy of traditional learning. Furthermore, an organisation or person that becomes accustomed to learning in the form of pre-existing (pre-digested) information, cannot cope with novelty any more than corn-fed geese confronted with *foie gras.* Desultory regional economies and their learning organisations are condemned to the treadmill of absorbing old information. After learning its lessons it may implement them just in time to discover that superior intelligence from elsewhere has already set new standards. Learning and innovation are opposites and innovation requires organisational change.

A complex organisational change that numerous regions effected in the 1990s and into the 2000s concerns innovation systems, specifically 'regional innovation systems'. Although in the EU over 100 regions have been exposed to regional innovation strategies since 1994 (Oughton et al., 2002). Carlsson (2005) has tracked over 200 regional innovation systems studies between 1987 and 2002, half of them based on empirical research. These show leading and lagging regions improving their innovative performance by redesigning their boundary crossing mechanisms or 'bridging social capital' (Putnam, 2000) between research (exploration knowledge) and commercialisation (exploitation knowledge; March 1991). Moreover, in Cooke et al. (2004) the evolution of regional innovation systems worldwide in the face of economic downturn and globalisation effects was delineated. These now transcend simplistic knowledge transfer notions like the 'triple helix' (Etzkowitz and Leydesdorff, 1997) which present the institutional engagement of 'epistemic communities' (Haas, 1992) in government, industry and universities as akin to a Holy Trinity. The disequilibriating impulses of the 'knowledge economy' have prompted innovative thinking in lagging regions where the Holy Trinity is eschewed and even the 'holy of holies', the university, is looked upon askance in the quest for regional constructed advantage (Foray and Freeman, 1993). Solutions arising from more nuanced, research-focused approaches will be presented in the chapter as a sequel to a modest critique of 'learning regions' along lines mapped out above. But, importantly, the superiority of the 'innovation systems' toolkit will be underlined and explained in simple but effective terms that bring to the fore the problem of 'asymmetric knowledge'.

15.2. Knowledge, innovation and learning: some key distinctions

The regional innovation systems approach is not particularly predicated on learning, not even referencing such literature (Cooke, 1992), but rather on knowledge and innovation. Conceptually speaking, it began with a recognition that what 'triple helix' advocates see as easy is, in fact, exceptionally problematic. That is, there are major institutional barriers between industry, research universities and governments. The 'regional innovation systems work' recognises internal and external interactions involving two subsystems, one that engages in knowledge exploration or generation, and the other that engages in knowledge exploitation. About the same time as Cooke in 1992, James March (1991) had written influentially on knowledge exploration and exploitation as strategic choices in organisations, though this was unknown to the present author until much later. Hence, in 'regional innovation systems work' innovation is the focus, but knowledge, especially from research, is the key driver. Training derived from research-based learning for instance in universities is, for these purposes, a subset of knowledge exploration. Academic entrepreneurship is a subset of knowledge exploitation.

Successful regional innovation systems are made up of organisations conducting research (including accessing results from elsewhere) that generate new knowledge in appropriate institutional settings. Crucially, other appropriate organisations, mostly firms, commercialise this knowledge as globally consumable innovations on the market or for public organisations (e.g. healthcare, educational or military establishments). In other words, triple helix chasms between research, markets and policies are successfully crossed: epistemic communities find transaction spaces where implicit knowledge gets made explicit, and communities of 'intermediation practice' operate as institutional bridges. These third parties can master the hybrid skills and languages needed to communicate between Wittgensteinian 'language worlds. Cooke et al. (2004) showed that in general these bridging mechanisms are either entrepreneurial (ERIS) or institutional (IRIS) rather as Sidney Winter (1984) argued regarding technological regimes, another paper discovered by the author only much later. Silicon Valley is an example of an ERIS while Baden-Württemberg is an IRIS. Both have problems as well as past successes: the first tends to 'crash and burn,' costing 400 000 jobs in 2000-03, the second stagnates in labour market terms but continually exports luxury products in demand worldwide.

Unsuccessful regional innovation systems suffer from three asymmetric knowledge problems. The first, based on Akerlof (1970) is about the quality of information, as when a consumer must trust that a product is safe, whereas the producer has superior knowledge. This actually introduces an 'intervening knowledge category' of relevance to innovation systems thinking, namely 'examination knowledge', which is what institutional laggards also lack. This is not least, as we shall see, due to what March et al. (1991) call 'learning from samples of one type problems' common in so-called 'learning regions' that seek to emulate policy exemplars like Silicon Valley. Second, the knowledge institutions of unsuccessful regional innovation systems are not research but learning oriented, hence little research is produced and even less that is of interest for innovation. This is a common problem in university systems that do not co-evolve with socioeconomic trajectories (Tavoletti, 2004). Finally, a common problem is that one or other of the main triple helix 'partners' dominates knowledge and innovation practice asymmetrically. It may be a hierarchic public governance that is communicatively dissonant with industry and university language worlds (Wittgenstein, 1958). It may be an industry-dominated, 'corporately governed' region with no use for disruptive knowledge or government intervention. Or it might be a strong university and research region with few firms with which to interact and with weak regional governance.

Moving to a deeper analysis of knowledge and innovation, it is important to have clear definitions and distinctions regarding types of research and knowledge, notably abstract (science), synthetic (technical) and symbolic (creative). What we mean here is that unlike some views (Amin and Cohendet, 2003) that present knowledge as uniform and architectonic, we recognise both the traditional categorisation outlined above, and its elaboration along a second dimension spanning exploration, examination and exploitation knowledge: the distinction begun as a binary juxtaposition of 'exploration' and 'exploitation' by March (1991) to which we add the important knowledge prototyping, testing or trialling category of 'examination' knowledge. In Figure 1, these are laid out to provide the conceptual foundation for hypothesis-testing empirical work.

What Figure 1 shows is that all innovative knowledge of utility, by definition meaning new knowledge commercialised, must pass iteratively through similar stages of production from 'discovery' through invention, or realisation of the hitherto unrealised experimental form, to a testing process that establishes its reliability and validity, and then to a state where it creates demand, either market or social. The key thing to note here is that discovery

Figure 1. **Forms and stages of knowledge production**

	Abstract	Synthetic	Symbolic
Exploration	Mathematical reasoning	e.g. Gene therapy	Experimental art work
Examination	Theorems to test	Clinical trials	Art exhibition
Exploitation	e.g. Penrose tiles/ patterns	Therapeutic treatment	Gallery sale

involves not so much 'learning' as 'unlearning' by stepping beyond what can be learned as codified knowledge into the 'unknown' creative space where cognition is tacit but interactive with reality and methodology. In a trivial sense 'methodology' may have been 'learned' but it may have to be transcended or even negated in the act of discovery. This often happened in mathematics where new process methodologies like calculus had to be invented to solve some intractable problems. Similarly in art, Cubism required the unlearning of classic figurative art, even to the extent of appreciation of and experimentation with primitive or child art forms as 'process methodologies', to escape into 'the new'.

Learning, as such is, by definition, a second-order process compared to innovation. It is cognate with Latour's (1998) distinction between 'science' and 'research': the former being certain, cold, straight, detached, settled and objective while the latter is uncertain, warm, involving, risky, controversial and passionate. Science entails codified bodies of knowledge to be learned, while research transforms them into objects of inquiry. Hence the contemporary economy finds new value from research more than science since innovation is, by definition, the commercialisation not of old but new knowledge. Learning old knowledge is fatal for would-be innovators because as even the Chicago-school rational choice theory recognises, the object or idea with which you are presented cannot be new since if it were, someone would already have exploited it. Taken to the bizarre extreme it underpins the joke about the economist contradicting his wife who spotted a ten-dollar bill on the pavement by denying its existence since if it were really a ten-dollar bill someone would have already picked it up. Happily this chapter does not offer such questionable advice. Rather, it queries the validity of learning as a regional renewal strategy that, paradoxically, relies on non-innovative, second-hand knowledge to meet that end.

The chapter also mobilises evidence suggesting that in what is increasingly referred to as the contemporary knowledge economy, there has been an economic geography and industry organisation reversal, which means that large scale corporate organisations no longer determine what magnetises economic development. Rather, in an approach that owes much to Penrose's (1959/95) observation regarding knowledge networks metamorphosing industry organisation (Quéré, 2003; Cooke, 2003; 2004a), we advance along lines identified in Cooke (2004b and 2004c) towards a regional 'knowledge capabilities' theory of economic geography and regional innovation that underpins the ways globalisation proceeds. This is labelled 'Globalisation 2'; a theory that also postulates an economic geography of the spatially unexplored but suggestive findings of Chesbrough (2003) on the transformational impact of 'open innovation' on knowledge production.

15.3. Research and knowledge: spatial shifts

In definitional terms, a knowledge economy is one in which several economic indicators such as the ratio of intangible to tangible goods produced, the levels of tertiary education, the levels of R&D expenditure and patenting, and the use by economic organisations of all kinds of formal, scientific, creative or research-based knowledge, rather than 'rules of thumb' are high and rising. According to statistics on such indicators published by OECD (2004b) such profiles are not only common among its members but prevalent in such non-OECD economies as Brazil, China and India. An elaboration on this, of relevance to the regional question where data are not so abundant, is that regions may be denoted knowledge economies when they score high, at least 40 %, on defined sectoral employment indicators, in high technology manufacturing and knowledge-intensive services (OECD, 1996b).

So what defines successful or promising 'knowledge economy' regions and where are they?

For the moment we may take bioregions, those with high location quotients in bio-scientific research and production as our example, but later we shall underpin this with reference to other industries. The simple answers to the questions raised are that scale is the normal ranking device among relevant variables like numbers of dedicated biotechnology firms (DBFs), size of research budgets, investment finance or number of life scientists. On such counts and in regard to bioregions, the answer to the question of location is North America, primarily the US. But there are obvious weaknesses in taking scale at face value.

Thus what may be controversial is the argument that knowledge-based industries, generating and commercialising abstract, synthetic and symbolic knowledge derived from research are increasingly to be found outside the corporate sector and inside knowledge-intensive research institutes, consultancies and modestly-sized but regionally agglomerated firms. There are exceptions, as always, to an emergent trend, as Valentin and Lund-Jensen (2003) show for the food industry. This is also argued from a different perspective by Smith (2001). However, this in turn is a product of the knowledge capabilities of the agro-food sector, in which biology not chemistry, as with pharmaceuticals, is a core research competence. Hence pharmaceutical companies sub-contract much R&D to dedicated biotechnology firms (DBFs) or university or research institute laboratories. But even in this regard, large corporates like Monsanto and Bayer show certain incapabilities, notably misjudgements about the nature and extent of the genetically modified organism (GMO) market for crops. Such knowledge management weaknesses have appeared in the form of low discovery rates in research, and nowadays even weaknesses in development activities like combinatorial chemistry among large pharmaceutical firms. Hence, even the hitherto relatively self-sufficient research capabilities of the agro-food bioscience industry are now spawning more specialist DBFs than hitherto ([1]).

In brief, in a knowledge economy in which mastery of scientific advance is demonstrated along with industry's capability to commercialise it, regions displaying such accomplishments are relatively advantaged economically. Theoretically speaking, having composed this kind of 'constructed advantage' to generate and commercialise new knowledge equates with the traditional (e.g. Myrdal, 1957; Hirschman, 1958) definition of a successful economic region. That is, it possesses all or most of the key value-adding functions of a specific sector as well as reasonable diversification of its economic base into other separate or connected sectors. It thus combines depth and breadth in its economic capabilities. The role of knowledge spillovers, especially those having the quality of non-pecuniary externalities, seem to be important here. Why would firms cluster geographically in, for example, bioregions if there was little or no functional advantage when, according to normal supply and

([1]) Thus while leading agro-food clusters like Saskatoon in Canada have few DBFs, mainly large corporate R&D and Canadian national laboratories, a specialist knowledge centre such as the University of Wageningen in the Netherlands has at least 10 agro-food spinouts in its 'Food valley' science park, and numerous network links with both large and small Dutch and international agro-food firms through its Centre for Biosystems Genomics, a network of four universities, two research institutes and 15 firms in agro-food biotechnology.

demand rules, overhead costs would be higher if agglomeration had not occurred? Why, in contrast, locate in isolation and eschew the possible benefits of 'open science' or even 'open innovation'? The simple answer is that agglomerators gain advantage from the knowledge network capabilities that bioregions and other knowledge economies contain. These exist in: the human capital 'talent' trained in local research institutes and university laboratories; the presence of 'star' scientists and their research teams; the possibilities for collaboration with like-minded research teams or other DBFs; and the presence of understanding financial investors also attracted to the 'ideas market' that a bioregion represents ([2]).

Clearly, for innovation the commercialisation dimension is also crucial: the advantages of proximity to firms 'makes it happen'; through helping turn a scientific finding into, for example, a firm that commercialises a drug, treatment or diagnostic test in collaboration with venture capitalists, specialist lawyers and consultants. There is econometric and case study evidence that these knowledge demands cause venture capitalists to locate their investment project a mean distance of one hour's driving time from their office base ([3]). These are 'pipeline' type relationships, sealed from prying eyes and ears. This 'market' perspective focuses specifically on those contractual relationships where exacting transactions involve potentially large returns to partners from academe and enterprise. But the alternative, 'social' position observes, albeit with social anthropological data, a different characterisation of the successful or potentially successful bioregion. That success is based on the practice of 'open science' transformed into a cluster convention of knowledge sharing rather than 'secreting'. These authors examined the Boston bioregion and highlighted the following key processes through which dynamic place-based capabilities are find expression in research, knowledge transfer, and commercialisation of bioscience.

([2]) As noted, on knowledge network capabilities, the early work of Penrose (1959) gave rise to the economics subfield of studying the 'dynamic capabilities' of firms in order to understand regional and other growth processes (Teece and Pisano, 1996).

([3]) This is a widely accepted norm in most locations testified to in research by Powell et al. (2002) among many others. It is because of the venture capitalist's need for a 'hands-on' relationship with her investment, possibly 'at the drop of a hat'. The greater the distance away from the investment the greater the uncertainty about management control. As a case in point, Kleiner Perkins Caufield, Byers, the leading US venture capitalist, has 80 % of its so-called 'keiretsu' investments in biotechnology and ICT within an hour's drive of its Sand Hills Road headquarters in Palo Alto (Cooke, 2001). The 'one-hour rule' was reasserted in all innocence by Oxford Technology venture capitalist Matthew Frohn in a BioLink project seminar held in Cardiff on 5 July 2004, eliciting consternation from assembled bioincubator managers and development agency personnel, and the reasons given were precisely similar to those elicited by the American academics Powell et al. (2002).

(a) The difference between 'channels' (open) and 'pipelines' (closed) is that the former offer more opportunity for knowledge capability enhancement since they are more 'leaky' and 'irrigate' more, albeit proximate incumbents. 'Pipelines' offer more capable means of proprietary knowledge transfer over great geographical distances based on contractual agreements, which are less 'leaky' because they are closed rather than open.
(b) Public research organisations (PROs) are a primary magnet for profit-seeking DBFs and large pharmaceuticals firms because they operate an 'open science' policy, which in the knowledge economy era promises innovation opportunities. These are widely considered to be the source of productivity improvement, greater firm competitiveness, and accordingly economic growth.

Over time the PRO 'conventions' of 'open science' influence DBFs in their network interactions with other DBFs. Although PROs may not remain the main intermediaries for DBFs, as the latter grow in number and engage in commercialisation of exploration knowledge and exploitation of such knowledge through patenting, DBFs experience greater gains through the combination of proximity and conventions, than through either proximity alone or conventions alone. This is dynamic knowledge networking capability transformed into a regional capability, which in turn attracts large pharma firms seeking membership of the 'community'.

These propositions receive strong support from statistical analyses of research and patenting practices in the Boston bioregion. Thus:

> 'Transparent modes of information transfer will trump more opaque or sealed mechanisms when a significant proportion of participants exhibit limited concern with policing the accessibility of network pipelines. Closed conduits offer reliable and excludable information transfer at the cost of fixity, and thus are more appropriate to a stable environment. In contrast, permeable channels rich in spillovers are responsive and may be more suitable for variable environments. In a stable world, or one where change is largely incremental, such channels represent excess capacity' (Owen-Smith and Powell, 2004).

However, leaky channels rather than closed pipelines represent an opportunity for unscrupulous convention-breakers to sow misinformation among competitors. Notwithstanding, the strength of the 'open science' convention means that so long as PROs remain, as in science-driven contexts they must, such 'negative social capital' practices are punishable by

exclusion from PRO interactions, reputational degrading or even, at the extreme, a convention shift, in rare occurrences, towards more confidentiality agreements and spillover-limiting 'pipeline' legal contracts.

Figure 2. **Characterisation of successful and potentially successful bioregions**

	Specialisation	Diversification
Pipeline	1. Embryonic	4. High success
Open Science	2. Innovative	3. High potential

So we conclude the following from this analysis of two sets of competing explanations of successful bioregions. First, as with the specialisation versus diversification debate on knowledge spillovers, which was concluded by observing the time difference in the prominence of one over the other in the evolution of the cluster, so we conclude that transactions are 'pipelines' when legally binding, confidential, contractual business is being transacted. Otherwise they are subject to 'open science' conventions. This is represented in Figure 2 above which suggests the following: In the early Stage 1 of a technology, there will be few firms or academics with the requisite combination of scientific and commercialisation expertise for technology exploitation. However when the two come together and the market potential of what has been discovered is realised, there will be a 'pipeline' type transaction to patent, arrange investment and create a firm. This was exactly the history of Genentech, after recombinant DNA Nobel laureate Herb Boyer and partner Stanley Cohen met Robert Swanson venture capitalist with Kleiner, Perkins, Caufield and Byers in 1976 before any cluster existed in San Francisco. Thereafter (Stage 2) more DBFs formed as scientific research evolved and new DBFs sought to emulate Genentech's success. These included Biogen in Cambridge, Massachusetts and Hybritech in San Diego in the 1970s and early 1980s ([4]). Once this process has begun, the sector remains specialised but more DBFs and their

([4]) In those days the leading DBFs were all associated with leading scientists. Alongside the University of California in San Francisco Boyer with Genentech were Walter Gilbert of Harvard with Biogen, Ivor Royston of UCSD with Hybritech, Mark Ptashne of Harvard with Genetics Institute, and William Rutter of UCSF with Chiron. In the 1980s Nobel laureate David Baltimore (MIT) founded SyStemix, Malcolm Gefter of MIT founded ImmuLogic, and Jonas Salk, Salk Institute San Diego founded Immune Response (see Prevezer, 1998).

employees who retain, as do founders, close affiliation with their host university, open 'channels' and knowledge spillovers are accessed to create a highly innovative environment around 'open science' conventions. Stage 3 is reached when diversification begins with specialist suppliers, on the one hand, but more importantly, on the other, new technology research lines and DBFs form, for example, after a breakthrough in decoding the Human Genome. Large research budgets are by now attracted to leading centres and this stimulates further 'open science' communication, cross-fertilisation through knowledge spillovers and further DBF formation. In Stage 4 many serious entrepreneurial transactions occurring through 'pipeline' relations with big pharma, take place. If trialling proves are successful, licensing deals for marketing a healthcare product are struck between big pharma and DBFs. Then, regarding further R&D, big pharma with public-funded leading research institutes are further engaged and a potentially successful bioregion can be said to have become a highly successful one.

This explanatory model clearly works for the iterative process of taking exploration knowledge through its examination phases to ultimate exploitation as a commercial product: in the Genentech case, human insulin via academic entrepreneurship and 'big pharma' funding. But is it generic, in other words does it also apply to knowledge-to-product processing in the completely different context of a project inside the firm? If so, we have an explanation of the modern innovation process that satisfies both the exigencies of markets and conventions of 'open innovation'. To test this, let us briefly take a further case from bioscience as reported by Chesbrough (2003) before broadening the project-model of 'open innovation' as he does, to other industries.

The first case in question is that of Millennium Pharmaceuticals. This company founded in 1993 was by 2000 valued at some USD 11 billion and employing 1 530 people. To that point Millennium was a classic knowledge business, selling not a product as such but its methodology for analysing biological compounds. In its early years, Millennium formed 20 strategic alliances with leading pharmaceutical and biotechnology companies (Eli Lilly, Bayer, Roche, AstraZeneca and Wyeth) to exploit its expertise in drug-target discovery, using DNA sequencing technology. Unlike other project-based contract research organisations (CROs) Millennium observed that discovering new drug targets was only one step on the pathway towards its ultimate goal of discovering innovative therapeutic products for patient healthcare. Millenium had a 'pipeline' relationship with its client for contractually agreed genetically-based diseases identified by its examination

technology, but also had an 'open innovation channels' capability regarding discoveries outside the agreed targets.

One of the aforementioned clients, Eli Lilly then expressed interest in licensing the 'crown jewels', the core DNA sequencing technology platform. Later Monsanto made a similar approach from the agro-food sector. Careful reflection upon its core capabilities and company vision led the board to agree to these out-licensing deals, the income from which enabled Millennium both to become a therapeutics firm and innovate its technology incrementally.

A 'transformational' merger with LeukoSite in 1999 resulted in the firm's first oncology drug coming to market, plus others in clinical trials. In 2000, a merger with Cambridge Discovery Chemistry brought Millennium a significant presence in the UK, adding 100 chemists to the firm. In 2002, a merger with COR Therapeutics further strengthened the company's standing as a leading DBF, adding cardiovascular research and a market-leading intravenous cardiovascular drug into its portfolio. On its 10th anniversary in 2003, a treatment for patients with multiple myeloma, a cancer of the blood, received food and drug administration's (FDA) approval. Hence, as Chesbrough (2003) notes, an 'open innovation' posture opened up avenues for innovative transformation and growth that would not have been thinkable had a traditional 'closed innovation' approach been adopted.

A case from a different industry that captures the fundamentals of the model in Figure 2 concerns Procter & Gamble that, in 1999 established a Director of External Innovation under a programme called 'Connect and develop'. Internal research by the firm's near 9 000 scientists continues, but if after three years research results are not utilised they are made available to other firms, including direct competitors. 'P&G's R&D department used to be like the Kremlin. Now we're more like the Acropolis – all ideas are welcome and get a fair hearing'. Thus Nabil Sakkab, Senior Vice President of Research and Development in Procter & Gamble's Fabric and Home Care division, described the way P&G's R&D department has transformed itself into an externally focused 'Connect & develop' – C&D (rather than R&D) organisation. Although retaining significant R&D capability, with approximately USD 2 billion invested annually, the company has created some 20 different global 'communities of practice' that bring distinctive scientific capabilities together, encouraging and rewarding knowledge transfer from one business area to another. P&G leads in the reapplication of technologies, products and business models from suppliers, universities, entrepreneurs and institutes. 'C&D is about shared risk and

interdependence', explains Sakkab, 'we'll licence, we'll collaborate where it makes sense' ([5]). Such was the success of this strategy that the firm made sufficient profit in 2005 to acquire the Gillette Corporation for USD 57 billion, making Procter & Gamble the largest consumer products firm in the world, pushing Unilever into second place.

Clearly, there are two kinds of 'regional' innovation occurring in these examples. The first is geographically proximate, the second is functionally proximate. Thus Millennium's key customers are not all present in Cambridge, Massachusetts, although AstraZeneca, Wyeth and Bayer (formerly) have R&D laboratories in proximity. However, LeukoSite was a Cambridge firm while COR Therapeutics was from San Francisco. Nevertheless, as demonstrated by inter alia Cortright and Mayer (2002), Zeller (2002) and Cooke (2004c) the two Cambridges and San Francisco are among the world's leading bioscientific exploration and exploitation knowledge complexes. Hence we also see a paradigm case of functional integration among highly capable knowledge clusters, animated in this case by companies but in others by, for example academe, through copublication by 'star' scientists and their institutional colleagues involving these same clusters. In other words we see very clearly the process of 'globalisation of bioregions' as proposed by Cooke (2004a). In the P&G case the key clue lies in reference to the 'communities of practice' bringing specific scientific capabilities together in 20 distinctive but functionally related global locations. These too are knitted together globally at the behest of P&G practising 'open innovation' in conjunction with scientific communities possessing appropriate localised knowledge capabilities.

Theoretical work by Lorenzen and Maskell (2004) and empirical research by Audretsch and Dohse (2004) lends support for the basic theory of regional knowledge capabilities. The latter deploy an estimation model using a dataset identifying the growth performance of small technology-based firms. Firm performance, as measured by employment growth, is influenced by locational characteristics as well as characteristics specific to the firm and the industry. In particular, the empirical evidence suggests that being located in an agglomeration rich in knowledge resources is more conducive to firm growth than being located in a region that is less endowed with knowledge resources. A supportive elaboration of that conclusion is supplied by Rosenthal and Strange (2003) who show that the premium from own-industry agglomeration by small firms is 90 % regarding new firm births and 60 % for

([5]) http://www.eu.pg.com/news/2002/europeanresearch2002.html

new firm employment compared to that for medium or large firms. With respect to the geographic scale of these effects, increasing returns to localisation declined precipitously at the one-mile radius point. The key explanatory variable is knowledge spillovers.

These results strongly underline the economic value of co-location as a conduit for prompt accessing of external knowledge resources relevant to innovation, which in turn, manifests itself in higher rates of regional growth. They provide support for the thesis that the 1990s saw a transition in globalisation from the stage when multinationals created their economic geography to one where knowledge and research in knowledge-capable regions (often clusters) causes multinationals to engage with and often inside such knowledge concentrations. This outsourcing, and particularly R&D outsourcing ([6]) aspect of globalisation is what causes it to warrant the designation 'Globalisation 2.'

15.4. Asymmetric knowledge and regional knowledge capabilities

As already noted, this chapter finds strong arguments to reject the fundamentally normative 'learning regions' view of regional development. It re-asserts the relevance of the 'regional' as argued above and against advocates of the 'scalar envelope' that globalisation wraps around everything denying agency, in accordance with linear and deterministic 'scale' processes (Bathelt, 2003; Brenner, 2001; Bunnell and Coe, 2001). On the contrary, at global and even national levels solely it is impossible to effectively study innovation and processes along the knowledge value chain involving knowledge exploration and production. Ironically, it is also impossible to understand transformations occurring in globalisation itself without recognising innovation as an expression of regional knowledge capabilities.

([6]) US National Science Foundation data show the share of US industrial R&D conducted by firms employing 25 000 and over declined from 71 % in 1981 to 36 % in 2000. Correspondingly it rose for firms employing less than 1 000 from 4 % to 22 %. Within the latter group it rose 120 % for firms employing fewer than 25 persons (1997-99). OECD (2004b) has the share of R&D spending in foreign affiliates rising from 22 % to 78 % in Hungary, reaching 75 % in Ireland and in Sweden and the UK rising to 40 % from an average of 25 % (1995-2001). In Japan it rose slightly, from 1 % to 4 % and in the US 13 % to 17 %. This suggests a 'research industry' is re-concentrating towards established and new 'knowledge economies'. Unfortunately data on Brazil, China and India are not provided other than the observation that 'US (R&D) investments alone in China grew from USD 7 million to USD 500 million from 1994 to 2000 ('Highlights', OECD, 2004b, p. 11).

There is a clear connection here to literature recognising 'interdisciplinary interaction' as a key feature characterising emergent 'Mode 2' knowledge production (Gibbons et al., 1994). Traditional scholastic disciplines rooted in large-scale teaching departments of universities (Mode 1) were observed to be breaking down with the growth of funded academic research. Diversification of knowledge production in specialist research centres, or 'centres of excellence', that were at arm's length from normal pedagogic activity, capable of bridging industry-academe boundaries, as occurred most fully in the Stanford University model described by Gibbons (2000), but also closely in touch with problem-focused researchers from other disciplines, characterised Mode 2 'transdisciplinarity'. Further ingredients included reflexivity and networking to tackle knowledge 'heterogeneity'. This influential and somewhat prescient perspective was criticised later, not least by some of its authors (Nowotny et al., 2001), because it remained rather lofty and science-centric whereas in contrast the socioeconomic context is seen to be causing 'science' and 'society' to 'coevolve'.

This opens up a key question regarding such transaction spaces or milieux about the relational space in which such actors, and others in a putative innovation system, combine to create the knowledge surpluses that arise from 'localised knowledge spillovers'. Or is it firms displaying capabilities in regard to the exploitation of localised knowledge spillovers that cluster in proximity to gain from this 'constructed advantage'. This is the subject of work by Lorenzen and Maskell (2004). Basically two positions have emerged, represented to a considerable degree in the relevant literature. The first and strongest is that of Jaffe et al. (1993), Audretsch and Feldman (1996) and Malmberg and Maskell (2002) who argue in favour of the power of localised knowledge spillovers as drivers of innovation, especially in knowledge-based clusters. Breschi and Lissoni (2001) have argued that there is no convincing evidence that non-pecuniary spillovers have displaced Marshallian pecuniary (market) advantages. Interestingly both sides argue their cases in respect of the meso-level of analysis (Caniëls and Romijn, 2005).

However, to come back full circle to the main critique of such notions as 'learning organisations' or 'learning regions', it is important to demonstrate this is not fundamentally about pejorative connotations concerning 'myopia' or 'legacies'. The regional knowledge capabilities perspective recognises in ways that even the 'rethinking science' perspective still fails to do, that knowledge is neither uniform nor ubiquitous. Rather, to reaffirm the insight of Akerlof (1970) knowledge is asymmetric. The researching firm or organisation will, as Latour (1998) argues, be a source of disruptive

innovation as well as more modest incremental discovery. It will destabilise the calm pedagogy of science that what has to be learned has to be taught as a homogeneous narrative. Following Rosenthal and Strange (2003) and Audretsch and Dohse (2004) we see agglomerations of small firms (fewer than 25 employees) outperforming both larger firms as sources of new firms and employment, and benefiting from prompt access to localised tacit knowledge spillovers.

What Akerlof's (1970) perspective adds to the analysis presented here is its recognition of the non-uniformity, non-universality, non-ubiquity and sheer 'stickiness' of the kind of knowledge routinely valuable in research (as exploration and examination knowledge) and innovation (as exploitation knowledge). As noted, we are not in the stale atmosphere of the lecture hall receiving stable, homogeneous and settled scientific narratives. Rather we are in Latour's (1998) universe in which research creates uncertainty, instability and disruption. The latter are the characteristics from which innovation gains its value-creating knowledge capability. In Akerlof's terms, the learning region finds itself in a world of potential 'lemons'. The argument is presented here in the following three points:

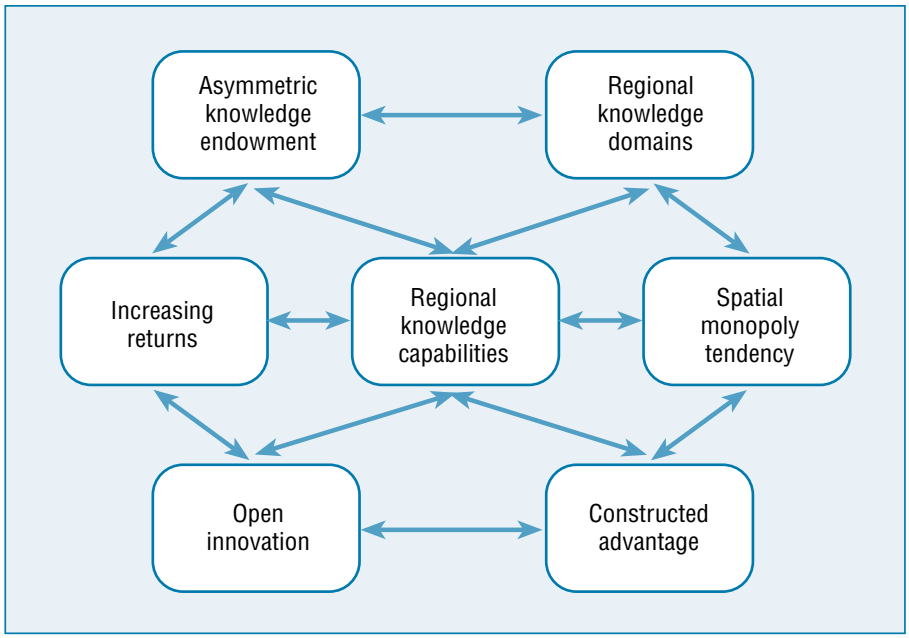
(a) a producer, seller or investor in a specific professional field will generally have significantly greater knowledge of that field than a consumer of the product or service in question. In Akerlof's famous case of the used-car industry, the consumer, with only partial, amateur knowledge always faces the risk of purchasing a 'lemon'. The importance of the insight is that it shows the reason why markets are imperfect, and indeed points to a basic cause of market failure. In our context, a 'learning organisation' or 'learning region' faces an even bigger risk in borrowing either bespoke designed or generic policies from accomplished locations. The chances of a different region's bespoke approach working successfully elsewhere are, almost by definition, miniscule. If generic 'policy learning' is adopted, as with consultancy advice on clustering for example, a quadruple risk arises from the fact that: 'competitors' are likely to have already purchased the 'lesson'; it is in any case not, by definition, new; it may not be adapted to regional conditions or even be adaptable; and there is the significant risk that it will not work anyway. Of course this risk is one shared with the 'competition', a factor that probably explains the mysterious success of the consultancy business;

(b) time economies play an important part in knowledge transfer. Thus for a 'policy model' or even specific, successful policy instruments or measures to emerge in terms of concrete results, is a process that may

have begun five to ten years previously. If it is a set of practices involving leadership from private actors operating through market or quasi-market transactions, outcomes may be swifter in appearing, but will also have taken time to materialise and will have been embedded in a specific business culture, sectoral milieu, or even 'variety of capitalism'. Effective knowledge transfer involves consciousness of all these variables and capability to control them, in the knowledge, once again, that competitors may already be interested or active in adaptation activities. The political cycle is seldom able to accommodate the long-term policy or culture change implied in policy learning of this kind. Rather, it is necessary to change the nature of the organisation of knowledge transfer to one which is in constant interaction with its relevant environments. This reflexivity, monitoring and assessing of knowledge flows is precisely the model implemented in exemplary regional innovation systems (OECD, 2004a);

(c) the third element contributing to asymmetric knowledge relates to the scope (and scale) couplet. That is, in the same way that no national economy is self-sufficient in all the assets it requires to function effectively, *a fortiori* it is even less the case for regions. The key aim of regional innovation systems policy-makers is to optimise on the knowledge asymmetries that privilege their regional economy and trade with firms, regions or countries privileged by other knowledge asymmetries. This involves both inter-industry and, importantly, intra-industry trade. The simple aim is a set of regional accounts that shows a surplus at the end of each trading year. 'Nicheing' in specialised 'regional knowledge domains' of this kind is inevitable, but it is also what, on the one hand, further undermines any crude notion of 'learning-by-cloning', while on the other, undermines a perspective often promoted by national government policy-makers to the effect that, for reasons of global competitiveness, knowledge assets should be concentrated in a few locations or a single region. This is the old 'economies of scale' perspective appearing in a different guise whereas the 'economies of scope' perspective allows for variety, asymmetry and selection as a basis for innovation-based inter- and intra-industry trade. In an effective system, surpluses will arise from increasing returns to scope and eventually scale.

Figure 3. **A regional knowledge capabilities model of 'globalisation 2' economic geography**



To conclude this section, a regional knowledge capabilities model of regional growth is advanced (Figure 3) in which policy assists the evolution of 'constructed advantage' based on supporting privileged niches with specific asymmetric knowledge assets. It overcomes the weaknesses inherent in a possibly myopic 'learning economy' approach constrained by the existence of knowledge transfer asymmetries of the kind discussed. The elements not discussed in detail above involve 'regional knowledge domains' of the kinds that arise with regional clustering of expertise in a sector. 'Increasing returns' of the kind discussed by Krugman (1995) mean specialist knowledge accumulates incrementally to give a cluster something approaching a 'spatial monopoly' in that subfield of knowledge: hence giving rise to 'asymmetric knowledge' of the regional kind. Such conditions are constructed in competitive places with governance, talent and quality of life assets and inputs (Foray and Freeman, 1993). Regions with these advantages synchronised will be likely to support regional innovation systems (ERIS or IRIS).

15.5. Conclusions

This chapter has performed three main tasks: the first was to examine some problems associated with a broad 'learning' perspective, whether regarding learning in organisations, such as business firms, or even in more complex and uncertain contexts such as regions. While the aspiration to normatively urge a learning predisposition upon agents in such complex organisations as regions seems hard to critique, nevertheless on closer inspection the focus is so blurred, the means so attenuated, and the organisational metamorphosis so daunting, that the injunctions end up being meaningless. We noted how Hansen's (2002) investigation of learning missions in corporations showed that they foundered in the face of organisational inertia that simply resulted in excessive information demands of lower-order functionaries, and further capture of whatever usable knowledge emerged from the process by top management for their own, possibly nefarious, motives. There is nothing intrinsically democratic about urging organisations to develop new 'learning' propensities in the absence of organisational reform. This applies *a fortiori* to regions.

The second task attempted was to juxtapose the inherent weaknesses of the 'learning economy' perspective against a widely adopted approach proven, possibly surprisingly, to have stimulated enthusiasm and debate in both research and policy arenas. This is the broad 'innovation systems' perspective on the links between innovation and economic development. Operating at the regional scale, this proves to have major theoretical relevance both to understanding the detailed workings of the contemporary knowledge economy, and to the construction of an overarching theory of contemporary economic growth. Important to this are ideas of 'open innovation' and 'regional knowledge capabilities'. We can understand much of the economic geography of contemporary economic development in 'Globalisation 2' processes. Here, multinationals depend increasingly on research in their quest for global competitiveness. This happens by means of conceptual and real interactions between 'open innovation systems' and the aforementioned regional knowledge capabilities.

Finally, a conceptual model was presented to show that 'regional innovation systems' are an outcome of and a way of dealing with the problem of 'asymmetric knowledge' that is fatal to a 'learning economy' perspective. Risk, time and scope were shown to be the proximate constraints on 'institutional borrowing' or 'learning by cloning'. The 'regional innovation

systems' perspective recognises the need to manage risk by enhancing core regional capabilities. This entails setting up systems for constant monitoring and assessment of processes and policies of consequence to regional innovation. These seek to build 'constructed advantage' based on 'economies of scope' that have the chance to generate a 'synergetic surplus' regarding knowledge, wealth and welfare of regional communities. This was shown to be intellectually and ethically superior to a viewpoint that 'scale impacts' are the only abstraction worthy of study, and a critique of multinationals, states and globalisation as the only practical way forward (Mackinnon et al., 2002). The latter approach is as weak analytically as it is in any prescriptive policy intent.

15.6. Acknowledgements

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CHAPTER 16

Learning and innovation in a globalising economy: the role of learning regions

Bjørn Asheim

16.1. Introduction: 'post-Fordism' as learning economies

At the heart of post-Fordist regional economic development is the operation of the 'learning' firm in the 'learning' region. In a globalising learning economy, understanding innovation as interactive learning implies that cooperation is necessary to make firms and regions competitive. Building social capital is a key strategy in promoting such cooperation, within firms, within networks of firms and within regions. Social capital can arise both from 'civicness' and from 'organisational and institutional innovation'. But, while the latter can be built, the former can only be built on. Therefore, central to the promotion of cooperation and organisational and institutional innovation is the formation of 'learning organisations'. However, successful learning organisations need the strong involvement of their workers (the micro-level) as well as a horizontal cooperation between firms in networks in a bottom-up, interactive regional innovation system (the macro-level) (Asheim and Isaksen, 2002; Asheim and Mariussen, 2003). When combined with organisational and institutional innovations at different administrative levels, these relationships can create 'learning regions' (Asheim, 1996; 2001). The interlinking of cooperative partnerships, ranging from work organisations inside firms to regional 'development coalitions', is strategically important to realise the benefits of learning-based competitiveness (Amin and Thrift, 1995c; Asheim, 2001; Ennals and Gustavsen, 1999).

16.2. Building blocks of the learning region concept

The concept of 'learning regions' has been used in at least three different contexts. The concept was first introduced by economic geographers in 1995 (Florida, 1995), when they used it to emphasise the role played by cooperation and collective learning in regional clusters and networks to promote the innovativeness and competitiveness of firms and regions in the globalising learning economy (Asheim, 1996, 1997; Morgan, K., 1997). This approach was clearly inspired by the rapid economic development in the 'Third Italy', which drew attention to the importance of cooperation between SMEs in industrial districts and between firms and local authorities at regional level in achieving international competitiveness (Asheim, 2000).

The second approach giving rise (more indirectly) to the idea of learning regions originates from the new evolutionary and institutional economic writings on the knowledge and learning based economy, where knowledge is considered the most fundamental resource and learning the most important process (Lundvall, 1992), thus giving the learning capacity of an economy strategic importance for its innovativeness and competitiveness. Lundvall and Johnson (1994) use the concept of 'learning economy' when referring to the contemporary post-Fordist economy dominated by the ICT-related (information, computer and telecommunication) techno-economic paradigm in combination with flexible production methods and reflexive work organisations (learning organisations and functional flexible workers). In addition the learning economy builds on innovation-based competition, where innovation is understood as interactive learning in contrast to the previous hegemonic linear model of innovation.

The third approach, which conceptualises learning regions as regionally based development coalitions, has lately been applied by representatives of action-oriented organisational research taking their knowledge of how to form intra- and inter-firm learning organisations based on broad participation out of the firm context and using it to establish learning organisations at regional level (Ennals and Gustavsen, 1999).

All the definitions and elaborations of the concept of a learning region emphasise the role played by regional learning organisations. This underlines the important role of innovation, understood as contextualised social processes of interactive learning, in a post-Fordist learning economy, which highlight the significance of building social capital to foster cooperation as well as promoting the principle of broad participation in intra- and inter-firm

networks. The concept of a learning region could, then, be used to describe a region with an economy embedded in 'institutional thickness', and characterised by innovative activity based on localised, interactive learning, and cooperation promoted by organisational innovation. This points to a broad understanding of a learning region as representing the territorial and institutional embeddednesss of learning organisations and interactive learning, which broadly speaking is similar to a regional innovation system having a strong focus on competence building in addition to research and innovation. Lundvall maintains that the key to economic performance is the promotion of learning at different levels of the economy, and, why one may call the current economy a 'learning economy' (Lundvall, 2004).

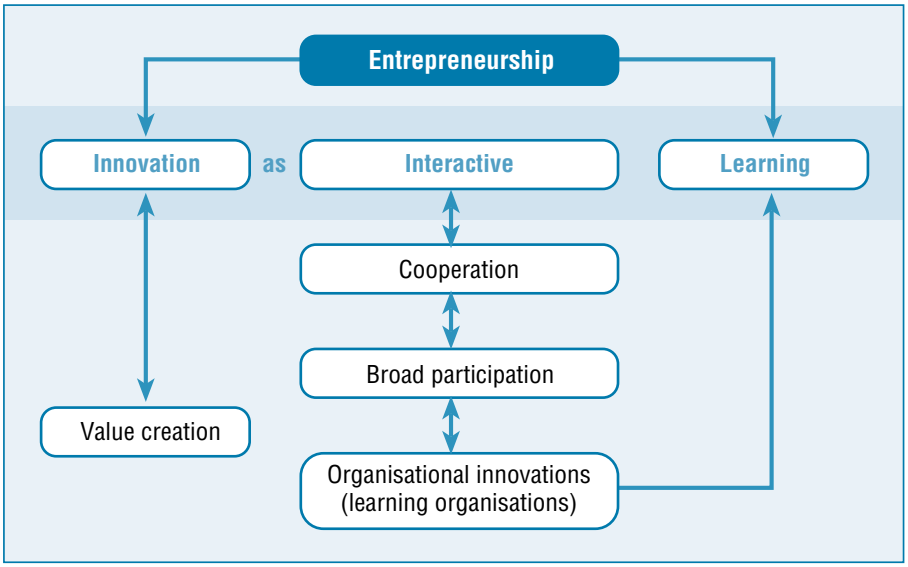
Learning regions should, thus, be looked upon as a policy framework or model for formulating long-term partnership-based development strategies initiating learning-based processes of innovation. In promoting such innovation supportive regions, interlinking cooperative partnerships by work organisations via inter-firm networks with different actors of the community, understood as 'regional development coalitions', is of strategic importance. The attractiveness of the concept of learning regions to planners and politicians is that at one and the same time it promises economic growth and job generation as well as social cohesion. As such, learning regions provide an answer and challenge at regional level to contemporary changes in the global economy.

16.3. Learning economies and development coalitions

The role played by cooperation in a learning economy is underlined by understanding interactive learning as a fundamental aspect of the process of innovation (Asheim, 1996). This broader understanding of innovation as a social, non-linear and interactive learning process puts new emphasis on the role played by sociocultural and institutional structures in regional development. They are no longer vestigial remnants of precapitalist civil societies. They are necessary prerequisites for firms and regions to be innovative and competitive in a post-Fordist learning economy. According to Lundvall 'what is at stake is the capacity of people, organisations, networks and regions to learn' (Lundvall, 2004, p. 1). Further, he emphasises 'the enormous untapped growth potential that could be mobilised' in traditional sectors of the economy, if the necessary 'institutional reforms and

organisational change that promote learning processes' were implemented (Lundvall, 2004). This implies among other things that the introduction of new technology must be accompanied by (internal) organisational changes and competence building among employees to achieve the expected productivity gains (Figure 1).

Figure 1. **The importance of cooperation for innovation as interactive learning**



If these observations are correct, the implication is that new 'forces' are now shaping technological development in capitalist economies, modifying the nature and importance of competition between firms. Obviously, contradictions inherent in the capitalist mode of production persist, but, as Lazonick (1993, p. 4) states, 'domestic cooperation rather than domestic competition is the key determinant of global competitive advantage. For a domestic industry to attain and sustain global competitive advantage requires continuous innovation, which in turn requires domestic cooperation'. Cooke (1994, p. 32) supports this view, emphasising that, 'the cooperative approach is not infrequently the only solution to intractable problems posed by globalisation, lean production or flexibilisation'.

The operation of learning economies underlines the importance of cooperation based on dynamic, flexible, learning organisations. A dynamic,

flexible 'learning organisation' can be defined as one that facilitates the learning of all its members and has the capacity to continuously transform itself by rapidly adapting to a changing environment through innovation (Pedler et al., 1991; Weinstein, 1992). However, a problematic aspect of learning organisations, and indeed of learning economies in general, is the emphasis placed on 'catch-up' learning (learning by doing and using) based on incremental innovation, as distinct from new knowledge creation and radical innovation. Ekstedt et al. (1999) have recognised the limitations of incrementalism in learning organisations and argued that 'it will not lead to a major change in organisational structure or to a radical shift in organising patterns. It is more likely that an incrementally developed learning organisation will do "more of the same" although with time it might do so more effectively' (Ekstedt et al., 1999, p. 43). Indeed, incremental product and process innovation does not offer the prospect of long-term economic growth within a learning economy, nothwithstanding 'the tremendous importance of incremental innovation, learning by doing, by using and by interacting in the process of technical change and diffusion of innovations' (Freeman, 1993, p. 9-10). Processes of knowledge creation are, therefore, pivotal in successful learning organisations and economies.

16.3.1. Development coalitions

The concept of 'development coalition' offers a model of the learning organisation that goes beyond the limits of incremental learning as an organisation is placed in a more nuanced societal context (Asheim, 2002). A development coalition can be understood as a bottom-up, place-based, horizontal cooperation involving a wide range of actors in a local or regional setting including workers and managers within firms, networks of firms and organisations, as well as the general mobilisation of resources in a broad societal context to initiate and promote a learning-based process of innovation, change and improvement (Ennals and Gustavsen, 1999; see also Chapter 7 by Eriksson and Chapter 12 by Hofmaier in this book). As an expression of the idea of learning organisations, development coalitions are fluid, transnational, and continuously reshaping themselves to meet new challenges. Essentially, however, they are made up of horizontal relationships, constituting channels through which information flows, experiences compared and new solutions worked out by extracting the best out of a broad range of experiences and ideas. Such coalitions can be formed on many different levels, from small workplaces, to both small and large networks and regions, to whole nations (Ennals and Gustavsen, 1999).

According to Ennals and Gustavsen (1999), the principal characteristic of a learning organisation that is part of a development coalition is its ability to change: 'to change its patterns, to continuously transcend what it is, to take on new shapes, new forms' (Ennals and Gustavsen, 1999, p. 16). Thus, learning organisations organised as development coalitions have features that are distinctive in comparison with other forms of learning organisations that transcend the problems of incremental learning. Establishing these coalitions involves not only cooperation but also planned collective action among groups of firms (Sabel, 1992). As such, they represent a form of social capital embedded in formal organisations at the system level of society, which can be contrasted with social capital that is rooted in civicness.

16.3.2. R&D-based and incremental innovation

Thus, knowledge and innovation should not simply be equated with R&D. Innovative activities have a much broader knowledge base than just R&D, and there are many examples of nations and regions demonstrating a rapid economic growth and a high standard of living with an industry competing on non-R&D based, incremental innovations, e.g. Denmark and regions in so-called 'Third Italy' (see Chapter 13 by Bardi on Emilia-Romagna in this book). This means that a region's knowledge base is larger than its science base, thus building a more knowledge intensive globalising economy does not necessarily mean that innovation and competitiveness become more dependent on R&D.

This new and alternative conceptualisation of innovation as interactive learning means an extension of the range of branches, firms and regions that can be viewed as innovative to include traditional non R&D-intensive branches, often constituted by SMEs and located in peripheral regions. The basic critique of the linear model is precisely the equation of innovative activities with R&D intensity. One further, important implication of this view of innovation is that it makes the distinction between high-tech and low-tech branches and sectors less relevant, as it maintains that all branches and sectors can be knowledge intensive and innovative in this broader sense. Further, this means that it is possible to find productive and innovative firms enjoying competitive advantages on global markets in all branches and sectors. In this context it is important to remember Porter's view (1990) on the competitive advantage of firms and regions based on exploitation of unique resources and competences. The reproduction and development of competitive advantage requires continuous innovation, which in a learning economy is conceptualised as a contextualised interactive learning process,

promoted by clustering, networking and intra- and inter-firm cooperation, and such unique resources and competences need not be R&D-based because knowledge intensity and innovation are more than just R&D. Its goes some way towards explaining the seemingly paradoxical situation of low-tech industries, for example the furniture industry, flourishing and reproducing their international competitive advantage in high cost countries such as Denmark, Germany and Italy (Maskell et al., 1998). It is important to emphasise that the diffusion, exploitation and utilisation of knowledge is dependent on the socioinstitutional framework of economies rather than the workings of techno-economic subsystems (Freeman and Perez, 1986).

As suggested by the term, the learning economy puts more emphasis on the activity of (both adaptive and developmental learning, see Chapter 7 by Eriksson in this book) while the concept of the knowledge-based economy is more concerned with the stock of knowledge as well as with new knowledge creation. In Asheim and Coenen (2006) it is argued that the former is more inclusive as it encompasses all sectors in an economy as opposed to the latter which traditionally has had a strong focus on high-tech sectors. The distinction between learning and knowledge-based economies implies use of different definitions of modes of innovation. In a learning economy a broad definition of the mode of innovation as D(oing), U(sing) and I(nteracting) is most common. Such a mode of innovation is typically found in non-R&D-based learning economies (Denmark), mainly producing incremental innovations. On the other hand, in a knowledge-based economy a more narrow definition of the mode of innovation as S(cience), T(echnology) and I(nnovation) based is favoured. This mode of innovation more often generates radical (product) innovations than a broadly defined mode of innovation. However, at firm and sector levels these two modes of innovation coexist, but 'are applied with different weights in different sectors and this implies that regional specialisation and clustering will make them appear differently also in geographical space' (Berg Jensen et al., 2005, p. 23; see also Asheim and Gertler, 2005 and Asheim and Coenen, 2005).

Berg Jensen et al. (2005) argue that 'the rate of return from strengthening one of the (above) modes is higher the less intensively it is used in the organisation. Firms that have not been using the STI mode intensively may benefit the most from giving more attention to that mode, while firms that use the STI mode intensively may benefit the most from focusing on developing the DUI mode' (Berg Jensen et al., 2005, p. 22). Thus, the distinction between these two modes of innovation helps on the one hand to avoid a too one-sided focus on promoting science-based innovation in high-technology

firms at the expense of the role of learning-based innovation. On the other hand, it also indicates the limits of experience-based innovation strategies by giving more attention to 'policies that serve to strengthen linkages to sources of codified knowledge for firms operating in traditional manufacturing sectors and services more generally' (Berg Jensen et al., 2005, p. 23; see also the Chapter 8 by Johnstad in this book).

16.4. 'Learning organisation' forms of work organisation

The concept of the learning firm or the learning organisation envisages enterprise growth created through knowledge and learning, while at the same time, creating new, enriching and empowering forms of work. In their development of the concept, Lundvall and Johnson (1994) have argued that, 'the firm's capability to learn reflects the way it is organised. The movement from tall hierarchies with vertical flows of information towards more flat organisations with horizontal flows of information is one aspect of the learning economy' (p. 39). Hudson, on the contrary, observes little evidence of this labour market empowerment in the liberal market economies of the UK and US, seeing no reduction in the relative sigificance of 'the alienated and deskilled mass worker' (Hudson, 1999, p. 60).

However, the sociotechnical approach to organisation theory, has shown that flat and egalitarian organisations have the prerequisites for flexibility and learning, and the capacity to become learning organisations, not least because of the strong engagement with their functionally flexible, central workers (Asheim, 1996). These structures have the capacity to build trust and to mobilise and diffuse informal or tacit, non-R&D-based knowledge (Herrigel, 1996), while authoritarian, hierachical structures encourage employees to keep relevant information to themselves (You and Wilkinson, 1994). Learning firms use inter-firm networking and intra-firm horizontal communication to improve learning capabilities. But, to remain competitive they must continually reproduce themselves through innovation. The innovation process is itself based on collective learning both inside the business enterprise and within networks of cooperating firms.

16.4.1. **Workers' contribution to innovation**

This can be illustrated by Scandinavian experiences, which show that strong involvement of 'functionally flexible', central workers is important to have a

working 'learning organisation'. Such organisations also result in well functioning industrial relations, where all employees (skilled workers as well as the managers) display loyalty towards the firm. Indeed, 'the process of continous improvement through interactive learning and problem-solving, a process that was pioneered by Japanese firms, presupposes a workforce that feels actively committed to the firm' (Morgan, K., 1997, p. 494). Brusco (1996) has gone on to argue that it was through such worker commitment and high levels of worker participation that firms in the industrial districts of Emilia-Romagna were able, 'to be efficient and thus competitive on world markets' (Brusco, 1996, p. 149). And, Brusco et al. (1996) have maintained that, 'the experience in Emilia-Romagna has demonstrated that competitiveness on global markets is not a contradiction to high labour cost, high incomes and a fair distribution of income; on the contrary, we would claim that a fair income distribution is a necessary condition (although not sufficient) for consensus, and consensus and participation are an indispensable prerequisite for economic success' (p. 35) (see also Chapter 13 by Bardi in this book).

However, the cooperative participation of labour has to be on a broad scale for it to have a significant and lasting effect on firms' innovativeness and competitiveness All workers in a firm have to be involved in the continuous improvement of its operations to increase productivity and quality in the pursuit of growth. In this way, collective learning stands in contrast to individual learning, where the improved skills of the individual are traded on the labour market at a given price (Lazonick and O'Sullivan, 1996; Storper, 1997). According to Lazonick and O'Sullivan (1996), innovative firms need to create social organisations to enable collective learning to occur. Chapter 4 by Haga in this book provides an accurate illustration of how such learning-based innovation functions in contemporary firms in Norway.

There is, therefore, the possibility of the negotiated involvement of labour in the firms of a flexible, learning economy. This is a possibility with which Leborne and Lipietz (1992) disagree. They argue that such, 'collective involvement and flexibility are incompatible …[because the] … external rigidity of the labour market [is] associated with the negotiated involvement of workers' (Leborgne and Lipietz, 1992, p. 339). However, Porter (1990, p. 109) points out that in general, 'labour-management relationships are particularly significant in many industries because they are so central to the ability of firms to improve and innovate'. It might, for example, be argued that Norwegian society is characterised by a culture in which cooperation is both recognised and valued as an important part of local social capital, and this

has positive consequences at both the micro level of the firm, in terms of loyalty, flexibility and positive attitudes of workers, and at the macro level of society in terms of social regulation of the labour market. The contrasting view of Leborne and Lipietz is due to the authors reducing flexibility to a question of numerical flexibility, thus ignoring partly the possibility of functional flexibility, and partly a potential trade-off between influence and loyalty.

16.4.2. 'High commitment' organisations and innovation

The presence of social capital in the form of a strong tradition of cooperation adds to the high level of human capital in the workforce in Scandinavia in a synergistic way, and represents an international competitive advantage, not least because it means decisions can be implemented swiftly because they have been arrived at by consensus (not still fully exploited, according to Porter). This organised way of bringing society inside the firm by internalising labour market institutions of cooperation and regulation in intra-firm learning organisations, based on broad participation, is an alternative way of achieving integration (or 'fusion') of economy and society (Piore and Sabel, 1984). It is comparable with the industrial district model, in which the firm is embedded in the spatial structures of social relations of the external surrounding community (Sforzi, 2000). These contrasting models of integration and contextualisation of the firm also reflect two interpretations of social capital. The first is rooted in the 'civicness' of communities as found in industrial districts where social capital develops based on 'bonding' while the second is to be found in formal organisations at the system level of societies as in Scandinavia where social capital is developed through 'bridging'.

The positive impact of this form of work organisation on innovation is confirmed in a study by Mitchie and Sheehan (2003) who report that 'low road' practices – the use of short-term and temporary contracts, a lack of employer commitment to job security, low levels of training, and so on – are negatively correlated with innovation. In contrast, it is found that 'high road' work practices – 'high commitment' organisations or 'transformed' workplaces – are positively correlated with innovation (Mitchie and Sheehan, 2003, p. 138).

Lorenz has undertaken research on the relationship between forms of work organisation in the EU and the impact on job stress, worker satisfaction, labour market flexibility, learning, innovation and patenting (Lorenz and Valeyre, 2005). This study, based on the third European survey on working conditions (total population studied: 8 081 persons) carried out

by the European Foundation for the Improvement of Living and Working Conditions, identifies four main forms of work organisation in the EU: 'learning'; 'lean'; 'Taylorist'; and 'simple structure'. The study shows that the learning form of work organisation, found in Scandinavian countries and the Netherlands, results in less job stress and greater worker satisfaction and a larger propensity for patenting. This is based on labour market flexibility and superior conditions for learning and innovation. Denmark ranks as one of the world's best places for doing business because of its flexible labour market based on a combination of a well-developed social security policy, high unemployment benefits and a relatively high degree of freedom for employers to fire and hire workers. This is in contrast to the German labour market.

16.5. Alternative models of capitalism

To deepen understanding of appropriate innovation policies, governance structures and supporting regulatory and institutional frameworks need to be considered (Asheim and Gertler, 2005; Asheim and Coenen, 2006). By linking the macro-institutional characteristics of the economy with the dominant form and character of its triple helix-based regional innovation systems, a connection can be made with the following two theories – 'varieties of capitalism' (Hall and Soskice, 2001) and 'national business systems' (Whitley, 1999). It is important to keep in mind that even though complementarities and path-dependencies derived from deeply embedded institutions in different varieties of capitalism must be acknowledged, this does not mean that policy-induced institutional innovations are impossible.

16.5.1. Liberal and coordinated market economies

Soskice (1999) argues that different national institutional frameworks support different forms of economic activity (see Table 1). Thus, while coordinated market economies have their competitive advantage based on diversified quality production, liberal market economies are most competitive in industries that are radically innovative. From a comparison of coordinated market economies (such as Germany, Sweden, and Switzerland) and liberal economies (such as the US), Soskice suggested that coordinated economies performed best in producing 'relatively complex products, involving complex production processes and after-sales service in well-established industries' (such as the machine tool industry). In contrast, liberal market economies

performed best in industries producing complex systemic products, such as IT and defence technologies and advanced financial and producer services, where scientific knowledge is important (Soskice, 1999, p. 113-114). However, in liberal market economies, such as that of the US, the low-end of the labour market, in low-tech, labour-intensive industries, creates unskilled, low-paid jobs, with workers suffering poverty, low living standards and alienation, a situation that has been recognised by both Porter (1990) and Lazonick (1994).

Table 1. **Varieties of capitalism**

Varieties of capitalism	Liberal market economies	Coordinated market economies
Financial regulation	Short-term financial markets, equity financing	Long-term patient capital, debt financing
Corporate governance	Shareholder value, limited business coordination; antitrust laws	Stakeholder value, strong business associations, intercorporate networks
Innovation systems	Radical innovation, involving sharp breaks with extant processes	Incremental innovation involving continuous process development
Capital-labour relation	Decentralised bargaining, contentious workplace relations	Coordinated bargaining, statutory worker representation
Training and employment	Basic education and firm-specific training, short tenure, high turnover jobs, high interfirm labour mobility	Vocational training, long tenure, low turnover jobs, low interfirm labour mobility

While coordinated market economies at macro level support cooperative, long-term and consensus-based relations between private and public actors, liberal market economies inhibit development of these relations and instead offer opportunities to adjust formal structures quickly to new requirements. Such institutional specificities both contribute to forming divergent national business systems, and constitute the context within which different organisational forms with different mechanisms for learning, knowledge accumulation and knowledge appropriation evolve. Through its emphasis on

institutional complementarities the 'varieties of capitalism' approach focuses on dynamic ensembles of mutually reinforcing sets of institutions rather than isolating individual forms and their impact. As such it pieces together consistent configurations of institutions and shows their implications for innovative performance.

The institutional competitive advantage of coordinated market economies appears to be based on the constant upgrading of existing industries and technological trajectories (such as in manufacturing industries). This upgrading is the product of interactive innovation that involves long-term cooperation – between workers and firms, between firms and between firms and the knowledge infrastructure – to promote interactive learning.

To illustrate the historical and social background of a coordinated market economy, the example of the economic development of Norway and the rest of Scandinavia in the 19th century provides interesting historical evidence, as it can be argued that the 'learning economies' of the Nordic countries are paradigmatic examples of Soskice's coordinated market economies. Contemporary Norwegian society is characterised by egalitarian social structures with a low level of conflict both in society and at the workplace. Educational levels are high, the culture is essentially homogenous, and equality is both an ideal and in most cases a reality. Social control is well developed, and social cohesion is strong. Ideals of social justice and solidarity are deeply rooted, as is the Protestant ethic in both work and consumption. Trade unions are representative and cooperative minded, and political life is very stable (Nylehn, 1995). This cooperative tradition is embedded in long established and contemporary reproduced structures in Norwegian society.

In the Norwegian (Scandinavian) case, it was the causal effects of sociostructural factors (agrarian and educational reforms and a relatively even distribution of land and income) and political-institutional structures (that is the political mobilisation and organisation of the peasantry and the labour class together with a stable political framework) that have been seen as contributing positively to rapid industrialisation and economic development. To Mjøset (1983), these sociostructural factors amounted to a 'configuration of development' that went so far as to determine the effect of factors such as natural resource endowment, population size and density, infrastructure, trade policy, direct foreign investments and technology transfer, on economic growth. It is precisely these egalitarian social structures that are highlighted in international comparative studies as the important causal factors behind the rapid and more successful

industrialisation and economic development in Scandinavian countries compared to other parts of Europe's periphery (Berend and Ranki, 1982; Senghaas, 1985).

16.5.2. Importance of non-economic factors: efficiency and equity

The importance of non-economic factors for the performance of an economy points to sociocultural as well as political-institutional structures, which incorporate historical and territorial dimensions. It can, thus, be argued that in the Norwegian (Scandinavian) case of economic development, changes in the socioinstitutional framework (educational reforms, political democratisation, land reforms, etc.) had primacy over changes related to the techno-economic paradigm (Berend and Ranki, 1982; Senghaas, 1985). In reality, this meant promoting cooperation in what has become known as 'the associational economy' (Cooke and Morgan, 1998) or 'the negotiated economy' (Amin and Thomas, 1996) in contrast to seeing competition as the dynamic force of societal change and the main driver of technological development and innovation. The same argument can to some extent also be made for the Third Italy, where non-economic factors have been more important than techno-economic structures for the economic performance of the regions of northern Italy. This is the perspective of the 'learning economy' that holds a central position in institutionalist theories on regional development (Amin, 1997; Amin and Thrift, 1995a; Grabher, 1993b; Lundvall, 1996).

The high degree of learning and innovativeness in contemporary Nordic countries is pointed out in a study by Florida and Tinagli (2004) on 'Europe in the creative age', which shows that Sweden is the top performer on the Euro-creativity index, outperforming not only all of the other European countries, but the US as well. Other Nordic countries as well as other northern European countries (Ireland, the Netherlands and Belgium) are performing well. The impact of this on the growth competiveness index of countries is clearly demonstrated in the ranking of the World Economic Forum showing that Finland is the most competitive country followed by the US and Sweden, and that all five Nordic countries rank among the 10 highest ranking nations both in 2004 and 2005 (Table 2).

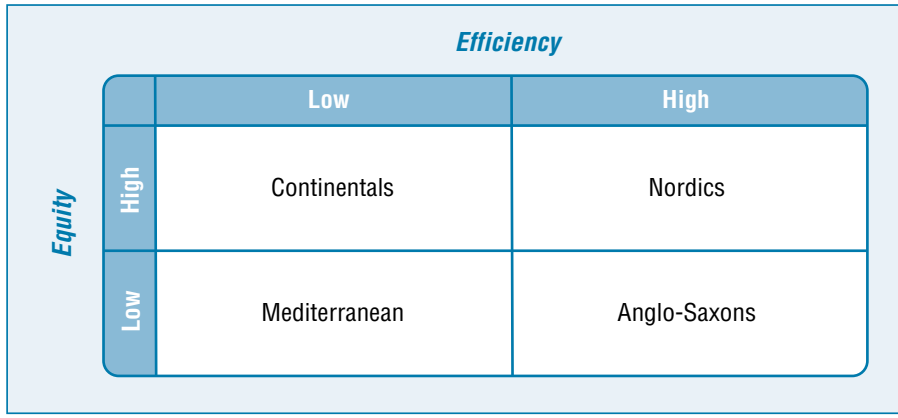
This led Nick Clegg, in an article in the Financial Times of 31 March 2005, to argue that Europe should look within for inspiration: 'It is time to emulate the best that can be found in Europe. The Nordic model is too good to be ignored … (as it) …. seems to offer a holy grail: highly competitive economies with none of the brutal social inequalities of the US model' (Clegg,

2005). This indicates that it is not only a question of finding the optimal trade-off between efficiency and equity (getting the trade-off right), but that instead it might be a question of producing synergy between efficiency and equity (more equity results in more efficiency), which is the case of the coordinated market economies in the Nordic countries (for example, the well-functioning Danish labour market) (Figure 2).

Table 2. **World Economic Forum growth competitiveness index (2004/05)**

Country	2004	2005
Finland	1	1
US	2	2
Sweden	3	3
Taiwan	4	5
Denmark	5	4
Norway	6	9
Singapore	7	6
Switzerland	8	8
Japan	9	12
Iceland	10	7
Australia	14	10

Figure 2. **Four European models: a typology (from Sapir, 2005, p. 9)**



16.6. Conclusion: learning, innovation and alternative forms of capitalism

In this chapter it has been argued that, under the right conditions, interactive learning has the capacity to promote and sustain regional competitive advantage and growth within local economies. These conditions are cooperation and non-market and non-economic factors, including social capital, trust, and characterised by supportive institutions (Putnam, 1993a). According to Lazonick, 'history shows that the driving force of successful capitalist development is not the perfection of the market mechanism but the building of organisational capabilities' (Lazonick, 1991, p. 8). Those capabilities, it is suggested here, are fostered by building trust and social capital at the regional scale within firms, within networks of firms and within public-private partnerships in regional development coalitions. However, it is also argued that learning-based, endogenous regional development also requires specific sociocultural and socioeconomic structures found only in certain places. Typically, those places are the well-off regions of developed countries, that have the technoeconomic and political institutions of coordinated market economies rather than liberal market economies (see Chapter 10 by Augustinaitis on Lithuania in this book).

Therefore, though it has been suggested that there is the potential to establish learning regions also within 'resource weak' regions through the use of appropriate policy instruments, it is important to bear in mind that the 'learning firms'/'learning region' model of regional economic growth is not universally applicable. However, following Lundvall (1996), it would appear that learning in a coordinated market economy can generate endogenous growth in some regions without restricting the growth potential of other regions. Indeed, a policy of strong competition, building on innovation and differentiation strategies within networks of large and small firms, together with interactive, localised learning and continuous innovation in industrial and territorial clusters supported by regional innovation systems, has the potential to promote learning and knowledge creation for an innovation-based economy. Such a dynamic learning economy populated with learning firms in learning regions offers the vision of a long-term growth-oriented kind of capitalism that is able to generate development in as well as of regions.

However, as a result of global competition from newly industrialised countries such as Singapore, South Korea, Taiwan, and rapidly catching-up countries such as China and India as well as increased codification of

knowledge, the need for firms in Europe to improve their competitiveness by combining a focus on product differentiation/innovation towards high quality/value added products with cost efficiency has become evident. This means firms apply an open innovation model ([1]) and rely on sourcing – sometimes globally – the best talents while at the same time outsourcing or offshoring standardised labour-intensive activities to low-cost countries. These development tendencies represent a serious threat and challenge to the endogenous learning region approach, which is most clearly illustrated in Emilia-Romagna (see Bardi in Chapter 13).

The institutional framework of the 'varieties of capitalism' approach can throw light on how successful national and regional economies can cope with the threats and challenges of globalisation as well as contribute to explaining differences in economic performance, growth, innovativeness and competitiveness. The good performance of the Nordic countries on various rankings indicates that the strength of the Nordic model lies in the contextual interplay of the institutional set-up and the economic structure. This shows that a high ranking can be achieved with different innovation policies, ranging from Finland's supply-oriented, science-based and top-down innovation policy to Denmark's demand and market driven support of non-R&D-based innovation. Thus, the Nordic countries seem to manage to capitalise on their institutional and economic complementarities, and bolster their competitive success in the global economy. They also do so without generating a high degree of social inequality, as social cohesion is secured through synergy between equity and efficiency (Sapir, 2005).

([1]) The central idea behind 'open innovation' is that in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should instead source knowledge and ideas from other companies and research organisations (Chesborough, 2003).

PART V

Learning from European cooperation

CHAPTER 17

Summary and conclusions: learning from the cases

Bjørn Gustavsen, Richard Ennals, Barry Nyhan

17.1. Introduction

While innovation, in the 19th century, was largely performed by practical people for practical purposes, the 20th century saw a turn towards research and science as sources of innovation. With the emergence of science in this role, the question of how science and innovation are linked became critical. A main characteristic of science is that it is assumed to be context free; has the same content and is subject to the same truth requirements irrespective of where it is created or used. However, it is more important to note the point emphasised by Cooke and Asheim (Chapters 15 and 16) that even where science in a classical form is the source of innovation, it has a strong spatial component. As a source of innovation, science-based knowledge is not floating freely around the world to be used anywhere. Rather, it is becoming increasingly clear that using this kind of knowledge is based on the ability of the actors concerned to create social relationships of a certain density and mass.

Why can decontextualised science not be used by anyone anywhere? Latour (1998) argues that while science is largely preoccupied with verifying knowledge according to a universal system of rules and principles, innovation demands imagination, experimentation, risk taking and much more that falls outside science in a classical sense. Science may play a role, but there is no question of a direct, deductive relationship. In the interplay between science and innovation, the main emphasis has to be on innovation; what demands do actors have to meet when they want to promote innovation? In many cases, these demands have to do with the ability to exploit science, but there is much more at stake.

The rising interest in the relationships between innovation and various forms of social organisation is illustrated through the use of concepts such as ‘network’, ‘cluster’, (industrial) ‘district’, ‘innovation system’, ‘development

coalition' and 'learning region'. These concepts may have somewhat different meanings, but they all point to one important reality: innovation generally demands interaction between several actors, and these interactions are of a complexity that makes it very difficult to operate over large social and geographical distances.

The knowledge involved in innovation processes does not, however, come from science only. If we, with Latour (1998), make a distinction between science and research, much of it comes from research, and research is not only an imaginative transformation of the natural sciences, but an activity that covers much more, for instance dealing with the organisation and social content of innovation systems. Even though the social sciences sometimes claim to follow the natural ones in the ability to generalise, there is little disagreement today about such claims being generally overambitious. How overambitious, is an issue that need not be settled here since the point is that when knowledge from the natural sciences needs a context to be useful in innovation processes, it is even more clear that social knowledge needs the same.

Research and science are not the only knowledge sources in innovation. In most cases it is knowledge developed through practical activities of the actors concerned that is at the core. Practices are always linked to time and a space and any effort to use practical knowledge in a process of innovation is dependent upon identifying what practices and corresponding actors are to be involved. While science, with its claims to universal knowledge, is seen as the opposite of time and actor bound practical knowledge, these two forms of knowledge have been moving closer to each other. In fact, it is a main point in the discussion conducted by Gibbons et al. (1994) that as the research establishment has grown in scope and size and penetrated more and more areas of society, the boundaries between practice-based knowledge and science-based knowledge are becoming increasingly blurred, and it becomes increasingly difficult to see them as subject to different logics.

These and other concerns have come to link innovation strongly to social phenomena 'below' the level of the global community as well as the nation state. One of the concepts that stands out in this context is 'region'. Whereas concepts like 'clusters' and 'networks' primarily point at relationships between enterprises, the strong aspect of the notion of 'region' is that it points at more than interenterprise cooperation, but at mechanisms for steering and governance that go beyond those accessible to a collectivity of

enterprises (see the notion of 'triple helix' ([1]) outlined by Etzkowitz and Leydesdorff, 1997).

17.2. Maps and routes

The challenge of innovation can be approached from different perspectives. One is from 'high up' where the purpose is to identify some chief elements and characteristics of successful innovation processes; a rather different one is from 'down on the ground', from the position of the one who has to act within an innovation process. In the first case the task resembles drawing a map, in the second finding one's way in a complex city. One may argue that if the map is good it is easy to find the right way. However, for the map to show all the details needed to make the right choice at each point where a choice has to be made, the map has to be as detailed as the city, but then it is no longer a map. Further, it has to present each situation from the perspective of the person down on the street, and not up in the air.

While it may be difficult to find one's way through a city, a city is generally a given phenomenon. However, a process of innovation is made by the actors as they go along. A map given in advance will, consequently not be a map of the present process but of another process that has already taken place. In principle, using it will be like finding one's way through one city with the help of another person's map, or a map of some idealised city that does not really exist anywhere. Down on the ground the challenge of an innovation process appears as a choice between actions: should we choose this, or should we rather go for that? A good map of course helps one make the right choices but there is much more involved than map reading.

In line with this, we will take a brief look at the cases in this book to see what kind of concrete acts and efforts are involved in promoting the goal of innovation.

([1]) 'Triple helix' refers to cooperation between three entities – public sector bodies, universities (research) and enterprises – in the innovation process.

17.3. Discussion on measures outlined in the cases

First is a case study by Stahl (Chapter 3), dealing with an initiative to create a coordinated process of development and innovation within an area (region) in Germany. The region (Rhine-Neckar-Triangle) cuts across three German *Länder* and encompasses about two million inhabitants. The point of departure was problems in the labour market: loss of jobs through structural change; competence mismatch (too many with low skills, too few with high); a high number of unskilled workers in immigrant populations in combination with a high degree of unemployment; and non-transparent administrative routines for dealing with the challenges. There were also imbalances within the region; some parts showing a higher rate of employment than others.

The process started by establishing a development partnership with 46 partners. The members were self-selected, based on sharing an interest in developing a regional initiative, and largely came from the employment sector. The next step was to create a core group made up of representatives from municipal employment offices in three of the larger cities within the region, plus some representatives from non-governmental organisations (NGOs). The core group initiated three working groups (and nine operational groups). One of the employment offices took care of administrative tasks. A research unit was linked to the initiative, with responsibility for giving advice and undertaking evaluation.

The three working groups developed seven projects, three to help disadvantaged youths, one to mitigate structural hindrances in helping heavily disadvantaged groups gain access to the labour market, and three to assist SMEs in organisational development and in the capacity to train and employ people. Support was obtained from the European Union EQUAL programme.

While Stahl deals with a broadly framed region focusing on making employment agencies and training organisations cooperate, the next case by Haga (Chapter 4) goes down to the level of detailed, concrete operations. Haga deals with the creation of a new role for a person called a 'development facilitator'. This person has the task of initiating and sustaining development processes locally, initially on the level of an individual enterprise, but with a perspective of fostering cooperation between enterprises.

In the cases presented in Haga's chapter, this role of 'development facilitator' is shaped in two somewhat different ways. In one case it is mainly

an extension of management as practised in certain enterprises, not quite unlike, for instance, internal consultants or even human resource managers. In the other case the role has more of a 'boundary crossing' function; first and foremost between the different groups within the enterprise but also between actors in different enterprises. In the latter case the link to management is less marked and a position between management and employees is made more pronounced. It is the ability to act in a role between groups rather than on behalf of one group with the right to control the other, that makes the latter role interesting from a broader perspective for enterprise networks and regions. Regional development not only places demands on the region but on individual enterprises as well. Each enterprise must be able to work together with other enterprises. To be able to do this it is necessary to develop new boundary crossing roles rather than rely purely on the ability of actors in traditional roles to perform these tasks.

These 'development facilitators' were given special training, something that set them apart from their colleagues. However, the main purpose of the training was to give them the ability to organise development processes between equals. In this way the ability to involve others is the core success criterion. The insulation effect of training was overcome in the way that the training was converted into practice.

Another example of boundary crossing roles is found in Chapter 5 by Filgueiras-Rauch. The issue in this chapter is not enterprise-level innovation, but improved living and working conditions for ethnic minorities in a suburb of Lisbon. The challenge was how to overcome problems associated with weak links to the labour market and corresponding problems of low income, high unemployment and limited work opportunities.

The core measures brought to bear on this challenge involved setting up the following boundary crossing roles:

- intercultural mediators,
- community development agents,
- multiservice assistants.

In addition, networking between local SMEs was promoted and an innovation centre was established.

The three first categories all represent boundary crossing roles that were filled by people from the ethnic minorities themselves. The purpose was to build bridges at the same time as they filled the roles that were needed. The multiservice assistants, for instance, were to provide services to do with housing and garden maintenance that were otherwise too expensive for the inhabitants and beyond their competence to perform themselves.

The main project organiser was the local employment office. The first step in the project involved setting up a discussion group comprising the municipality, several NGOs and other interested parties. Eventually this group formed a partnership having governance functions. For each of the five measures, a project group reflecting the composition of the partnership was established and for each project there was a work group. The project had EU support again through the EQUAL programme and involved cooperation with, and benchmarking against, regions in Germany and France.

An effort to address economic development focusing on actors who have generally been marginal in economic development – women in rural areas with limited education and practical experience – is discussed by Stamboulis and Psycharis (Chapter 6). Their case is the establishment of several women's cooperatives in the region of Magnesia in Greece. Although producers' cooperatives have not been greatly discussed in relation to the organisation of innovation in recent years, they have been growing in the social sector of the economy in several countries.

The main driver is a training and employment organisation. There is a partnership with the public authorities and a development company within the region. In addition, to help establish the cooperatives, the main measure is what can be called 'hands-on' support in visits and other forms of follow-up and provision of complementary competence in marketing and training. In one case women from each cooperative were invited to attend a series of seminars aiming to raise their awareness and knowledge of marketing, entrepreneurship and management, to break from a predominant orientation towards production. According to the chapter, only one cooperative can show a clear-cut success, largely owing to a person with higher education and a strong entrepreneurial talent. The initiative also received support from an EU programme which made it possible to collaborate with other European regions.

This contribution by Eriksson (Chapter 7) introduces the notion of 'industrial development centres' (IDCs). This deals with a measure introduced some years ago in Sweden to help enterprises that were considered by the public authorities to be lacking innovation resources within their own organisation to become more innovative. From a broader perspective, this is an example of a widely applied idea: use of centres to boost processes in enterprises that are unable to initiate innovation processes on their own. Such centres can be found, in some form or other, in many European countries. They generally have a regional orientation in the sense that they are explicitly designed to serve specific regions and are located within the regions.

The chapter throws light on two different ways to develop such a centre. In the first case the IDC oriented itself towards a small number of user enterprises and defined itself as a provider of complementary competence, that is: competence that the user enterprises themselves considered lacking and could benefit from outside assistance. In the other case the IDC defined itself more proactively: as a centre with responsibility for taking its own initiatives and forming new patterns. The Gnosjø IDC functions as a 'project factory' continuously initiating new projects around specific topics but also performing the task of strengthening network relationships between enterprises in the region. So far, the former approach seems to have been the most successful: partly because it developed a unique role of its own but also because, as a part of this role, it developed more many-sided and multiplex relationships with its user enterprises; thus making it less vulnerable to the ups and downs of one specific group of user enterprises.

The process described by Johnstad (Chapter 8) deals with transforming a single enterprise into what can perhaps most appropriately be called a (small) 'industrial district'. Historically, the Raufoss enterprise was a State-owned producer of munitions; but it had to face the challenge of entering new markets with new products. The first major step was splitting up the existing enterprise (fission). This resulted in the emergence of several enterprises with different core competences but with aluminium as a common denominator. With a wider range of products, there emerged a need for new suppliers and several were established in the region. With about 70 enterprises emerging and coming into various forms of interplay with one another, the need for an integrating mechanism based on a network of independent enterprises arose.

This growing need for integration was met in several ways that overlap with one another:

(a) more effort was put into forming and managing boundary crossing processes, reflecting the fact that each enterprise was part of a larger network;
(b) enterprises that serve a wide range of other enterprises, not only in fields such as training and maintenance but also in fields such as work organisation and promoting joint interest and joint management services, were set up;
(c) use was made of public support programmes, in particular 'Innovation Norway's arena programme' and the bipartite 'Value creation 2010' programme. Both of these work through organisational measures that aim to strengthen the interplay between enterprises;

(d) knowledge resources were regionalised. Although both of the above programmes are national, they are based on a strong degree of local presence from the the actors and the local execution of all steering functions;
(e) joint arenas and meeting places were set up where enterprises can meet and discuss issues beyond those associated with their ongoing business concerns.

While the Raufoss district emerged as a consequence of a process where one enterprise gave rise to many, the process described by McEwan and Ennals (Chapter 9) is different. Over recent years the relationship between enterprises and their employees has undergone changes directed towards looser links. To work from home becomes, for instance, increasingly common. This kind of development opens up new possibilities for linking people and workplaces. The paper introduces several new forms of centres:

- healthy working centres,
- telecentres,
- hubs,
- innovation centres,
- managed office facilities.

In different ways, these centres function as places of work somewhere in between the ordinary enterprise and individual places of work of free-floating workers. The centres reflect different levels of ambition ranging from a place to work with technical facilities and nothing else, to places where more far reaching goals are on the agenda.

An example of the latter are 'healthy working centres', where the purpose is not only to provide a place of work, but to bring together some of the elements characterising good work, such as a health promoting physical environment, teamwork, single status between management and employees and new forms of training. In this way, the centres can become significant in the diffusion of new forms of work organisation that have for a long time been seen as advantageous and attractive but where problems of implementation have been substantial.

If units are to be established that can create new relationships between people and work, there is a spatial dimension to the challenge. There is little point in, for instance, offering people who work at a distance from their employers a work centre to which the distance is equally far. If the centre is to become more than physical facilities there is, however, a need to go beyond the question of distance, to look at: the mix of people; the nature of the work and enterprises represented in each centre; what sort of

management can be provided and so on. Further, the various centres have to be located in a certain pattern in relation to one another. There are also different types of centres that can complement one another. This kind of development, consequently, can be allocated to regional development agencies which are partnership-based bodies responsible for promoting development in a specific region.

Augustinaitis (Chapter 10) deals not with a region but the Lithuanian nation State. The question, however, is to what extent Lithuania can utilise ideas about regional innovation to help promote transition from a Soviet type economy to a western European one. Lithuania is among the smaller European nation States, which could make it easier to apply 'regional thinking' than in a larger State. However, the nation State is characterised less by size of territory and population than by the way in which it perceives its tasks. There is no lack of examples of nation States of a most moderate size developing bureaucracies on a par with those of the largest nation States.

Augustinaitis identifies two lines of evolution in converting the Lithuanian economy. One is developing scientific centres, science and technology parks, business information centres, business incubators and similar bodies. Although such initiatives can work in different ways – as can be seen from the contributions of Eriksson (Chapter 7) and Totterdill (Chapter 14) – they often build on a linear transformation model. In contrast to this model, Augustinaitis reports on the creation of a 'Knowledge economy forum' based on an initiative of about 80 of the most successful firms in the Lithuanian economy. The intention is to use existing industries and their transformation as the backbone of the process and to enrol government and academia as supportive resources. Activities directed at political level include seminars, debates and discussions, focusing on different aspects of 'the knowledge economy'. Regional initiatives initially take much of the same form but are less developed since the idea of differentiation within Lithuania is still rather new. An interesting initiative is the creation of 35 'ambassadors' to promote regional initiatives to improve cooperation between existing enterprises and academia, gearing academia to meet the needs of industries. Efforts are also made to merge the ideas of science-driven and experience-driven innovation, using existing industries as the platform.

Just because the practical steps in an innovation process cannot be derived from a pre-given 'map', none the less there is a need to build a strong element of reflection into the process. This issue is discussed by Deitmer in Chapter 11. Because unequivocal guidelines do not emerge from a 'map',

they have to emerge from the dynamics and needs of the process in which the actors are involved. But there is a need to build a deliberate reflexive capacity into the process. This chapter shows one way this can be done and points at a possible role for the university. The challenge associated with reflecting on processes of innovation as they unfold is strongly linked to the tension between what can be defined and what cannot be defined. If it is accepted that each process has unique characteristics and a strong element of learning as one goes along, one consequence is that the issues to be reflected on cannot be fully outlined in advance. There is, however, a need for some categories and procedures, to trigger off the process. This chapter demonstrates the usefulness of making comparisons across innovation systems. When a phenomenon cannot be fully understood through the use of pre-given, theoretically expressed criteria, there is a need to find other points of reference. One such point is what others are doing, not to copy them but to hold oneself up against them so that one's own actions and patterns can be seen against a background. Unless phenomena can be seen against something, they lack contours and identification. Open categories and continuous comparison with other innovation processes are at the core of a self-evaluation framework and, consequently, for the learning needed to develop continuously and refine the innovation process. In recent years, this function has become much more important. While, some years ago, the research focus in innovation was mainly on technological knowledge and how to use it, focus on social and organisational knowledge for innovation is now gaining in importance.

17.4. Role of R&D and universities

The next three contributions in the book (Chapters 12, 13 and 14) take as a point of departure the main actors in many cases of regional development today: research and development agencies (R&D), often based in universities. Chapter 12 by Hofmaier deals with the evolution of one of the smaller regions in Sweden. A measure of interest is the so-called growth agreement, in the form of settlements between the State and the region, according to which the regional authorities can decide on applying some of the money distributed by the State, provided there is an appropriate plan for regional development and growth. In this region, healthcare, food and the leisure industry are identified as the primary growth areas. A core initiative is the 'healthcare technology alliance', where several enterprises, the local

university and the regional authorities work together. Important to note are the various measures brought to bear on how to organise this cooperation: initial project group; board of representatives; process managing group; work group; network meetings; and workshops. Without providing a foundation for assessing the efficiency of these measures, the chapter underlines the need to give high priority to issues of organisation and process. Combining an evolutionary perspective without centralised leadership, there is a strong need for self-evaluation as part of the process. For this purpose a tool was introduced that worked along the same lines as that outlined by Deitmer in Chapter 11.

The chapter mentions educational programmes based on close collaboration between users and educators having spin-offs of extended cooperation. These new pedagogical practices, with greater weight placed on combining theory with 'learning by doing', are gaining in popularity in many parts of Europe. The university college is a central actor in all these activities and validates the need for a local-regional institution in research and education. A middle-sized regional university college is not necessarily on the global leading edge in all the activities in which it is involved, but its advantage is that it is present in and can weave itself into local processes continuously and become an integrated part of local innovation systems.

Along with Cooke (Chapter 15), the chapter touches on the point that forming a 'triple helix', of itself, does not solve any problems. If the public authority takes a bureaucratic perspective, while enterprises adapt a short-term market orientation, and the university a science rather than research orientation, the 'triple' will not provide significant benefits. The point is not just to make these different actors meet in the same arena, but to make them work together contributing to the same process.

Bardi in Chapter 13 deals with what is probably the most widely discussed region in Europe, and besides Silicon Valley in the US, perhaps in the world. The Emilia-Romagna region came to the attention of a wide audience because of its social organisation and its ability to promote development and innovation in many of its small and medium-sized enterprises. The notion of 'industrial district' came to play a major role in explaining this success. An 'industrial district' is a geographical space where there is a high density of enterprises, generally in the same sector or branch. This pattern of organisation made it possible to develop resources that would have been beyond the capacity of an individual enterprise, for instance in development and training. When Emilia-Romagna first attracted the attention of the world, the joint resources largely had their roots in skilled work and craft traditions,

and implied a common or joint use of such resources through, for instance, training programmes tailor-made for each district. However, Bardi indicates a substantial shift in competence resources; away from resource centres based on craft skills and towards universities. The background is the changing nature of competence demands with the kind of resources offered by the universities taking over. This development will also affect patterns of organisation. Even though Emilia-Romagna has several universities there is not one institution for each district. It is also likely that the services provided by the universities will cut across the historical districts and generate new configurations. This process is in an early phase.

The contribution by Totterdill (Chapter 14), traces the history of a university-based research and development unit in the UK from its emergence to its closure. Although there may be a broad agreement on the need to involve the university in innovation processes in economics or welfare, there is no agreement on how this is to be done. This chapter brings to light several areas in which conflict can arise. First, the conflict between what can be called 'the commercialisation hypothesis' versus 'the interaction hypothesis'. When the university first started to attract attention as an innovation partner, the basic idea was that the university was 'sitting' on knowledge that could be used by other actors in society but that there were mechanisms blocking this. This gave rise to several initiatives to promote the 'commercialisation' of knowledge that was thought to exist 'before' it could be applied. By way of contrast we find the interaction hypothesis: science or research does not have much to offer in terms of innovation impulses if science and research is involved in the practical generation of such impulses. This demands a close collaboration with, for instance, those enterprises that are to draw the benefits of these impulses. It is only after such collaboration is established that it will be possible to expect contributions from a university. There is little doubt that overall development has gone in the direction of the second hypothesis.

This development constitutes some of the background for the second issue: the relationship between 'technology' and 'organisation'. Since university-enterprise cooperation needs a long-term relationship of mutual learning, this relationship needs to be organised. But, as pointed out by Totterdill, 'organisation' does not stop with this issue. As soon as we leave the assumption that innovation is a simple, linear, application of something that is handed to the enterprise from outside, other issues of organisation emerge like, for instance, what kind of work organisation and participation practices are to be put in place inside each enterprise. To this can be added

all the issues pertaining to the relationships between enterprises, such as network building and regional coordination.

If the university is to handle issues of 'organisation', it can do so in different ways. Totterdill deals with the relationship between concentrating these efforts in 'one specialist centre' as against distributing the function 'across the university', in becoming for example an additional task for a technology department. Hofmaier notes a similar tension and describes a development not unlike the one described by Totterdill.

17.5. Transforming measures into innovation processes

In the cases discussed above the focus is on measures that are brought to bear on a development and innovation task. The degree of success associated with each measure is, of course, linked to the context in which it is applied. In so far as the measures described above are concerned, it is necessary to refer to the chapters in more detail regarding the nature of their contexts. However, is there anything to be said in general on the nature of 'context'?

'Context' can refer to two different dimensions: first, the broader 'sociogeographical' framework, what kind of region are we concerned with and what are its problems. Second, context relates to the 'political-administrative' frame conditions; all measures emanate from a constellation of actors based on perspectives and traditions concerning the roles of these actors.

To start with the last issue, extensively dealt with by Totterdill, he points out that the contemporary interest in regional development, that seems to unite different categories of actors has diverse sociopolitical roots. While some of these roots can be found in ordinary business communities and interests, others have their background in a critique of conventional capitalism and a search for alternative forms of economic organisation. Notions of 'community' and 'collectivity' point to the region as a possible arena for the emergence of new forms of economic organisation. While most of the movements for new forms of economic organisation have come to little, they have exerted influence on developing notions like learning regions, and some of the initiatives found today – such as the women's producer cooperatives in the region of Magnesia in Greece – have their roots in such movements. The underlying point is that agreement on steps and measures in regional development may turn out to be based on a superficial common

understanding which can fall apart when the discussion about how and why is intensified.

The second factor exerting influence on measures is the 'institutional-administrative' application. Totterdill identifies three main frameworks: bureaucratic, technical-rational and dialogical. While it is generally accepted that economic development in general, and innovation in particular, is not furthered through measures administered in a classical bureaucratic way, there still remains a choice between a 'technical-rational' perspective and a 'dialogical' one. The real conflict is between these perspectives. The technical-rational perspective is generally associated with clear and measurable targets, prespecified project organisation, unequivocal identification of actors and their responsibilities. The background is the belief that the world – even the world of innovation – can be described in terms of fixed conceptual categories and that notions like competitiveness, cluster, innovation system or – for that matter – learning region, are to support entities that have a clear cut existence in the real world. Perspectives of this kind have generally been easy to argue for since they seem consistent with the careful and responsible use of resources. However, the other side of the coin is that projects in line with the above perspective tend to become static with little learning and limited possibilities for growth and multiplication effects. The type of communication needed for innovation identified by Burns and Stalker (1961) more than 40 years ago is not encouraged, and different projects seldom interact with one another. They may look good on paper but the degree of innovation emerging tends to be limited.

If we assume that dialogical relationships are needed to release the innovation potential of the actors concerned, how does one set about developing such relationships? Alternatively, how does one go about transforming technical-rational relationships into dialogical ones? The chapters of Cooke (Chapter 15) and Asheim (Chapter 16) are relevant in this context. They both deal with the question of which actors need to be brought together for an innovation process to become fruitful, and how to position these actors in relation to one another. (Stahl in Chapter 3 discusses the communication process between actors.)

The point of departure for Cooke and Asheim is the regional perspective itself. Historically, the emphasis on this must be seen against the background of belief in 'globalisation'. This implies that the innovative strength of large international enterprises in pharmaceuticals is due to their ability to combine elements from all over the globe. In a sense this is true, but, as pointed out by Cooke, processes of innovation also have a regional anchoring. They are

allocated within a unit in a certain location and with specific neighbours; the latter are often other enterprises in the same sector and research organisations. The underlying point is that the need for interaction and communication is so strong that they cannot be met over large sociogeographical distances. Cooke (Chapter 15) mentions that even providers of venture capital, due to a need for 'hands on management' of their investments, tend to invest in their near environment.

However, although the chapters of Cooke and Asheim overlap, they emphasise somewhat different types of innovation processes. Whereas Cooke has the commercialisation of science hypothesis mainly in mind, Asheim argues for a broadly defined interaction hypothesis. At the moment it seems that these two hypotheses complement each other. In some countries – such as the United States – commercialisation of science is the prime innovation driver, whereas in other parts of the world – such as Scandinavian countries – a combination of work organisation and broad mobilisation play a more central role as the source of innovation. As pointed out by Lorenz and Valeyre (2005) there are links between types of innovation, patterns of work organisation in relation to issues such as the organisation of, and cooperation within, the labour market. Differentiations on this level, in turn, give rise to further differentiations, for instance the distinction between 'liberal' and 'coordinated market' economies, as discussed by Asheim. However, the latter point can only be touched on here as it would take us too far afield to go into a deeper discussion.

While innovation systems consisting of enterprises and research institutes can be discussed under headings like 'networks', 'clusters' and 'innovation systems', there is a need to change the perspective when other actors are involved. While large enterprises in sectors like pharmaceuticals and telecommunications have a more limited need of support from public resources than from advanced and highly specialised research organisations, the innovation cases presented in this book differ in terms of their dependence on a broader set of actors. In the case presented by Stahl, much of the innovation is about making a broad range of separate actors work together. When small and medium-sized enterprises, employment agencies, training agencies and others are involved, there emerges a need for a mechanism to hold them all together and this must go beyond enterprise clusters to include administrative and political actors. This is the point where the notion of learning region enters the discussion. There is a need not only for the notion of 'learning organisation' and 'learning cluster' but also for 'learning region' as new regional actors and relationships enter the scene.

17.6. Meaning of 'innovation' and 'learning'

While Cooke uses the notion of region, he is critical of the concept of learning, disagreeing with Asheim. This disagreement can to some extent be explained in relation to the points made in the previous paragraphs. Whereas Cooke is dealing with innovation in high-tech global industrial areas like pharmaceuticals, Asheim takes a more everyday perspective in which innovation is part of a wider range of activities and situations. When broader but more diffusely defined groups of actors do something new together, the notion of learning is probably more fruitful than in a context focused on commercialising science-generated knowledge via world market products. The latter demands organisation more than learning, thus use of the notion of learning could create difficulties. For example, many managers call for learning from their employees without understanding the organisational correlates of the learning process. From Asheim's point of view it is possible to argue that learning becomes more relevant when talking about networks, clusters and regions than single organisations. In not being organised in a single hierarchy, the latter configurations constitute more pluralist environments, and pluralism is more conducive to learning.

Whatever view one may have on this disagreement, it illustrates the dangers associated with hanging practical-oriented processes on one major concept. When a concept like learning – which at first glance looks to have obvious relevance within an innovation context – can be disputed on good grounds, it indicates that a similar fate might befall other concepts as well. It is often better to let the choice of concepts be guided by whatever specific practical concerns are faced, than by an obligation to pay homage to 'global concepts'. Innovation comes about through action and not just through developing or making use of concepts.

Further, innovation is not just about bringing in relevant actors and positioning them in relation to one another. This is only the beginning as the game has to be played in a certain way. Central is creating dialogical relationships. Stahl lists several communicative conditions for successful regional development: open communication; complementary roles between the relevant actors; trust and confidence; exchange of experience; inclusion of all major strategic actors; plus a process of formative evaluation. These promote self-reflection among the actors concerned enabling them to make the right choices.

In a sense these conditions bridge the gap between using structure-oriented maps on the one hand and making situation-based choices on the

other. The problem is that like all general maps, the conditions tend to be idealised. If we believe there are good patterns of communication between a set of actors about the tasks they are already involved in, it is highly likely that the actors have already developed a functioning pattern of regional innovation. In most, not to say all, the situations described in the cases the problem is to create the appropriate conditions for local and regional innovation in an initial context in which communication is hierarchical, trust low and competition is more common than cooperation.

Sometimes problems are solved by calling in someone to undertake a leadership role to create the requisite conditions for communication. However, this 'leader' will face the same problems. In none of the cases in the book do the forms of formal leadership at regional level seem to play a major role. It is not the regional political-administrative leadership that paves the way, nor does it seem to be the leadership role played by major private institutions like banks or big business. Much more common are employment and training agencies, research and development units (inside or outside universities), small and medium-sized enterprises and voluntary organisations. Established leadership tends to hold back until some degree of success is reached.

Practically all the cases demonstrate that emergent regional innovation systems tend to lead a precarious life, at least for a time. Most critical challenges pertain to this phase and the ability to make the process gain sufficient momentum to become self-sustaining and continuously pull a broader range of actors into its orbit. In this phase it is more important to organise than to persuade. A regional innovation system is neither more nor less than new links, ties and relationships between actors and this issue needs to be placed at its core. As indicated in several of the cases, there are often major hindrances and problems facing the organisational process but this is not brought forward by being neglected. Success seems associated with those cases where key actors: (a) maintain continuous focus on relationships and organisation; (b) use all opportunities to bring actors together; and (c) initiate boundary crossing projects and demonstrate the power of free communication. If non-communicative actors are to turn towards more open forms of communication and cooperation they have to be exposed to alternative forms of communication. Free communication can demonstrate its power only through free communication.

17.7. Role of education and training

Among the actors and measures encountered in learning regions, education and training organisations play a prominent role. In some of the cases, training organisations are among the core pioneers of specific regional innovation processes. In most cases training plays a role and can, quite clearly, be brought to play an even more important role than it does today. If we look at the training element in developing learning regions we see, however, that the approach to training is radically different from an approach based on offering a traditional 'course'. In the latter case, people are assembled in a classroom, exposed to a teacher, sometimes an examination, and then sent away to put what they have learned into practice. The critique of this kind of effort with regard to promoting innovation goes back as far as the 1950s, and has been repeated many times. There is hardly a need to repeat it here. Whereas the traditional formal approach to education and training has importance in initial education and training, in continuing adult training an interactive, participative and collective learning approach, building on participants' experiences and inputs is required. This kind of learning often takes place in what is termed 'informal learning arenas' which are embedded in everyday problem-solving contexts. The challenge is to devise learning frameworks in which education and training organisations can become a force for innovation.

Generating the capacity of education and training actors to create frameworks for 'interactive action-oriented' learning was seen by Nyhan in Chapter 1 as the key challenge facing education and training organisations in promoting local innovation. The goal here is not learning for its own sake but learning to implement innovative actions. All of the cases in this book situate learning in this innovation generating context, be it in an employment or broad work-life context (see Stahl, Stamboulis, Hofmaier and Totterdill) or in specific workplaces (see in particular Haga and Eriksson). The cases are speaking the language of interactive and collective learning rather than traditional individual-focused formal training. Stahl however shows that this change of approach is not without major difficulties. He points out the problems in implementing horizontal exchange and learning experiences.

This is the crucial issue facing facilitators of learning regions and a real challenge facing education and training. Despite educational policy declarations at vocational training and university levels about the importance of contributing to one's region's social and economic goals, the indicators

used by educational policy-makers still tend to focus mainly on the formal education of individuals within the education system.

Several cases elaborate on designing arenas for learning or methodologies for regional learning. Haga (Chapter 4) looks at the process of learning and competence development as an essential embedded aspect of the innovation process. He sees competence development for front line workers in a company as a prerequisite for incremental change and innovation. The focus is not so much on developing individual skills as distinct from making people skilled in developing relationships within their enterprises. Haga goes into the actual dynamics of the learning process through presenting two different approaches. The first, based on distributing knowledge from the management of a company in a cascading (top-down) fashion, is contrasted with one based on the horizontal distribution of knowledge via specially trained workers in a network of companies. Their role is to assist colleagues to pass on knowledge from one to the other. Totterdill (Chapter 14) illustrates a very effective regional project development process aimed at enabling a diverse group of university specialists and enterprise managers to work and learn together. Deitmer (Chapter 11) discusses a collective self-evaluation framework to promote mutual learning by the actors in an innovation project.

17.8. European cooperation

Several projects outlined in the cases owe their existence to EU programmes, from different points of view. First, such programmes constitute the reason why an initiative was taken in the first place. Without the possibility of applying to an EU programme, the actors would not have come together to undertake an innovation process. Second, the programmes provided financing, although generally limited in relation to the overall needs of the projects and the time involved. Third, the European framework has made it possible to exchange experiences with similar projects in other countries. However, in several cases it is reported that when the European financial support came to an end there was a loss of momentum in the project.

The idea of promoting regional development through EU programmes constitutes a paradox. If innovation needs units with a demand for nearness, density and high transaction speed between the actors, what can initiatives emanating from ‘Europe as a whole’ hope to achieve? It is important to note

that in all cases where EU impulses are reported to have played a role, it is through some kind of direct relationship to (and information about) other actors in Europe that have done something along the same lines. In some cases European arenas for exchange were developed which seemed to have received a very positive evaluation.

In this lies the key to the project this book is reporting on. Since it is not possible for the agencies of the European Union to provide long-term financing for many regional developments in Europe, the European 'engine' has to be exchange of experience. The challenge is to make 'exchange of experience' into a locomotive that represents a force of sufficient strength to pull a substantial number of regional actors into parallel processes of innovation. For this to happen, 'exchange of experience' must provide impulses that not only recirculate trivialities, but promote innovation processes in each region. This, by the way, is not only the challenge for 'regional development' on the European agenda; it is the core challenge facing the 'idea of Europe' as an arena for innovation. There is little doubt that high-power incentives, with the development of vast management resources and a willingness to accept that the losers in the competition have to live in relative poverty, have given the United States a leading edge as far as business innovation is concerned. If we assume that Europe has to meet the challenge without losing its equality and welfare oriented perspectives, other assets have to be created and utilised. Since societal innovation processes are seldom completely new, but rather in most cases are new combinations of known elements ('hybrids', in the terms of Latour, 1998), the cultural and other differences in Europe can be turned into assets rather than liabilities. For this to happen, the actors have to start working together; it is only through facing other actors and sharing experiences across boundaries that new hybrids can emerge. This means, in turn, that the lines of cooperation have to cut across different regions, different issues and different processes (Ennals and Gustavsen, 1999). This anthology is one initiative to establish some points of departure for such a process by bringing together cases that represent European 'average' rather than leading edge actors. The cases presented here are typical rather than atypical and represent processes that emanate from culturally embedded conditions rather than decontextualised global environments.

How do we bring about 'interactive learning' based on comparing cases across Europe in what is, after all, a limited project? As emerges from practically all contributions to this anthology a learning region is characterised by the active involvement of many different types of actors in

a process of learning. It is quite obvious that we cannot base the notion of learning across regions by sending large numbers of people to visit one another. In some way or other the cross-regional exchange process has to be based on representatives. In the cases in this book the representatives are researchers, each researcher or research group having an active involvement in processes in their own region. This involvement, however, is based not only on interactivity but on complementarity. Within the broader community of actors constituting a learning region, research has a special role to play, associated with the generation and management of certain forms of knowledge. When designing a project to promote cross-regional learning it is possible to build on this. This implies that cross-regional comparison is added to the tools of knowledge generation that research uses in its capacity as a knowledge generator. Since the role of research within each region is interactive, European cross-regional comparisons will have to be interactive as well. They will have to generate impulses that are useful within the context provided by each region at this point in time. In practice, this can imply that the researcher representing one case presents the cross-regional research group with a challenge currently engaging actors in his or her case. Other participants in the European project look into their own regions to see to what extent they can identify events and experiences that highlight the issue introduced. This seldom means putting forward a complete solution to be copied, but rather coming up with impulses that can form part of a new pattern that includes different impulses combined in new ways.

In this anthology the focus has been on presenting practical measures brought to bear on different situations. Results are to some extent indicated, but not made the subject of a thorough discussion. A focus on results, however, should not be just on technical-rational measurements (see Chapter 14 by Totterdill). First and foremost, we need to look into what is considered a positive result by the actors involved in relation to their context. These can be of many different kinds, ranging from economic success to improved relationships within a community. Innovation processes are complex and long term and involve several actors in different types of relationships with different agendas. Consequently, there is a need to identify several different types of results, not only end results but also results that occur along the way.

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Cedefop (European Centre for the Development of Vocational Training)

Learning together for local innovation: promoting learning regions

Bjørn Gustavsen
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This book examines European case studies on regional and local innovation. It is based on the work of a European network project. Regional innovation depends on dialogue, networking and learning between all social and economic actors. The interfaces between the different interest groups in a region or locality are the places where learning takes place: people learning to act together to address their problems. This can be understood as collaborative learning for action along 'learning region' lines.

Education and training agencies can facilitate this process by being moderators of action-oriented learning and carrying out accompanying research. The cases in the book look at how education and training agencies, including universities, cooperated with other regional actors to promote innovation. Different regional concerns are covered, ranging from manufacturing, regional universities, women's cooperatives to promoting social cohesion in a multicultural community.

The book is of interest to readers from the fields of education and training, innovation theory, industrial development and social policy who have an interest in promoting regional innovation.

B. Gustavsen, B. Nyhan, R. Ennals (editors)

EN

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