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Geographical perspectives : regional development and transnational learning

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Book chapter 2 GEOGRAPHICAL PERSPECTIVES: REGIONAL DEVELOPMENT AND TRANSNATIONAL LEARNING

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ABSTRACT

This chapter argues that it is possible to introduce important inputs for regional development and regional development policy with the help of transnational learning. Transnational learning can improve the practice of regional development network and give seeds for new development path in the case of negative lock in of the path or external crisis. By reflecting, externalizing and translating the good practices of other regions, combining them with existing elements and internalizing the new practice, the absorptive and development capacities of regional actors increase and a positive knowledge spiral important especially for peripheral regions can be started.

INTRODUCTION

This chapter discusses the relationship between regional development and transnational learning. Transnational learning is seen as a resource for regional development, and this chapter examines how it can boost regional development, and under what preconditions. It deals with local communities and sub-national units, the main emphasis being on the latter. The concepts of region, regional and local development, regional development network and transnational learning network, path dependency, absorptive and development capacities of regional actors, and development policies are explored.

With reference to chapter 1, this chapter combines the structural view, according to which regions are products of broader structures, with the idea of regions as voluntarily constructed entities involving individual actors. It also discusses the territorial and relational approaches to regional and local development. Within the territorial approach, the region is considered the starting point for analysis, and local and regional processes, carried out through institutions and agents are the key driving forces. The point of departure with the relational approach is the idea of regions as entities that are governed by forever changing flows and networks, instead of considering regions as static

units. The territorial approach is useful when discussing regional development and learning, as well as the development policies of the regional development network. The relational approach, on the other hand, can be used in the analysis of emerging transnational learning networks.

Regional and local development can be seen as a process of interplay between resources, networks and institutions. Development is path-dependent and based on learning, and there can be both positive and negative lock-ins in a regional development path. This chapter discusses how regional actors can escape negative lock-ins and external crises with the help of transnational learning. Transnational learning can lead to the discovery of new directions and the creation of new emerging regional structures, for instance through new practices employed by regional actors. The chapter also examines the preconditions for effective transnational learning, such as regional strategies, as well as reflexive regional actors who draw upon structures with absorptive and development capacities. It also considers how these absorptive and development capacities can be improved through transnational inputs enabling a learning spiral.

In this chapter, learning is seen as a process of knowledge creation and conversion. Knowledge types, including ‘know-how’, ‘know-what’, ‘know-why’ and ‘know-who’, introduced by Lundvall and Johnson, are applied in a regional context, especially in regional and local development and development policies. The SECI model, proposed by Nonaka and Takeuchi and introduced by Mariussen in chapter 1 of this volume, will be used in this chapter for analyzing transnational learning inputs in regional development strategies and practices, the preconditions for the creation of development paths, and the absorptive and developmental capacities of regional actors. By reflecting on, externalizing, and translating good practices from other regions, combining them with existing elements and internalizing the resulting new practice, the absorptive and development capacities of regional actors increase and a cumulative knowledge spiral, important especially for peripheral regions, can be initiated. The article suggests a broad typology of regions apt for transnational learning based on different innovation modes.

REGION, SPACE AND PLACE

The notion of the ‘region’ is one of the key concepts in geography, and geographers are regarded as specialists of regions. The region can be seen as a research object, as a research perspective, and as a means by which results can be represented. Other key concepts in geography are place, space, environment, and scale (Massey et al. 1999). Within the discipline different groups emphasize different concepts. They interact with other social scientists and therefore bring separate perspectives to bear on a shared subject matter.

Traditionally the region has been defined as a differenced segment of earth-space and therefore the study of regions was for a long time identified as the study of areal differentiation. Especially

in landscape geography the region has been seen as an object, and at its extreme, as a living organism.

Nowadays, regions can be handled in at least three different ways. Firstly, a region is comprehended as something which is taken for granted, similarly to administrative regions. In this view the region is a frame of research, but not a research object in itself. (Paasi 2002)

Secondly, the region is considered at the same time a research object, and a construction that is created by the researcher, which is used as a methodological tool and basis for legitimating the research in order to classify or represent various phenomena. Natural, social and human characteristics in a given region are often divided in the research results. The region is also used by researchers as an instrument for functional classification, in other words for describing the functional spatial structures of societies, mainly ones related to center-periphery or urban-rural relations. (Paasi 2002)

Thirdly, a region can be seen as a setting for social practices and discourses. These interpretations have as their starting point individual and social practice and by analyzing these they aim at conceptualizing the construction of the spatiality of the world. In this view, where regions are seen as settings for social practice, there is an indication that they may also be seen as a medium for social interaction (Thrift 1983). For example, Pred (1984) understood the region as a historically contingent process, where it is seen as a dynamic category, which is more 'becoming' than 'being'. Regions can also be seen as spatial units that have been produced socially and culturally to become part of a territorial system. They exist for some time in social and cultural practices and discourses, and then disappear in the continuous processes of regional transformation (Paasi 2001).

Territory refers to delimited, bordered, spatial units that are under the jurisdiction of an administrative and/or political authority, for instance a nation state, city or region. Similarly, the concepts of locality and region, in which different kinds of development may take place within specific time periods, can be considered territorially bounded units with an administrative, political and social identity. Territorial boundaries form defined areas within which particular definitions and kinds of local and regional development may be articulated, determined and pursued. Territory is not, however, an entity fixed in space or time (Taylor and Flint 2000).

According to Massey (1984: 117–8):

Most people still live their lives locally; their consciousness is formed in a distinct geographical place. At any one time different areas may be changing in contrasting ways; different battles are being fought out, different problems faced. For one thing, local areas rarely bear the marks of only one form of economic structure. They are product of long and varied histories. Different economic forms of social organisation have come and gone, es-

established their dominance, lingered on, and then died away. The structure of local economies can be seen as a product of combination of 'layers', of the successive imposition over the years of new rounds of investment, new forms of activity. Each spatial structure is a system of interdependence into which the industrial activity of any local area is inserted.

Besides the region, an important issue in geography is the spatial organization or the spatially ordered arrangements of human activities. Christaller developed the central place theory in the early 1930s in order to understand settlement patterns. His research was complemented by studies of flows, and the movements of goods, people and information. These were modeled on the basis of the principle of least effort: people wish to minimize their travel costs. After the Second World War, a lot of geographical research emphasized models of spatial behavior, organization and flows based on the principle of least effort. (Johnston 2006)

In the 1980s and 1990s, it started to combine elements from Marxist, feminist, and postmodernist approaches. Geographers also played a role in the burgeoning field of cultural studies, which brought together scholars from the humanities and social sciences resulting in new approaches to the study of human behavior (Johnston 2006). As geographical and social entities, places can be both bounded and fluid, as they are remade and dissolved.

Writing about space and its conception in modern geography, Thrift (2006) claims that however different the writings about different kinds of spaces may appear to be, they all share a common ambition: 'that is to abandon the idea of any pre-existing space in which things are embedded, and instead to argue for an idea of space as undergoing continual construction exactly through the agency of things encountering each other in more or less organized circulations.' (Thrift 2006: 96). This is a relational view of space, where it is seen as a co-product of societal proceedings, rather than being a container within which the world proceeds. Geographers commonly disaggregate bounded spaces into smaller subordinate ones, which usually maintain some of the qualities of the bounded space as a whole, but also display qualities that only operate on a smaller scale. Instead of trying to draw boundaries around flows, some geographers have tried to change traditional ways of conceiving space by suggesting that we should regard the world as made up flows. They consider movement as the origin rather than endpoint, and stress travelling and changing identities over fixed notions of belonging. (Thrift 2006)

Spaces can also be considered as pictures, as we register the space around us through images. Image space refers to the process whereby the proliferation of images produces new apprehensions of space. Changing image space is not an easy process, and it might in fact be easier to change economic conditions than the image or mental maps of people (Lind and Wiberg 2011).

Space can also be considered as places which are defined through individual experience. Places have cultural, social and subjective meaning for people. They can create feelings, and provide cues

to memory and behavior. The concept of place is often linked with the rhythm of being in everyday life.

In this chapter, space is seen in two different ways. Firstly, as a locality or a region, which is a bounded territory with, for instance, administrative borders. In this view each locality is a unique combination of local institutions and culture. Secondly, space is seen according to the relational view, where it is considered a context of learning for actors and actor networks. The spatial context of learning can transcend regional and national borders and travel through different unbounded spaces. Space as a context of learning can be seen as an arena of knowledge creation. According to Nonaka and Takeuchi (1995) this specific place, the space of knowledge creation and learning is a *ba*.

Structuralism vs. agency perspective

Definitions and conceptualizations of the region are bound up with interpretation of the relations between the regional territory and the economy, society, polity and culture. (Agnew 2000; Paasi 2002; Storper 1997). There are different views in geography and social sciences concerning how best to understand and practice a regional approach. (MacLeod and Jones 2007). This can also be seen as an ongoing struggle between *structuralism*, interpreting regions as the by-product of broader changes, and *voluntarism*, which sees regions as endowed with different kinds of agency (Lagendijk 2007). From the structural orientation, regions can be seen as the outcome of broader trends and developments, such as globalization, state restructuring, and urban expansion. From this point of departure, regions are by-products of global change, and regional developments can be explained by looking at broader developments. According to regulatory and institutionalist writings, local forms of development, interaction, and agency are shaped in the context of broader forms and changes. In such a view, regions are seen as political, institutional and discursive constructs where development is structurally conditioned and enabled, but not fully determined, by external conditions (Agnew 1999; Lagendijk 2007).

In *agency*-perspectives, regions are seen as constructed, discursively and materially, and performing through their own momentum and stable outcomes (Lagendijk 2007). Soft approaches have focused on specific practices related to economic innovation and clustering, strategic spatial planning, sustainability and collaborative, inclusive approaches to planning. In voluntarist accounts, regions are seen as entities that determine their own existence. Massey (1979) discusses to what extent the region itself presents a causal force or an agent versus the wider spatial structures constituted by regions, such as the spatial division controlled by corporate power. Soft institutionalism sees the external dimension as a set of global forces to which locally embedded, interactive agents may respond through collective forms of action (MacLeod 2001), ignoring broader economic specificities and contingencies. A localized approach to development presents an endogenous response to a uniform and inexorable set of external challenges. Recent research has also taken into account

discursive aspects of socio-economic development, providing a richer picture of how certain arrangements become temporarily hegemonic (Jessop 2008; Lagendijk 2007). According to Lagendijk (2007) we need a more sophisticated account of both structural and agency-oriented (or strategic) aspects of spatial development (Lagendijk 2007).

Applying the SRA (strategic relational approach) to spatial phenomena is one attempt to combine structure and subject/agency (see Mariussen, chapter 1 in this book). Following the SRA regions are seen to be related to each other as well as to a wider set of social, economic and political processes. The SRA sees structures as inherently concrete, and rooted in space and time. The SRA adopts an evolutionary approach to social change as it grants social agents a significant role in reshaping structures, yet the scope for reflexive action and learning is seen to be conscribed by ‘structurally inscribed strategic selectivity’ (Jessop 2008; Lagendijk 2007). The meaning of strategic selectivity and strategic action can be seen from an agency perspective (Lagendijk 2007), where actors are intentional, but also largely driven by intuition and habits. Strategic action is based on a combination of reflexivity, learning and practical consciousness (see Mariussen, chapter 1 in this volume).

A question to take into consideration in the process of strategic orientation is how the wider context and consequences of past and possible future actions are discursively mediated and understood. In each case, only certain ideas and narratives shedding light on a situation will prevail, turning into temporarily hegemonic imaginaries (Lagendijk 2007).

Table 2.1. Structuralist and agency based approach to regions (based on Lagendijk 2007)

	<i>Structuralism, functionalism</i>	<i>Agency-approach</i>	<i>Structuralism and agency together/Strategic relational approach</i>
<i>Definition of regions</i>	By-products of broader changes	Constructed by regional agents	Broader change and specific practices
<i>Approach</i>	Region in different structures, spatial divisions	Soft approaches: regional practices, such as sustainability and collaboration, regional innovation system	
<i>Role of agencies</i>	Determinism	Voluntarism	Agencies reshape structures but the scope for reflection is selective
<i>Regional and local development</i>	Exogenous approach	Endogenous approach Territorial approach	Selective, open

Regional development can be seen as interplay between regional development policies and their objects, such as the regional economy. Inside the policies and their object we find agency and structure. The regional development path, which will be discussed later, can be seen as a structure that is reproduced and transformed by regional agents. Structure and agency in regional development policies will be discussed further with the help of table 2.7.

The territorial and relational approach in practicing a regional approach

The territorial approach is based on the idea of the uniqueness of the place, where the specific composition of each territory affects the geographical and institutional characteristics of the region. Each place is unique, though different localities and regions may share common development histories and face similar challenges and issues, such as globalization, urbanization and decentralization. The territorial approach has been seen as a response especially to globalization. Regional and local institutions are able to construct and nurture collective capacities in order to cope with, adapt to, and mitigate constant and disruptive global changes and the successive crises (Pike et al. 2011; Tomaney et al. 2011).

More than thirty years ago, Friedmann and Weaver (1979: 7) outlined two major forces of social integration, functional and territorial, which alternate in regional planning. Despite being intertwined with and completing each other, they are nonetheless in constant struggle. The territorial force in each place derives from common bonds of the social order forged by history. On the other hand functional ties are based on mutual self-interest, and the functional order is hierarchical, accumulating power at the top of the social hierarchy. While territorial ties are characterized by power inequalities, they are also tempered by the mutual trust and obligations that the members of a territorial group feel for each other. The territorial principle can be seen, for example, in regionalist movements. There is enduring tension and conflict between sectoral, functional, and territorial principles (Sagan and Halkier 2005).

Allen et al. (1998) consider localities and regions as unbounded, especially where their influence is beyond their territorial boundaries, and relational, in that they are mutually constituted by wider webs of spatialized social relations. Indeed, territorial borders are changeable and artificial, and newly created regions can acquire attributes of and behave like regions that have been established a long time ago. The *relational approach* defines regions by their linkages and relations within and outside of any predefined territorial boundary, and in this sense, they are seen as open, porous and unbounded. The topographical space of absolute distance is displaced by a topological understanding of relative and discontinuous space, emphasizing connections and nodes within networks (Allen and Cochrane 2007; Amin 2004; Lagendijk 2007).

What are the implications of the differences between bounded and unbounded regions in regional learning? The bounded region places more emphasis on localized learning, which takes place in a specific territorial unit. The relational approach and unbounded regions, on the other hand, imply learning in networks which are not necessarily localized. The actor network theory (see Mariussen,

chapter 1 in this volume) can be seen as adhering to the relational view. However, in this chapter it is applied in a local sense i.e. localized actor networks.

The territorial approach uses the region as a starting point, while the relational approach uses networks and spaces of knowing as the point of departure. Regions come with no automatic promise of territorial integrity, since they are made through the spatiality of flows, juxtapositions, porosity, and relational connectivity (Amin 2004). In current literature a strong relational view can be detected, for instance in the writings of Bathelt and Glückler (2011) and Amin (2004).

Besides the concept of region, also the notion of scale has different interpretations in the two approaches. In the territorial approach, scale can be fixed and hierarchical i.e. ontologically pre-given, or socially constructed. Geographical scale is conceptualized as socially constructed, but it is also itself implicated in the constitution of social, economic and political processes. In the relational approach, hierarchical systems of scale have been questioned and even rejected by multi-scalar approaches that seek to reflect more fluid relationships between the international, national, regional, local and community (Pike 2007; Pike et al. 2007). According to the relational approach to scale, regions appear to have no necessary place in more polycentric and multi-scalar systems of power and regulation.

These two approaches will be used in my strategy of research on transnational learning and regional development. Regional learning does not have to be seen as opposite to the relational approach (Jones and MacLeod 2011) as mobility and fluidity need not be seen as standing in opposition to territories. 'Networks do matter, but so do geography, boundaries and scales as expressions of social practice, discourse and power. Geography, boundaries and scales are not intuitive fictions and their rejection/acceptance can hardly be written away.' (Paasi 2004)

I consider the territorial approach important for our research since regional developers often have the task to develop specific administrative regions, which are bounded areas. Also, for example, regional Structural Fund objectives are mostly implemented in defined bounded regions, in which regional learning occurs. However, many economic activities are organized on a translocal or even transnational level as well as just locally. The identities of inhabitants can be local but nowadays they often have multiple regional identities due to moving around and thus forming linkages to many different regions, therefore being rooted in several different regions at the same time.

In this chapter I apply the territorial approach in the analysis of collective learning processes among actors in regional networks. These are different to transnational learning networks which can be characterized as relational spaces of knowing and learning. Transnational learning can be seen as a process of building a new relational and transnational space that transcends the borders of regions and nations. This space of transnational learning and knowing consists of networks of different actors and learning partners who are located in different regions, and who can be both receivers and senders of good practices in regional and local development.

REGIONAL AND LOCAL DEVELOPMENT

There is not only one grand theory of regional and local development but rather several approaches with different emphases and conceptual foundations. The concept of development can generally be defined as change with a direction. This can be contrasted with change that is random i.e. when future events are independent from previous ones. In social and regional events change is neither random nor deterministic, instead it is evolutionary: future events are not independent from past events and it is the changes in the sequence of events that creates a different outcome. The evolutionary dimension allows for an analysis of the impacts of historical structures and processes on current decisions (Bathelt and Glückler 2011: 38–9).

Development is often considered in economic terms as a question of growth, which can be measured through indicators such as income, employment, and population. The economic focus of development has been dominant, but in recent years this focus has broadened in an attempt to address social, ecological, political and cultural concerns. Reducing social inequality, promoting environmental sustainability, encouraging inclusive government and governance and recognizing cultural diversity have been emphasized to varying degrees within broadening definitions of local and regional development (Pike et al. 2006).

According to Pike et al. (2006) what local and regional development is for, and what it is trying to do with its aims and objectives, are framed and shaped by its definitions, varieties, principles and values.

A quantitative approach focuses on numbers: the quantity of a specific something. The quantitative dimension of local and regional development may be measured by indicators, for example the number of jobs created or safeguarded, the number of new secured investment projects, or new firms established. The focus can be on absolute or relative change over specific time periods between and within localities and regions (Pike et al. 2006). The qualitative dimension, on the other hand, is concerned with the nature and character of regional and local development, for example the economic, social and ecological sustainability and form of growth, the type and quality of jobs, the embeddedness and sustainability of investments, and the growth potential and sectors of new firms. For example, the quality of jobs can be judged by the terms and conditions of employment, relative wage levels, and opportunities for career progression and so on. The objects of regional and local development may be people and/or places and the subjects are the themes upon which development is based. The sustainability of growth may be evaluated in terms of its ecological impact, and the quality of jobs can be assessed by employment terms and conditions, relative wage levels etc. (Pike et al. 2006: 40–1).

Blakeley and Green Leigh (2010) summarize regional and local economic development theories with the form $lrd = c \times r$, where lrd equals local and regional development, c equals an area's capacity (economic, social, technological, and political capacity) and r equals its resources' (natural resource availability, location labor, capital investment, entrepreneurial climate, transport, communication, industrial composition, technology, size, export market, internal economic situation, human resources, environment, housing areas). Capacity can be weak, neutral or strong. From a development perspective, resources are often unused, and this is where local capacity comes in. The higher development capacity a locality or region has, the greater its ability to turn resources into development opportunities. It is important to identify what kind of resources there are in a

region and to utilize them as development inputs. However, this is not always straightforward as sometimes actors see different things as resources depending on their development views.

The evolution of development capacity requires the help of agencies and institutions. For example, an economic development organization can address the issues and problems of a lagging economy and enhance available resources. On the other hand Individual persons can represent different organizations while at the same time organizations and individuals can work together as a network. Regional and local development can be seen as interplay between resources, networks with capacities, and institutions. The term institution does not only refer to an organization, but also to conventions and norms, and to shared ways of acting. Institutions reduce uncertainty by establishing a stable interaction between actors within a region. They do this by providing actors with a clear and supportive ‘playground’, and determining the opportunities they have in society. Institutions can be local, regional, national or transnational, and they have the ability to lock regions into past development paths politically, functionally and/or cognitively (North 1990). Organizations, on the other hand, are created to take advantage of the opportunities given by institutions i.e. shared norms and ways of acting and as they evolve, they can even alter the existing institutions. Amin and Thrift (1994) suggest the idea of ‘institutional thickness’ as a precondition for regional development in general. Institutional thickness refers to the existence of a multitude of organizations, a high level of interaction between actors, and a mutual awareness of being involved in a common regional effort.

Territorial and relational approaches to development and learning

The territorial and relational approaches discussed above have implications for the role of regions in development, the regions here being mostly sub-national units. The territorial focus can be seen as a reaction to ideas of globalization as place matters more than ever because of it. The region is understood largely as local networks and institutions which determine its development. The territorial approach draws attention to geographical proximity and regional networks.

The territorial approach identifies indigenous (native or inherent) and endogenous (from within) development. Core ideas within the territorial approach are the understanding of development as a bottom-up process, and understanding the key role of local and regional actors, including social agents and civil society, and their initiatives, decision-making functions, and policy competences at a local and regional level. It is conceived as an integrated approach taking into account sector and other socio-economic interdependencies as well as emphasizing ecological aspects and a sustainable use of natural and other resources. (Tödtling 2011; Barca 2009; Cooke and Morgan 1998).

The idea of endogenous development was inspired by related concepts such as the Industrial District, regional learning, and innovation systems, which have partly distinct elements but also share common characteristics. Such common elements are the search for local and regional specificities, uniqueness and identity, which are used also as a source for competitive advantages for firms, social capital and networks. A high importance is placed on entrepreneurship and innovation, and the view that learning and innovation are, despite globalization and modern ICT, to a high degree local processes, based on localized tacit knowledge and its exchange. Endogenous development

also depends on national political and institutional structures (e.g. policy competences of regions, national economic policies), macroregional conditions and institutions (EU and SFs), as well as on global regimes and institutions (Tödttling 2011).

Regional learning has been an important aspect of endogenous local and regional development (Morgan 1997; Lundvall and Borras 1997; Rutten and Boekema 2007). Geographical proximity reduces the costs of face-to-face communication and frequent communication helps to develop joint codes of interaction as well as to overcome mutual misunderstandings. A common language and cultural norms improve mutual understanding as the partners involved in interaction share the same codes. Thus the geographical proximity of actors favors an innovation process in which tacit knowledge is important, and knowledge and best practices are shared locally. It has been suggested that only partners belonging to the same social, cultural and institutional environment are able to understand each other well enough to create innovative projects together (Cooke and Morgan 1998). The results are unique local competences, skills and tacit knowledge. A regional identity is seen as a favoring factor for regional development as peculiar local and regional characteristics cannot easily be copied by competitors, and thus they are considered a source of unique competitive advantage for regional firms (Tödttling 2011). Storper and Venables (2004) suggest that knowledge is embedded in the local environment and diffused spontaneously through 'local buzz'. Local buzz is transferred through personal contact and presence in meetings and through computer chat. Many European and national programs for fostering regional development and innovation stress the importance of geographical proximity within regional networks and innovation systems.

The relational approach focuses on agents rather than space. Further, instead of dealing with regions and nation states, it stresses the opportunities and constraints of economic action and interaction within and across territorial boundaries (Bathelt and Glückler 2011: 6). Agents, like firms and organizations, are seen to be embedded in different spaces. The region is not seen as the starting point for analysis, instead it emerges only secondarily, through the social context of partners.

Instead of focusing on localized learning networks the relational approach analyzes knowledge flows according to a broader spatial perspective. Also, agents are seen to participate in various processes simultaneously and therefore influence different regions with different development paths at the same time (Clark and Tracey 2004). In the relational approach, organizational proximity, along with common rules and routines of behavior, is seen as more important than geographical proximity because it enables organizations to create possibilities for interaction between its members regardless of their geographical locations. (Table 2.2)

Table 2.2. Territorial vs. relational approach, and transnational learning in regional development

	<i>Territorial approach</i>	<i>Relational approach</i>	<i>“Transnational learning” in a regional context</i> <i>Mixture of territorial and relational approaches</i>
<i>Proximity</i>	Geographical	Organizational, relational	Temporary proximity
<i>Networks</i>	Localized	Emerging in different scales	Local and transnational networks
<i>Knowledge generation learning</i>	Stickiness Learning in local networks	Learning in networks embedded in different spaces	Learning in local networks Learning in transnational networks of partners
<i>Spaces</i>	Geographical territories “places”	Knowledge space (placeless) “spaces of flows”	Constructing spaces of learning and knowing embedded in concrete territories with the learning partners
<i>Embeddedness of actors</i>	Territories, localities	Different scales	Local and translocal

Proximities and transnational learning: temporary proximity

Geographical proximity refers to the distance of two units in kilometers. It is relative in cost and time and may represent a constraint for economic actors intending to interact (Torre and Rallet 2005). Boschma (2005) suggests that geographical proximity should be examined in relation to cognitive, organizational, social and institutional proximities as they complement and substitute for each other. Organizational proximity refers to the proximity along with common rules and routines of behavior, for example the units in different locations of the same organizational arrangement. On the other hand cognitive proximity can be rooted in common professional backgrounds. Social proximity is based on personal linkages formed through joint education, social background or social events. Cognitive proximity refers to the distance between the cognitive base of actors and some level of cognitive proximity is necessary for interactive learning processes to take place. Institutional proximity covers joint formal and informal rules which reduce uncertainty about possible free-rider behavior. A common institutional framework helps to create the basis for repeated long-distance communication within a standardized setting (Boschma 2005).

Temporary proximity between actors means that they see each other temporarily in conferences, fairs, short visits or project meetings, and therefore the benefits of face-to-face communication are not neglected. Temporary proximity is facilitated by advanced transport technology. The basic hypothesis is that it is sufficient to realize the benefits of face-to-face communication in a restricted time frame (Bathelt and Glückler 2011: 175–94), as partners involved in learning can use these short-term communications to implement joint codes of interaction, which they then take further by maintaining contacts via Internet or telephone. Short-lived events can be repeated and have a long-lasting influence on the learning process, as temporary clusters i.e. interdependencies between the actors can form around a project. (Maskell et al. 2006). Temporary clusters and global pipelines are seen as a connection between the local and translocal level, and are suggested as an important means for knowledge transfer and interregional learning (Bathelt et al. 2004).

Transnational learning occurs in networks consisting of actors from both the receiving and sending region of the good practices which are being evaluated and transferred. Unlike regional learning often occurs in actor networks located in one administrative region, and regional learning can therefore be analyzed using the territorial approach. The emergence of transnational networks and learning processes can also be analyzed using the relational approach, which suggests that context of learning is formed as a relational space depending on the locations of the participating partners.

REGIONAL AND TRANSNATIONAL NETWORKS

Networking has become an increasingly used mechanism of governance in our complex and fragmented societies. Networks can be local and regional as well as transnational, and they can be multi-layered and multi-scalar. In the context of this book we are interested in two types of networks: networks that develop regions and localities, defined as loose policy networks, and transnational learning networks, which are formed around learning partners and as relational spaces in different countries.

Actors can be defined as specific historical entities, and they can be individuals or collectives, with a capacity for agency, in other words being able to choose between different actions. The behavior of actors is embedded in institutions, however, rather than determining their behavior directly, institutions structure the environment of actors by defining the options available to them. Actors have the capacity to produce effects upon other social actors, operating through strategic employment of resources within the rules of particular social institutions, while at the same time being limited by the resources actually available to them and by the cognitive map of the environment in which they operate (Halkier 2005; Mariussen, chapter 1 in this volume).

Individuals in organizations are important decision-makers, and their activities are purposeful, although these may have unintended consequences. Despite the importance of the individual there are also important collective actors who act in a different way to individuals and therefore have to be described separately (Bathelt and Glückler 2011: 46; Oinas 1999). In shaping regional development, collective actors are crucial and they are organized around structures and routines independently from individual agents. However, both individuals and collective actors are embedded

in structures of socio-institutional relations and actor-networks that influence their decisions and actions (Bathelt and Glückler 2011).

Membership in an organization provides individuals with access to its network. In order for network relationships to emerge, actors have to understand and accept interdependency. Developing a region cannot be controlled by a single actor or based on hierarchical power relationships, but instead it is the result of the work of several different agents and groups. Kostiainen (2002) and Sotarauta (2005) refer to a group of actors developing a region as a *development network*. Building a regional or local development network is a way of mobilizing resources, especially in situations where resources are widely dispersed among public and private actors. According to studies on governance (for example Rhodes 1997), policy networks are a specific form of governance characterized by public-private interaction in public policy. In other words, actors are linked through informal practices as well as through formal institutions. Further, the policy network consists of public, semi-public and private actors such as the local government, political and societal groups, pressure, actor and interest groups, societal institutions, private and business organization etc. who are dependent on each other's resources and competences (Hjortnaes Kristensen 2012). Regional development agencies (RDAs) are important actors as they hold the task of developing the region or a sector in the region. For other actors within the network it is not necessarily the primary aim to develop a region or locality but instead they might try to reach their own goals by using the network to their advantage and thus indirectly influencing the development of the region. The actors in the regional development network have a strong influence on the development of the region through their own activities and mutual cooperation. However, the solidity of the network and the degree of networking can vary a great deal, depending on the region. A development network is a loosely organized strategic network which affects the long-term development of an area (Kickert et al. 1997; Kostiainen 2002). Developing a region is a process and networks as well as regional and local policies emerge, transform and change throughout its course.

Actors interact because of their mutual resource dependencies and thereby counteract the institutional fragmentation. An actor network is therefore held together by the mutual dependency of its members. The actors in a network are autonomous in the sense that they are not directed by others to think or act in a certain way. Still, in order to be a member of a network, actors must demonstrate that they can contribute resources and competences that are valuable to other actors in it. They are interdependent and at the same time mutually dependent on each other for creating successful changes. The relations within a regional development network are horizontal, though this does not imply that the actors are equal. Networks are relatively self-regulating due to their horizontal character; they are neither commanded from the top nor regulated by the laws of the market (Hjortnaes Kristensen 2012).

Regional development networks differ from regional partnerships in that the latter have the task of developing a region or area. Partnerships can be emerging but they can also be an institutionalized form of governance. In many EU countries there is a formal partnership organization designing, developing and implementing the regional programs. The regional partnership organization also makes decisions about regional programs and visions. According to Hjortnaes Kristensen (2012),

networks are generally based on short-term relations and calculations whereas partnerships are based on long-term promises for future cooperation.

Regional development networks usually function within different constellations related to different sectors, projects and other activities. There can also be general developers focusing on the whole area and its development preconditions. Regional development networks consist of more or less stable patterns of social relations, which take shape around policy problems and/or programs (Kostiainen 2002; Kickert et al. 1997; Sotarauta 2005). A region can have many development networks consisting of individuals who belong to certain actor organizations. These networks can focus on a certain sector, for example tourism (Müller and Åkerlund, chapter 11 in this volume), competence building (Virkkala, chapter 9 in this volume) or industrial restructuring (Nordberg, chapter 10 in this volume), or they can focus on developing more general conditions for the development of a specific region. In the context of this book, actors of regional networks are seen as capable of creating good practices, but also of learning from the good practices of another region in another country.

Transnational learning networks are unbounded and often open. Also they are knowledge oriented and built around learning partners and networks located in different countries. They can be formed as part of specific programs, such as Territorial co-operation programs (see Hachmann, chapter 7 in this volume), the Regions of Knowledge of the EU, or international platforms, such as the Smart Specialization platform. Transnational learning networks can create spaces of knowledge and also be territorially non-fixed. When analyzing transnational learning inside the networks the actor network theory of Latour (2005; Mariussen, chapter 1 in this volume) is useful.

The term transnational knowledge refers to two different types of knowledge: knowledge to be used for products and process innovation within organizations in different regions, and knowledge needed for the design and implementation of institutions at the private and/or public level. In their protocol institutions include formal and informal rules and habits established to reduce uncertainty in society and in their region (North 1990; Wink 2010). In this chapter, we deal with learning processes related to design, generation, implementation, and the effects of institutions and regional practices on regional development. To promote innovations is often one of the aims of regional development policies.

Both regional development networks and transnational learning networks can be open, self-organizing, expanding, and have the capacity to mobilize more actors within the network. They are transformed over time, but the former mostly develop in an administrative territory demarcated by clear-cut boundaries. By contrast, transnational learning networks are built on relational spaces which also act as knowledge spaces. They are oriented towards studying, discussing and negotiating over what constitutes appropriate regional knowledge and practice, as well as capturing, enriching and disseminating regional knowledge and practices. Table 2.3 confronts these two types of networks.

Networks of regional developers and those of transnational learning can overlap, as the regional development network, or at least some of its actors, might belong to the changing transnational learning network. In regional development networks, geographical proximity favors trust -based

Table 2.3. Two different types of networks and spaces: regional development networks and transnational learning networks

<i>Characteristics</i>	<i>Regional development network</i>	<i>Transnational learning network</i>
Space	Bounded regions	Relational spaces of knowing and learning
Participating actors	Regional actors in specific territories	Learning partners and networks in different countries
Interaction in network	Creating good practice, learning from good practices from other regions	Space of good practices
Proximity	Geographical, social	Cognitive, desire to learn from good practices or share them with other regions
Orientation of networks	Resource mobilization	Knowledge oriented
Knowledge arena (ba)	Common learning in networks Focus group meetings	Transnational learning platforms
Learning process	Learning inside the network	Benchmarking of good practices Creating transnational knowledge together
Quality of the ties	Strong ties	Weak ties

relations and face-to-face contacts for the transmission of complex and uncertain messages. Inside regional development networks there is also social proximity between actors, as well as a shared perception of development issues, mental models and visions. It is good to have a level of cohesion and proximity among actors; still, too much cohesion prevents creativity and the ability to implement reforms. Different lock-ins pose a potential threat as it is possible to get locked inside the existing functional or cognitive models, or into striving towards immediate gratification, based on formulas that have been successful in the past (Kostiainen 2002). By contrast transnational learning networks are based on cognitive proximity, which in other words is relational proximity. The

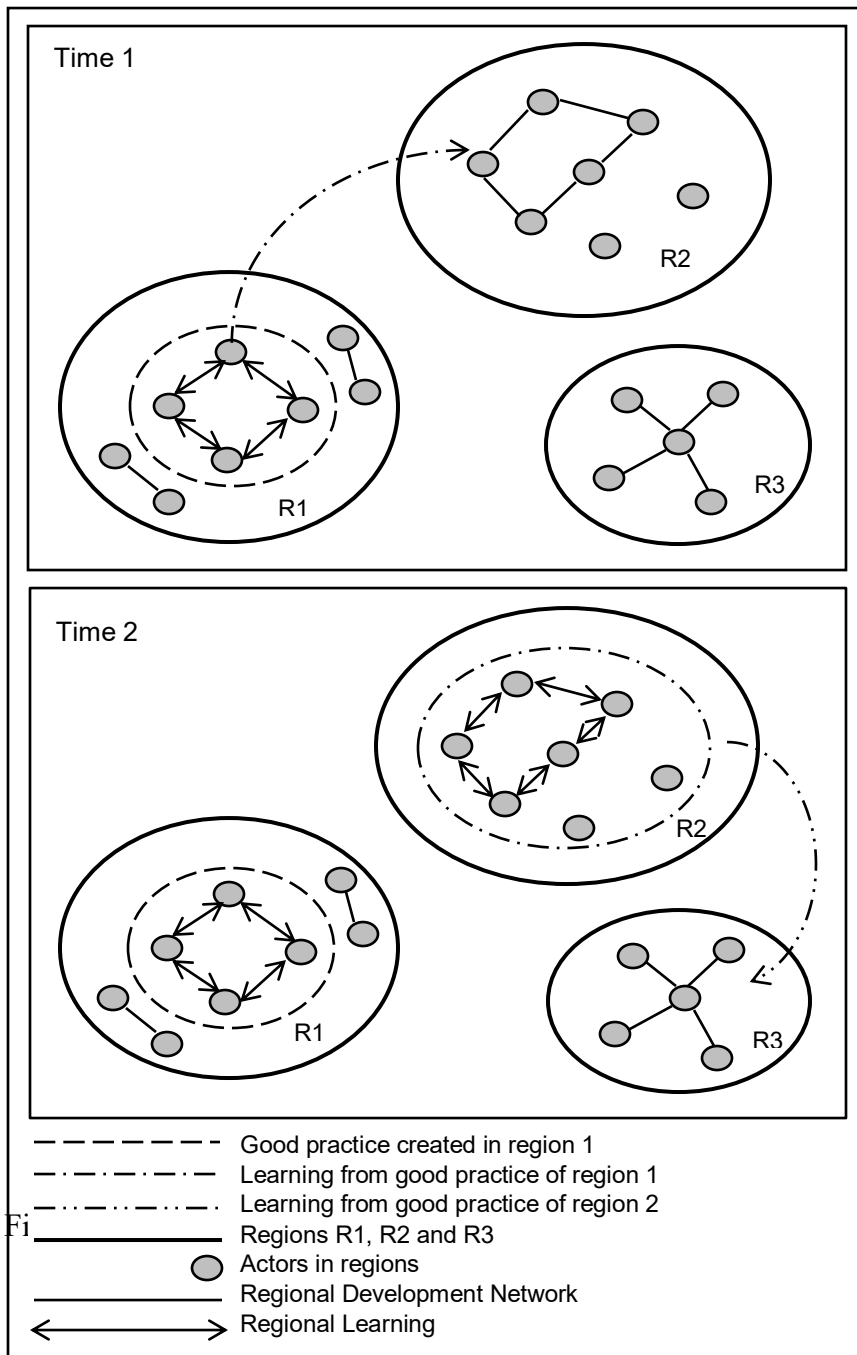


Figure 2.1. Learning from good practices in other regions

learning partners in different locations are linked together with the motivation to learn from each other or to jointly produce new knowledge. Transnational learning networks are oriented towards knowledge creation and transfer, while the integrating mechanism of regional development networks is resource mobilization. (Figure 2.1)

In the context of this book, regional development networks are seen to create good practice through tacit knowledge about how certain things work. Transnational learning networks are formed by learning partners in different regions, and participating in them is one way for regional development networks to source knowledge and information for the development of a specific sector, program, project, or activity in the territory. Inside transnational learning networks regional development networks can be either receivers or senders of good regional practices.

The outcome of network relations can be said to depend on two factors: one is the quality of network ties, and the other is the quality of actors. Actors may have strong or weak ties, strong ties meaning intense relations between agents of great similarity. While these enable a great depth of knowledge, they offer little diversity. Only weak ties can offer access to diverse types of information as they call existing knowledge into question and add new elements that then lead to innovation (Lorentzen 2008). We can suggest that strong ties are characteristic of linkages between actors in regional and territorial spaces where trust based relations are formed. Regional development networks contribute to the production of public purpose within their particular policy field; that is through visions, values, plans, policies, and regulations aimed at the general public (Hjortnaes Kristensen 2012: 76).

Actors in regional networks have a common discourse and common context of knowledge creation ('ba') within which they as a group communicate through discourse. In transnational learning networks different platforms form the arena of knowledge creation ('ba'). The participants in these transnational learning platforms have temporary proximity during their participation in the learning conferences.

Regional development networks develop regions from different perspectives. One important aspect is developing the regional economy as a regional innovation system (RIS). RIS can be defined as the dependency of firms' innovations on regional knowledge institutions, such as science and technology institutions, as well as educational institutions. The RIS approach emphasizes the role of innovation networks as well as of intermediary organizations transferring the knowledge between knowledge institutions and firms. Regional development networks have the task of developing an inter alia regional economy that improves the functioning of regional innovation systems through mechanisms, such as the provision of relevant knowledge by knowledge institutions, the transfer of knowledge by intermediary organizations, and the ability of firms to absorb and utilize knowledge for innovation. Firms in regional clusters or RIS can acquire knowledge for innovation from national knowledge institutions in their region, or from institutions in other countries. The regional firms can be embedded in national systems, and at the same time be part of global value chains and product networks.

Regional development networks focusing on the improvement of regional development systems reflect and respond to the development of the RIS. The development network gains knowledge by analyzing the RIS system, and comparing it with the innovation systems of other regions. Through this process actors can get ideas and learn from the good practices of other regions, and translate them into their own region in order to improve policies within their development network. We describe this process of knowledge transfer using the knowledge spiral and knowledge conversion model i.e. the SECI model created by Nonaka and Takeuchi (see Virkkala and Mariussen, chapter 3 in this volume). According to this model, actors in the development network can develop their RIS; a fragmented RIS can be coordinated better and improved by adding and developing the lacking elements. If, for example, the RIS is lacking or it contains bad practices it can be re-created or changed through the development network. Within this model, the regional development network is seen as proactive. (Table 2.4)

Table 2.4. Regional development networks, regional innovation systems and transnational learning

<i>Learning inputs</i>	<i>Regional Development Network</i>	<i>Regional Innovation System</i>
Regional	Learning processes in actors of development networks in the region	Regional Innovation system: Firms acquire knowledge for innovation from regional knowledge institutions
National	Participation in the national network National laws, norms and institutions regulating regional development networks	Integration into the national innovation system: Firms acquire knowledge for innovation from national institutions Integration to national clusters
Transnational	Transnational learning networks as learning inputs for the regional development network	Acquiring knowledge from institutions in other countries Learning inside multinational companies

CUMULATIVE CAUSATION AND PATH DEPENDENCE

According to Myrdal (1957) the economy should be described in terms of a process of cumulative change rather than in terms of equilibrium. ‘Economic development is a process of circular and cumulative causation which tends to award its favors to those who are already well-endowed and even to thwart the efforts of those who happen to live in regions that are lagging behind.’

Myrdal’s theory of *cumulative causation* sought to explain why some areas are increasingly advantaged while others are disproportionately disadvantaged. Market forces, by their nature, pull

capital, skill, and expertise to certain areas, and these areas accumulate a large-scale competitive advantage over other areas. The interplay of market forces increases rather than decreases the inequality between areas, and the divergence in regional income is therefore a predictable result.

Suppose accidental change occurs in a community, and it is not immediately canceled out in a stream of events; for example a factory employing a large part of the population burns down. The firm owning it goes out of business and its workers become unemployed. This will decrease income and demand. In its turn, the decreased demand will lower incomes and cause unemployment in all sorts of other businesses in the community which sold to or served the firm and its employees. If there are no exogenous changes, the community will be less tempting for outside businesses and workers who had contemplated moving in. (Myrdal 1957: 23)

The theory of cumulative causation emphasizes increasing rather than constant or diminishing returns to scale. It also draws attention to agglomeration and external economies, and the positive growth implications for localities and regions that were first to industrialize. Beneficial effects caused by production factors create a further advantage and propel growth in developed regions, though often at the expense of economically lagging regions. Growth in developed regions may, however, also benefit economically lagging regions when effects spread, or what Hirschman (1958) called trickle down, including technological diffusion and export markets for products. Peripheral regions can offer low-wage labor, but this relative advantage may be offset by the centripetal forces generated by agglomeration economies as they have the ability to attract elements of production, such as the labor force into the core regions. Backwash effects, such as capital and labor flows being attracted from economically lagging to developed regions, can further reinforce disparities. Responses to market price signals, such as lower wages, therefore reinforce rather than reduce regional inequalities. Liberalized trade further intensifies this polarized development between core and peripheral regions by catalyzing growth in developed regions at the expense of economically lagging regions. Cumulative causation (increasing returns) gave regions that had gone through an early industrialization an advantage in international trade. Through feedback, cumulative causation can work in a positive direction and create virtuous circles of growth and development both locally and regionally. Conversely, a loss in the competitiveness of the region's export levels or external shocks, such as price rises in factor inputs, can reverse this process and create a vicious circle of decline (Pike et al. 2006: 73–5).

Unbalanced regional growth and divergence are central to Keynesian regional development policies. The growth pole theory draws upon cumulative causation too, in particular the potential linkages between propulsive firms capable of generating induced growth through inter-industry linkages – both backwards and forwards, through supply chains (Hirschman 1958), and localized industrial growth (Perroux 1950).

Historical trajectories and path dependency

Cumulative causation leads to the *path dependency* of local development trajectories. Regional development paths arise through the co-evolution of local structures and human action, and they are formed through both time and space. History influences the possible options and probable outcomes of policies and strategies for developing new growth paths. Places can move forwards or backwards, or remain static in economic and social terms, but they can also change direction, as happened for example with the rapid transition and fast growth with regards to the late industrialization of the Asian tigers (Pike et al. 2006: 94).

The concept of path dependency is used especially as part of the evolutionary approach in economics and geography. The approach uses a biological metaphor to describe the ways in which the evolution of a system is conditioned by its history. The concept of path dependence is intended to capture the way in which small, historically contingent events can set off self-reinforcing mechanisms and processes that lock in particular structures and pathways of development. Which structures and paths become locked in depends on the particular sequence of events that unfold. Path dependence is seen as a fundamental feature of the economic landscape. Lock-in aspects of path dependence describe and explain the stability of the spatial structures of economic activity and patterns of regional development (Martin and Sunley 2006).

Different components of an economic system change and evolve at quite different rates, some very slowly, and others more rapidly and radically: this indicates the existence of different degrees and types of path dependency. The essential argument behind path dependence is that small contingent events can have large and long-term consequences. Path dependence is produced by processes endogenous to the system in question. Yet, on the other hand, it takes an exogenous shock or intervention to enable the system to break free from those consequences and to begin endogenously evolving a new path dependent trajectory. Large shocks (such as major slumps, stock market crashes etc.) can result in permanent shifts in the economic structure and relationships, and thus set off new patterns of path dependent development (Martin and Sunley 2006). Path dependence can be seen as a process or effect that is locally contingent and locally emergent, and hence to a large extent place dependent.

One of the key defining characteristics of economic evolution is endogenously generated change. Change often creates a *lock-in*, which can be defined as a stable trapping equilibrium, and can only be broken by exogenous shocks, thereby freeing the system to move towards another eventually locked-in path. Lock-ins hinder necessary restructuring processes in regional economies and lead to path dependency. Path dependence is based on slow forms of economic evolution, and major and radical change must always originate from outside of the region. On the other hand, substantial shifts in economic structure and relationships can occur through the cumulative effect of ongoing incremental change, and therefore cumulative change also displays elements of path dependence. (Martin and Sunley 2006; Hassink and Klaerding 2011)

Institutional path dependency is one of the main driving forces of history (North 1990). Research has focused both on how path dependence can be used as an explanation for economic growth in some regions, and also to explain how regional economies can break free from old lock-in paths in development by embarking on new technological and industrial trajectories (Cooke and Morgan 1998). According to Walker (2000: 126) industrial history is embodied in the present. That is, choices made in the past, especially ones concerning technology, influence subsequent choices of method, design, and practices.

Development paths can relate to trajectories of individual local firms, industries or institutions, but also to the evolving trajectory of a region's industrial ensemble, or its technological profile, considered as a whole (Martin and Sunley 2006). Regional economies vary enormously with regards to industrial structure, business organization, economic growth, and linkages with other regions, nations and the wider global economy. Some are economically specialized, whilst others are diverse. Path dependent development seems to be more evident, and stronger, in localities with highly specialized economic structures than in those with more diversified economies (Martin and Sunley 2006). In diversified economies, several different path dependent forms of development might co-exist. Some high tech clusters are quite diversified, consisting of a number of sub-clusters, each of which may be evolving along its own specific path-dependent trajectory of development. There can be many instances (and trajectories) of path dependency. Path-dependent processes might occur within a regional economy through learning, spin-offs, clustering and so on. However, in themselves these instances do not imply that the regional economy as a collective system is path dependent; instead, it depends on the strength of interactions and linkages within the regional system. Increasing returns, dynamic learning effects, coordination effects and self-reinforcing expectations, can all be described as sources of path dependence (Martin 2010).

The notion of metaphor lock-in captures the observed tendency for the geographical structure of the economy well. Regional growth becomes established around an expanding industry or set of interrelated industries that stimulate and benefit from emergent external economies. This phase of growth and success – of *positive lock-in* – may last for decades. Many regions, as their lead industries and technological systems mature, tend to lose their former growth dynamic, and enter a phase of *negative lock-in* and relative economic decline. Lock-ins are an important factor in many cases of regional economic decline. Regions have different vulnerabilities both to endogenous processes of negative lock-in and to externally originated shocks, and therefore also their responses are different. Some regions seem to experience a negative lock-in and problems of long-term relative decline, while others are much more able to adapt and avoid negative lock-ins, and to undergo subsequent phases of positive lock-in (Martin 2010). Lock-ins can be seen as situations of know-how and of learning by doing.

Martin (2010) discusses five possible scenarios of escaping a regional lock-in: indigenous creation of a new path, heterogeneity and diversity, transplantation from elsewhere, diversification into related industries, and the upgrading of existing industries. Firstly, in the case of the appearance of a new technological paradigm, new industries and technologies may emerge from within the region without any antecedents. In these cases regions can use the ‘windows of locational opportunity’ to establish new industrial sectors. The second possible source of adaptation is heterogeneity among agents, technologies, institutions and social networks. Here agents may learn from the practices and solutions used in adjacent fields, as in every institutional set up there are subdominant organizational and technological forms. In the long run regional economic diversity may be more conducive than specialization in escaping a negative lock-in. The third way to avoid lock-ins is transplantation (Castaldi and Dosi 2004 quoted in Martin 2010), meaning the importation and diffusion of new organizational forms, radical new technologies, industries, firms or institutional arrangements, from the outside. However, regions have different levels of receptivity and learning abilities to such transplantations, as receptivity depends on the absorptive capacity of the region, which we will discuss later in this chapter. The fourth way to escape regional lock-ins is the diversification of traditional core industries and technologies into related and other industries that provide the foundations for a new trajectory of R&D and growth (Frenken et al. 2007). Finally, radical upgrading and the enhancement of existing industries may act as an escape from lock-ins. The revitalization and enhancement of a region’s industrial base can occur through the infusion of new technologies, or by introducing new products and services. In any given regional setting many mechanisms may be at work, and they may in fact interact in a mutually reinforcing way.

What about the role of learning and regional development actors in path dependence? Martin (2010) points out *a paradox of path dependent learning* in regional economies; learning is the key to avoiding lock-ins by increasing the actors’ foresight and their understanding of the benefits of co-ordination, however, learning is also an activity that is often argued to be strongly path dependent. How can learning be both path-dependent and essentially path-breaking and de-locking? It may be that there are different types of learning, but how to distinguish these types in regional economies and explain the conditions for their existence? How does actors’ involvement in different forms of regional and extra regional social networks shape the nature of the learning process? Participating in networks may be a means by which actors can break paths. ‘Where agents have regular interactions with agents embedded in other institutional contexts then there may be a greater opportunity for these invasions to occur as their knowledge of and capacity to surge, innovations are increased.’(Martin 2010) One could argue that participating in a transnational learning network may help regional actors to find an escape from a regional lock-in.

Regional development can be seen as an evolutionary process that is based on development paths, which themselves, might limit development possibilities. The dynamic learning effects achieved through learning by doing, learning by interacting, and learning by using, all tend to entail positive

feedback (know-what, know-how, know-who and know-why, see Mariussen, chapter 1 this volume). The development path and cumulative learning effects that maintain it in a lock-in can be described as learning on a structural level. Through transnational learning inputs actors in regional development networks have the opportunity to reflect upon the structure of their development path and find the crucial elements for creating a new one. There is space for voluntarism in learning processes in the regional development and agency perspective.

ABSORPTIVE AND DEVELOPMENT CAPACITIES OF REGIONS

Regional learning and development mainly depends on the interplay between regional actor networks and transnational learning networks. The preconditions for transnational learning are the absorptive and development capacities of regional actors and networks as well as their ability to reflect on their regional practices. The concept of absorptive capacity (AC) originally refers to the ability of a firm to ‘recognize the value of new, external information, assimilate it, and apply it to commercial ends’ (Cohen and Levinthal 1990). The capacity of a firm to connect with external sources of knowledge depends on the firm’s prior related knowledge. The concept of AC has been applied in industry and in regional innovation systems (Abreu et al. 2011; Döring and Schnellbach 2006; Niosi and Bellon 2002), as well as with regards to clusters (Giuliani 2005) and regional networks (Sotarauta 2005). AC can be simultaneously firm-or industry-specific. Generally, a greater AC results in higher levels of intra-firm and inter-firm knowledge spillovers, where the latter includes the transmission of knowledge between firms and other institutions, such as universities and public research institutes. Giuliani (2005) uses the concept of AC in relation to clusters, where the cluster’s absorptive capacity is defined ‘as the capacity of a cluster to absorb, diffuse and creatively exploit extra-cluster knowledge.’ Sotarauta (2005) applies the concept normatively in the analysis of the leadership capabilities of regional development networks. This chapter discusses absorptive and development capacity from a structural point of view based on the SECI model, and differs in this respect from earlier contributions.

The concept of absorptive capacity describes the capability of an organization or its individuals to acquire, assimilate, transform and exploit knowledge. Zahra and George (2002) distinguish between potential (acquisition and assimilation) and realized (transformation and exploitation) AC. Both aspects are important when assessing the magnitude of the AC of firms, and their strength depends on different firm endowments and transmission channels. Potential AC depends on the availability of relevant sources of knowledge and the type of cooperation partners the firm has access to, while realized AC depends on the degree of appropriability of the relevant technology (Abreu et al. 2011: 9–10). With regards to firms, absorptive capacity is often measured as the proportion of R&D expenditures in overall revenues, as well as prior knowledge embodied in human capital and individual skills. Sometimes it is measured with regards to the firm’s organizational design and knowledge bases.

In the context of regional development, absorptive capacity refers to the regional actors' and networks' ability to identify, evaluate, integrate/assimilate and exploit/apply knowledge from outside of the region. We are interested especially in the ability of regional actors and networks to identify, acquire and assimilate knowledge and practices from transnational learning networks.

The preconditions for regional actors and networks to engage in transnational learning are; to have some level of prior internal knowledge, institutional set ups promoting transnational learning, as well as an ability to be reflexive.

The regional AC has been calculated by measuring the proportion of R&D expenditure in the regional GDP, or by calculating the number of R&D employees working in the region. The more research and development is carried out in a region, the higher its absorption capacity (Azagra-Caro et al. 2006). For our purpose, however, this definition is too limited since we believe that the amount of research and development conducted in a region might not directly influence the level of regional development. For example universities and research institutes might work in an isolated and disembedded manner from their location, and therefore it is rather the people and organizational routines in which knowledge is embodied. Further, the regional AC depends on human capital and labor skills, and the upgrading of the level of skills, for example, increases the regional AC.

In order to absorb new knowledge in the form of new regional practices or new ways of organizing there has to be some prior knowledge infrastructure or knowledge system in the region. This means for instance an institutional set-up that supports learning, such as research and educational institutions, universities, technology agencies and regional development agencies. It also depends on the knowledge bases of firms that are located in the area, which might vary. The research and educational institutes as well as regional development agencies can be either general or sector specific. In the context of transnational learning these institutions should be able to identify and evaluate different types of knowledge that can strengthen the development path or open up new possibilities for the regional economy. The regional knowledge system can be many sided and heterogeneous, with strong knowledge bases and dense connections, and with actors who are able to absorb knowledge. In a situation of high absorption capacity, development agencies and technology transfer agencies are characterized by high competence, and they are able to translate the acquired external knowledge into practical know-how. On the other hand, in a situation of weak absorption capacity a region commonly has weak knowledge bases and a disconnected and fragmented knowledge system (compare with Giuliani's (2005) ideas on AC and clusters).

While potential absorptive capacity relates to firms' knowledge acquisition and assimilation capabilities, realized absorptive capacity centers on knowledge transformation and exploitation (Zahra and George 2002). Potential AC is important for firms that engage in networking outside of the

national borders. When applying these concepts in the context of regional development and networks, realized absorptive capacity can be seen as development interventions, as well as improvements in regional practices. Thus, realized absorptive capacity is defined in this article as development capacity. Development capacity (DC) refers to the collective ability to transform gained knowledge into regional practices, and to the ability of regional actors to produce development inputs and implement formulated strategies and regional practices. All of these qualities are important for the endogenous development of a region.

The institutional set up in a region should be such that it is able to open up to new developments carried out through transnational learning. Possible ways to evaluate this are, for instance, looking at institutional thickness, the amount and functioning of regional and transregional networks, and the presence and importance that is given to the procedures for enhancing transnational learning in regional programs.

A region with a high absorptive capacity does not necessarily have a high development capacity. For example, this might be the case in a region with big universities, educational and research units, and high technology firms, if these units are regionally disembedded, and when there is no interaction between the research and educational units and the firms, development agencies and networks. Top-level universities may recruit academic staff and a large share of foreign students globally, offer highly international PhD programs, as well as engage globally in industrial collaboration and multi-national cooperation. Still, the regional impact of these universities might not necessarily be high (OECD 2011: 103). In a region with a high absorptive capacity and a high development capacity we find dense networks around research and educational units. The dense relationships between universities, industry and administration have been described through the triple-helix model. In industrial districts and craft-based regions there are often dense networks, and practices based on incremental innovation are carried out. In these cases, the absorptive capacity measured in R&D is low but the development capacity, the inputs to local and regional development are high. Finally, peripheral regions are often characterized by a low absorptive and development capacity as knowledge bases are low and the regional knowledge structure is not developed or it is fragmented. Their capacity to acquire and exploit knowledge from other regions is low, and they are not able to offer knowledge to other regions (Table 2.5). Peripheral areas can still consist of development activities aimed at improving their absorption capacity and at upgrading actors' skills in the development network. However, in order to do this, peripheral regions often need specific national or EU level development initiatives, which are implemented, for instance, through development platforms designed by the EU.

Table 2.5. Typology of regions of absorptive and development capacities

	<i>High development capacity</i>	<i>Low development capacity</i>
<i>High absorptive capacity</i>	Universities, research and educational units with regional triple helix relationships	Universities, research and educational units disembedded from the region
<i>Low absorptive capacity</i>	Industrial districts Craft based areas	Peripheral areas

Besides the regional knowledge structure and the institutional set-up for learning, a precondition for improving the absorptive and development capacities in a region is the existence of reflexive regional actors and actor networks. These should have incentives and be motivated to seek knowledge outside their own region, looking for the information and good practices needed for the solution of specific regional problems, or for the development of a specific sector. Learning between regional actors can be described as first loop learning, as they simply add new information to their knowledge bases without changing their routines, regional practices (i.e. regional know-how), or regional development policies (Argyris and Schön 1978; Virkkala and Mariussen, chapter 3 in this volume). In other words prevailing ways of acting, developing and organizing the regional economy are difficult to change but new ideas might be introduced from outside of the region through transnational learning efforts. However, this often leads to a situation where the effects of learning strengthen the existing development path. Double loop-learning (see Virkkala and Mariussen, chapter 3 in this volume) occurs in a situation where regional actors begin to reflect on their practices or development activities. Double loop-learning is illustrated with the SECI model (figure 2.4) later in this chapter.

MODES OF INNOVATION, TYPES OF REGIONS AND TRANSNATIONAL LEARNING

Transnational learning is most effective when there is a degree of similarity between the regions learning from each other. The similarity might come across, for example, in the regional structure, or in the way in which the regional innovation system functions. There should also be a level of cognitive and organizational proximity between learning partners, as mutual benefits are likely to be higher in more integrated transnational networks, where partners share similar characteristics.

Classifications of regions can be based on different criteria, for example

- absorptive capacity and development capacity presented above;
- position of the region in the regional structure i.e. if it is a core region, intermediary region or peripheral region;

- industrial structure i.e. if it consists of manufacturing areas, service economies, agriculture or tourism areas;
- development strategy in the region i.e. regional actors and networks. The strategy can be reactive, active or proactive;
- mode of innovation, such as STI and DUI, which are presented below.

Many different classifications have been developed and used by researchers. For instance, according to Wintjes and Hollanders (2010), European innovative regions can be classified according to seven categories based on absorption capability, diffusion capability, accessibility to knowledge, and economic performance: Metropolitan knowledge-intensive service regions; Knowledge-absorbing regions; Public knowledge centres; skilled industrial eastern regions in the EU; High tech regions; Skilled technology regions; Traditional southern regions

According to OECD (2011: 42–3) regional innovation types can be categorized in the following way:

1. Knowledge hubs that are either knowledge-intensive city/capital districts or knowledge and technology hubs.
2. Industrial production zones: the service industry and natural resource regions in knowledge-intensive countries; medium-tech manufacturing and service providers, and traditional manufacturing regions.
3. Non science and technology -driven regions: structural inertia or de-industrializing regions and primary-sector-intensive-regions.

We suggest a typology of regions based on two modes of innovation: Science, Technology and Innovation (STI) and Doing, Using and Interacting (DUI) introduced by Jensen et al. (2007). The STI mode of learning and innovation is based on the production and use of codified scientific and technical knowledge, whereas the DUI mode is an experience-based mode of learning which relies on informal processes. The STI-mode gives high priority to the production of ‘know-why’ while the DUI-mode typically produces ‘know-how’ and ‘know-who’ (Jensen et al. 2007). In this chapter, we will not operationalize the typology; instead we will discuss the classification criteria on a more general level.

Industries can be dominated by just one innovation mode. The STI-mode of innovation is important in firms where analytical, science and technology based knowledge dominates, as it focuses on the ways firms use and further develop science and technology. Explicit and global ‘know-why’ are further developed in the innovation processes of these types of industries when the STI-mode of innovation is applied. Both knowledge inputs and outputs generated through innovation processes in the STI-mode are usually codified, such as scientific articles and patent descriptions. The STI-mode is mainly linear, that is, knowledge flows from universities and research institutes are commercialized as spin-offs in new start-ups, or used in existing firms (Jensen et al. 2007).

Research and development is less important in the DUI-mode of innovation. In the DUI-mode knowledge is acquired for the most part on the job as employees face on-going changes and are therefore confronted with new problems. Finding solutions to these problems enhances employees' skills and 'know-how' and extends their repertoires. Some problems are specific while others are generic, and therefore learning may result in the development of both specific and general competencies for the operator. The DUI-mode of learning refers to 'know-how' and 'know-who' which is tacit (Jensen et al. 2007), while innovations mainly focus on incremental changes in existing products and processes. Crucial knowledge in innovation processes in the DUI-mode is formed through a combination of the employees' education and work life experience. The knowledge base is developed through in-house problem-solving by individuals and teams of workers, taking place, for example, when firms cooperate with customers who are facing new problems, and when suppliers engage in innovation activity (Jensen et al. 2007; Isaksen and Karlsen 2010).

The STI- and DUI-modes can be applied also at a regional level, for example in cluster analysis. The empirical results from a study concerning the Danish economy, gathered by Jensen et al. (2007), show that there are four types of clusters: low learning clusters, STI clusters, DUI clusters and DUI/STI clusters. Both the DUI-mode and STI-mode tend to increase the firm's innovative performance. However, firms adopting mixed strategies, in other words when the two modes are combined, tend to perform significantly better than those relying predominantly on just one of the modes. This cluster (DUI/STI) includes firms in traditional sectors where it is no longer sufficient to base competitiveness on know-how and DUI-learning, as well as firms using STI-learning as a base but which also have established organizational elements related to the DUI-mode. According to Jensen et al. (2007) the cluster analysis shows that what really improves innovation performance is using mixed strategies that combine strong versions of the two modes. The two modes of learning co-exist and can be made to complement each other even if they are somewhat contradictory, since the STI-mode calls for codification and for codes that are general while the DUI mode tends to thrive on the basis of implicit and local codes.

In the following we will use the two modes of innovation in suggesting criteria for regional taxonomies which could be used when selecting partners for transnational learning. Regional development can be seen as a process of interaction between the regional economy characterized, for instance, by modes of innovation, and regional development networks. The regional development network directs and improves the functioning of regional innovation modes with the help of transnational learning. Table 2.6 shows four types of regions based on the STI- and DUI-models and their combinations. In all these regions both smaller localities with good practices and others with problematic or 'bad' practices might exist. To search for, evaluate and translate good practices is a challenge for regional development networks, regional development agencies and researchers in regional studies.

The DUI-mode of innovation and learning is typical in craft based areas where learning is based on experience, apprentice and problem solving. The knowledge base is synthetic, and tacit knowledge is shared in the region through socialization. Also in tourism and agricultural areas the DUI-mode of innovation and learning is dominant. These regions are characterized as peripheral regions in the context of knowledge based economies since they share a knowledge-related disadvantage, which might influence their development (Crone 2012). However, there can be localized hubs of development with good practices that others can learn from. Peripheral areas often have unused resources related, for example, to nature, geographical space and human skills, which can be developed with the help of local and regional policies supporting innovation processes in these areas. One way to do this is to use external inputs which can be, for example, good practices from other peripheral regions (Virkkala and Niemi 2006).

The STI-mode of innovation, on the other hand, is dominant in high tech areas, knowledge intensive capital districts, and in regions with science based clusters specializing in biotechnology and ICT, for example. The key drivers are universities and knowledge and educational institutes generating new science and technology based knowledge, and with spin-offs in the region. Besides knowledge spin offs there is a movement of graduate scientist from universities into the labor market. Moreover, the establishment of close links between local firms and research consultancies have increased research interaction within these regions (Goddard and Vallance 2011). Universities with a dense regional network are well integrated in the region can play a further role by helping to join up different circuits of knowledge within wider innovation processes. Silicon Valley and Cambridge are well-known examples, but there are also similar cases in areas classified as peripheral, such as the case of the University of Oulu in Northern Finland, where the university has created multitude of spinoffs, academic labor markets and dense networks of firms. However, there are also locally disembedded universities and higher education institutes (HEI) that make only a small regional impact. In those cases the knowledge from universities and HEIs is underutilized by regional development networks, and the ability for knowledge to be transferred from universities as well as the ability of firms and organizations to absorb and utilize this knowledge is undeveloped. This often results in the creation of innovation gaps in these types of regions. One solution is for regional development networks to follow the example of the dense regional networks formed around universities as good practice in policy, identifying regional innovation gaps and matching regional knowledge institutes with regional firms and networks better.

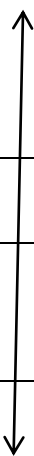
According to Jensen et al. (2007) combining the two modes of innovation is very useful at the firm level but it will presumably also produce a higher economic performance at the regional level. Generally, learning is effective when new elements are combined with the existing knowledge structure. Table 2.6 shows two different types of combinations of the STI and DUI -modes of innovation. Innovation in most regions in the EU is more about knowledge absorption through education, training and business services than about knowledge generation with scientific effort

(Grillo and Landabaso 2010). In industrial districts characterized by DUI/STI learning and innovation is based on experience, apprentice and problem solving, as in the DUI-mode, but science and technology are applied widely in the production system. Examples of these types of regions are the Ruhr area and Baden-Württemberg in Germany as well as upper Austria. Also some other industrial districts in Middle and Southern Europe belong to this category. Mariussen (chapter 1, this volume) refers to the DUI/STI-mode of innovation and learning as the ‘German’ model and the STI-mode as the Anglo-Saxon model of economic organization.

The other way to combine the STI/DUI-innovation modes is characteristic in regions with a concentration of knowledge intensive business services (Bathelt and Glückler 2011: 111–30), and with functions which have been outsourced from regions dominated by the STI-mode of innovation.

Table 2.6. Innovation modes and regional taxonomy

<i>Innovation mode</i>	<i>Type of region</i>	<i>Type of knowledge</i>
DUI-innovation mode Know how	Traditional craft based regions, Industrial districts Tourism areas Agriculture areas Peripheral areas	Tacit
DUI/STI-innovation mode Know what	Industrial districts using the STI mode	Tacit-Codified
STI/DUI-innovation mode Know who	Regions with a service economy Regions with a concentration of knowledge intensive business services	Codified-Tacit
STI-innovation mode Know why	High tech regions	Codified



Knowledge intensive business services combine both tacit and codified knowledge and new knowledge is systematically acquired through client relationships, referred to as know-who. For these kinds of regions global flows are important. These regions can be, for example, hubs or centres of knowledge intensive business services in cities, or technology based clusters which have emerged due to outsourcing from high tech areas (Table 2.6).

This typology is rather too general and in reality there are many different types inside one category, as transnational learning can also occur in smaller units and localities. In order to use this taxonomy in practice, there are also other points that need consideration and clarification. Table 2.6 takes into account the dynamic relations that often exist between the innovation modes and regions. For example, peripheral craft based and tourism areas can be developed with the help of the STI-mode, in which case they could move in the direction of the DUI/STI mode of innovation. Regions with

the DUI/STI and STI/DUI-modes can be developed with more inputs of science and technology, whereas regions dominated by the STI-mode could benefit from introducing more elements of the DUI or the STI/DUI mode. Experimenting with different combinations of DUI and STI innovation modes is important as it enable the continuation of the knowledge spiral. Virkkala discusses in chapter 9 the transnational learning process between regions using the STI-innovation mode in Finland and those using DUI modes in Denmark and how they can benefit from combining the elements of the innovation modes.

It is important to recognize that peripherality is dynamic i.e. it may change over time. The position of a region in relation to any given measure or indicator of peripherality, as well as the consequences and dimensions of peripherality, may change over time as a result of learning (Crone 2012). Further, forming transnational learning networks and platforms of good practice may make it possible for regions to escape from peripherality.

REGIONAL AND LOCAL DEVELOPMENT POLICIES

Regional policies have in the past generally been designed, managed and implemented by national ministries and central government agencies, and one of their aims has commonly been to redistribute wealth within the national economy, from prosperous to disadvantaged areas. They often had as their point of departure the identification of economically disadvantaged regions, and local economic development was therefore framed within a discourse of economic decline or decay. Related to this, policy tended to focus on attracting new industries to deprived areas (Danson et al. 1998; Pike et al. 2006; Östhol et al. 2002). However, since the mid-1990, traditional regional policies have been supplemented by supra-national EU programs and, partly related to this, there has been a growth in local initiatives promoting economic development from below. Regional development policies have become more decentralized and emphasis has been placed on endogenous development, in other words on looking for ways in which a region might be able to generate growth and prosperity through the initiatives of locally based actors, businesses and public agencies.

One reason behind the failure of traditional development policies has been the tendency to replicate standardized policies in different areas of the world, regardless of the local economic, social, political and institutional conditions. In other words policies that have succeeded in a specific case have been transferred and implemented with almost no changes in different national, regional and local contexts. In many cases this has led to failures in the new environment (Pike et al. 2006: 16). Innovation has been the focus of regional and local development policies due to the increasing importance given to the knowledge economy. Since the second half of the 1980s many regions in industrialized countries have been setting up science parks, technopoles, financial and technological aid schemes, innovation support agencies and initiatives, in order to support the clustering together of industries. The central aim of these policies is to support regional endogenous potential

by encouraging the diffusion of new technologies. Since the mid-1990s, regional policies have been influenced by theoretical and conceptual ideas, such as regional innovation systems (Cooke et al. 2004), the learning region (Morgan 1997) and clusters. Despite this, they have tended to become too standardized (Tödting and Trippel 2005). Local and regional development policies cannot be based on the principles of one-size-fits all or best practice; instead, they should reflect the different conditions and problems of the respective regional economies (Tödting 2011).

Decentralized local and regional development strategy refers to adopting the territorial approach as a means of achieving economic development. According to Pike et al. (2006: 17) this strategy entails the mobilization of local resources and competitive advantages, requires participation and social dialogue, and is locally managed. Empowering local societies is a crucial element in the territorially based strategy, and the identification of economic potential is the foundation upon which development strategies are built. Regional and local development strategies concentrate on the improvement of the basic conditions necessary for the development and attraction of further economic activity. (Pike et al. 2006: 17) To this strategy we can add the importance of networking and multi-actor development policy. Many local public and private actors are involved with and concerned about development issues. However, local initiatives need a complex governance and coordination system; besides regionally based horizontal networking, also vertical coordination and the synchronization of local, regional, national and supranational institutions, such as the EU, are needed.

The OECD (2009) uses the term ‘territorial development policy’ or ‘new paradigm of regional policy’ to refer to a policy approach where the objective is to enhance well-being and living standards. The idea is to sustain regional competitive advantages with a fuller and better use of the regions’ assets. The strategy is ‘place-based, multilevel, innovative and geared to different types of regions’, and it is aimed at building/strengthening institutions, improving accessibility to goods, services and information, as well as promoting innovation and entrepreneurship.

The territorial approach is also important in Barcas’ (2009) report, in which he suggests a place-based approach as the basis for cohesion policy in the EU. According to Barca (2009) place-based development policy stresses three features: the place-specificity of natural and institutional resources and of individual preferences and knowledge, the role played by the linkages between places, and the resulting need for interventions to be tailored to suit each place. Besides this, place-based policy can be defined as:

- 1) along term strategy where the objective is to explore the full economic potential and to reduce inequalities in specific places,
- 2) through the production of bundles of integrated, place tailored public goods and services, designed and implemented by eliciting and aggregating local preferences and knowledge through participatory political institutions, and by establishing linkages with other places; and

- 3) promoted from outside the place by a system of multi-level governance where grants are transferred from higher to lower levels of government. (Barca 2009: 5)

If top-down regional policies are based on imitation, the basic main source of inspiration in the territorial approach is local experience. The idea is to use local culture and resources to create a competitive advantage. Learning from experience means that knowledge and expertise is embedded in local sets of production and social interaction. It is based on local ideas of what works i.e. learning by doing and by interacting locally. However, there have also been transnational models for endogenous development, such as that based on the local cluster concept or the concept of a learning region. These concepts have been widely diffused and used in regional strategy in the territorial approach.

Is there a place for transnational learning in the territorial approach and place-based policy? We encourage the territorial development approach and place-based development but also transnational learning, as we believe that a combination of the two could result in a more systematic endeavor, instead of imitation and copying. Especially peripheral regions could benefit from learning more about good practices from other peripheral regions.

The possibilities for transnational learning in a region depend on the institutionalized power relations that exist between different levels of governance within the respective country. Decentralization has given regions more autonomy but not necessarily the needed resources. Generally, the possibilities for transnational learning at the regional level depend on the balance between top-down and bottom up policies. However, very seldom the bottom up approach is the dominant one; rather we often find a combination of top-down and bottom up elements in regional development approaches.

Transnational learning can be seen as a resource which may be applied in developing strategies for regional development. The space inside networks open to transnational learning and knowing consists of different actors and learning partners who can be located in different regions, and who can be both receivers and senders of good practices in regional and local development. The emphasis on transnational learning in the regional development approach might vary between strong, high priority and/or radical, or weak, low priority and conservative. Learning at the regional level means that the actors and networks continuously interpret and evaluate new knowledge and information with respect to the specific context of their region.

Generally, we can apply different knowledge types (see Mariussen, chapter 1 in this volume) in regional development strategies. Regional actors and decision-makers always have a certain perception of the general reasons and driving forces behind development. We call these perceptions 'know-why', and they are based either implicitly or explicitly on regional development theories.

Based on this ‘know-why’, the regional actors define the regional development objectives, priorities and strategies, which can be called ‘know-what’. To implement the strategies a wide amount of actors and networks are needed i.e. ‘know-who’. Regional development interventions and practices carried out by regional actors and network scan be seen as ‘know-how’ (Figure 2.2).

Know- how – regional practices

Regional development activities are often based on tacit knowledge on what works in practice. The actors know how to operate and develop the region based on their experience, and these practices can be very successful in leading the region towards good and sustainable development. This implies the well-being of people, social inclusion, equality, a good environment and sustainable economic development. These practices can be, in one or many respects, either successful or unsuccessful, as tacit practices might lead to either satisfactory results or on the other hand to unsatisfactory ones, to negative lock-ins in the development path, or to the emergence of bad practices in the region. However, while local actors might feel that they have to find internal solutions for regional problems, such as outward migration, unemployment, lock-ins, or environmental problems, through transnational learning they can also learn strategies for dealing with these problems from others.

An important aspect of transnational learning is the learning of good practices from others (see Virkkala and Mariussen, chapter 5 in this volume). In order to reflect upon translate and adapt good practices elsewhere, however, regional networks need absorptive and development capacities.

Know-what – definition of regional strategies

Local and regional stakeholders define and establish a regional development strategy based on their understanding of their region. In order to do so, however, they need to compare their region with other regions. This is done by asking the following questions; what is our region? What kind of structure does it have? How does it relate to other regions? By comparing the characteristics of one’s own region with those of other regions, one can in fact gain a better understanding of the former. The analysis is often made by combining different indicators, as the tacit knowledge held by local actors regarding the characteristics of the region is codified. Regional actors create the regional strategy based on an analysis of their region, sometimes also including an assessment of the concept of bottlenecks in local development (i.e. ‘know-why’). In the process of strategy building people make value-based judgments about priorities and what they consider to be appropriate for their localities and regions. Defining the purposes and objects of as well as the strategies and politics for development, is a democratic process, and sometimes a matter of debate.

In regional analysis, the debates regarding it, and in the formation of regional strategies and priorities, transnational learning could be an important input.

Regional development actors define the strategies and priorities within the regional development programs and thus, they codify the tacit knowledge they have about their region. Regional strategies are often organized according to four aspirations: improving the competitiveness of local firms, attracting inward investments, upgrading human capital or labor skills, and building infrastructure (Pike et al. 2006). Different programs might be used for achieving development targets. However, in order to succeed regional programs targeting economic development must find some kind of balance between specialization and diversification. Specialization is important, for instance in order to develop competencies that cannot easily be copied by competitors. Focusing on the existing regional industrial base too strongly, however, might lead to negative path dependence and lock-ins. Focusing on strong local industry might be very effective and successful in conserving economic activity by means of sector specific policies, yet triggering new economic activity necessary for long term development is difficult to achieve with this strategy. If the regional problem is one-sided economic structure, the strategy should emphasize diversification. According to Boschma (2008), the solution would be to focus both on economic diversity i.e. related variety, in order to broaden and diversify the regional economic base, and, at the same time, to build region-specific resources and extra-regional connections.

The role of transnational learning in the regional strategy is to compare and analyze the particular development trajectories, developmental aspirations, as well as the strategies and priorities of each specific region. The extent to which transnational learning methods are adopted in regional development strategies varies.

Know-why – regional development theories

In order to discover effective development strategies regional actors need to understand the roots of regional development as well as look for causal explanations for the drivers of development i.e. regional development theories. The content and priorities of regional and local development policies are generally based on conceptions of the causes and bottlenecks of development. The driving forces for development can be either exogenous or endogenous. Exogenous factors relate, for example, to external dependencies caused, for example, by regional integration in nation states or in supra-national units, such as the EU. Exogenous factors are important in explaining the development processes in each specific area, for instance regarding the position of multinational companies, the EU agricultural policies or of global flows and value chains, as these factors can reveal important issues, such as reasons behind the spatial division of labor. It is important, however, also to emphasize endogenous factors, and encourage the development of internal factors and the endogenous growth potential in regions. One common conception within the development field relates to the knowledge or learning economy, in which innovations are important. A high level of

human capital and labor skills, as well as a good regional knowledge infrastructure and knowledge base can be considered driving forces in a region. However, it is important to point out that there are different knowledge bases, (analytical, synthetic, and symbolic) types of knowledge (codified, tacit), as well as learning models, such as Science, Technology and Innovation (STI) and Doing, Using and Interacting (DUI), which means that the developing preconditions for knowledge creation should be specified.

Many policy-related theoretical concepts, such as cluster or creative milieu have circulated widely and been adopted by local and regional policy-makers around the world. There is a lot of transnational learning involved in the conceptualization of the drivers of regional development. However, as these concepts have often been adopted as general models, in other words they are not translated according to the specific characteristic of each environment, the changes that they have led to have been more rhetorical than practical. This can be described as a ‘selective discursive mechanism’ (Jessop 2008; Mariussen, chapter 1 in this volume). The role of transnational learning is, for instance, to analyze and compare regional development conceptualizations in different places, as well as to deconstruct the hegemonic discourses behind them.

Know-who – actors, networks and partnerships

In order to form and implement explicit or implicit strategy, agency, meaningful partnerships, individual actors and networks of actors, are needed. Further, partnerships are needed which can complement the formal democratic structures and be a means of mobilizing constructive engagement. Regional actors, networks and partnerships carry out regional interventions according to their common understanding of what should be done and why. The role of transnational learning here could be to encourage comparison and analysis of different ways of mobilizing actors and networks, as well as of institutional arrangements of governments and governance. However, the degree to which transnational learning inputs can be integrated in regional development strategies depends on the absorptive and development capacities of actors and networks, as well as on actors’ previous experiences.

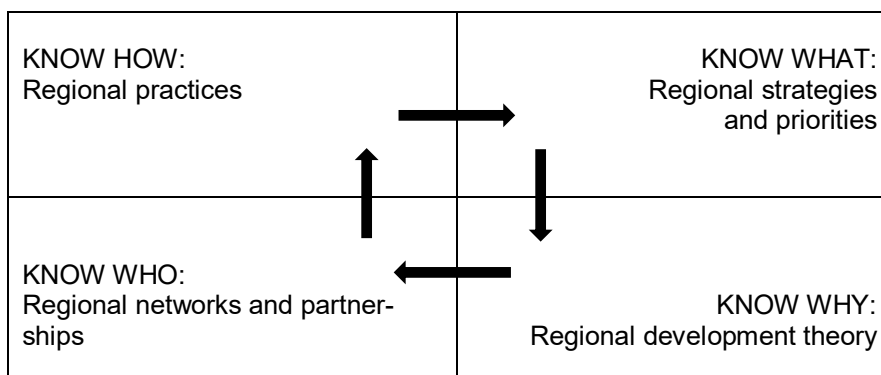


Figure 2.2. Regional development and knowledge types

Moving from know-what, know-why, know-who and know-how to knowledge creation and learning depends also on the cognitive distance between the organizations and the receiving and sending actors. The roles between the sending and receiving regions might be asymmetric, and stronger regions are less likely to seek out useful knowledge /practices from regions with weaker knowledge bases.

The knowledge typology and structuration of action, developed by Mariussen in chapter 1 of this volume (Table 1.1), can be used in exploring structure and agency in regional development policies. The specific composition of each administrative region practices of authorization of regional development institutions as well as national laws and regulations are structures that determine regional development policies. At the level of modalities we can find regional development

Table 2. 7. Structures, modalities and actions of regional development policy

	<i>Know- what</i>	<i>Know- who & know-how</i>	<i>Know-why</i>
<i>Structure Nation/EU</i>	Definition of regions (NUTS, counties, provinces etc.) Definition of Structural Fund programs (Objective 1, Objective 2) & Definition of National regional programs	Authorization of regional development institutions Laws and regulations at national and EU levels Allocation of resources	Theories of regional development
<i>Modalities</i>	Strategies, programs	Regional development networks Regional partnerships	Procedures for regional development
<i>Action</i>	Analysis of regional bottlenecks and problems	Development interventions	Expectations, Feedback, reflection

networks which act as agencies forming regional strategies and programs, and responding to structural conditions. These networks can develop their own procedures for regional development, based on an analysis of the local bottlenecks of development and regional development strategies. Actions i.e. development interventions and strategies, can change due to feedback, and new analyses of bottlenecks, or when the composition of regional development networks themselves undergo changes, affecting procedures within regional development. The structure of regional development policy can also change as a result of new ways of defining regions, such as Structural Fund areas, new laws and regulations, or new regional development theories adopted by the regional development network. (Table 2.7)

REGIONAL DEVELOPMENT AND TRANSNATIONAL LEARNING IN THE CONTEXT OF THE SECI MODEL

Above we have defined the basic elements of regional development and transnational learning. Next we will explore some of the above mentioned elements in relation to learning processes in the context of the so called SECI model introduced by Nonaka and Takeuchi (1995), which has been described earlier by Mariussen in chapter 1 and is contextualized and presented by Virkkala and Mariussen in chapter 3 of this volume. The SECI model is important since it recognizes knowledge creation and learning as a process of interaction between tacit and explicit knowledge, and as a spiraling process, where explicit knowledge is internalized and used continuously to develop new tacit knowledge. In this chapter, the SECI model is used for understanding the influence of transnational learning inputs in three analytical scenarios: in the formulation of regional and local development policies, in supporting the process of escaping development lock-ins, and in the upgrading of absorptive and development capacities. In all these scenarios regional processes relating to transnational learning, as well as regional development activities and practices are improved and nurtured due to the knowledge spiral of regional actors.

The SECI process has four phases. The first phase is socialization, which involves the sharing of tacit knowledge between individuals (know-how). Socialization refers to the ability to produce shared and tacit knowledge that leads to the social integration of actors, going far beyond institutions and networking. Actors utilize informal relations as they share feelings, emotions, experiences and mental models (Nonaka and Konno 1998). The second phase involves the externalization and codification of the tacit knowledge of individuals in order to create metaphors, concepts, hypotheses or models (know-what). The third phase is a combination of new knowledge generated in the externalization phase, and other codified knowledge (know-why). The fourth phase involves the internalization of newly created knowledge, meaning the conversion of codified/explicit knowledge into tacit knowledge (know-who). According to Nonaka and Konno (1998) each phase of the SECI model is characterized by a specific space of knowledge creation which they call 'ba'. The purpose of 'ba' is to create the preconditions for knowledge creation and it can be developed consciously to support and accelerate regional learning. Several different 'ba's are involved in knowledge creation (see Mariussen and Virkkala, chapter 5 in this volume).

Nonaka and Toyama (2003) examined the knowledge creation process inside one organization whereas Kostianen (2002) inside one region. In this book, we apply the SECI model in describing transnational learning in regional development networks. In the application of the SECI model, two different regions are distinguished: the target, or receiver region, and the sender region of a good practice. The receiving region can develop best when it reflects on, evaluates and translates the good practice of the sender region. The good practice from the sender region acts as a contribution in the development processes of the receiving area in the second phase of the SECI model

i.e. in the phase of externalization. According to the SECI model knowledge creation and learning is a continual, ongoing process, described by Nonaka and Takeuchi (1995) as a knowledge spiral.

Regional development practices

In the socialization phase, the actors in the receiving region share tacit knowledge of regional development practices with each other. In other words they have knowledge about how things operate in their region. In cases where actors in the regional development network are frustrated with regional problems, such as unemployment, the desire to learn from others' good practices is greater. The externalization phase includes forming a strategy based on the codified indicators of the position of the region in the territorial system of the region. This phase also includes the externalization of the good practice in the other region, for example, by researchers, as well as an evaluation of the good practice. In the combination phase, the explicit knowledge is combined with the causal theories explaining the reasons behind and direction of the change, which is another type of explicit knowledge. The combination gives birth to new explicit knowledge which is then used in the fourth phase by local actors and networks when intervening in regional development. During the internalization phase the explicit knowledge becomes tacit knowledge of individuals. This happens as a result of the first round of the SECI process, and forms the basis for the new regional development practice, initiating the second step of the knowledge spiral (Figure 2.3). In this process also the absorptive and development capacities of the regional actors are upgraded, meaning that they increase their learning abilities, as well as resilience in the turbulently changing global environment.

Transnational learning from good practices can be combined with a proactive development strategy. Laukkanen and Niittykangas (2003) argue that especially communities with weak autonomous turnaround capabilities need more interventionist strategies than those functioning in more benevolent environments. Especially in difficult regions, developers should act as virtual entrepreneurs and take over some critical functions that underlie the emergence of businesses in order to increase the local development possibilities. These tasks include, for example, the detection and initial development of business opportunities, the provision and training of key actors, the creation of initial linkages with key customers and supplier bases, and the provision of legitimacy and trust to other resources.

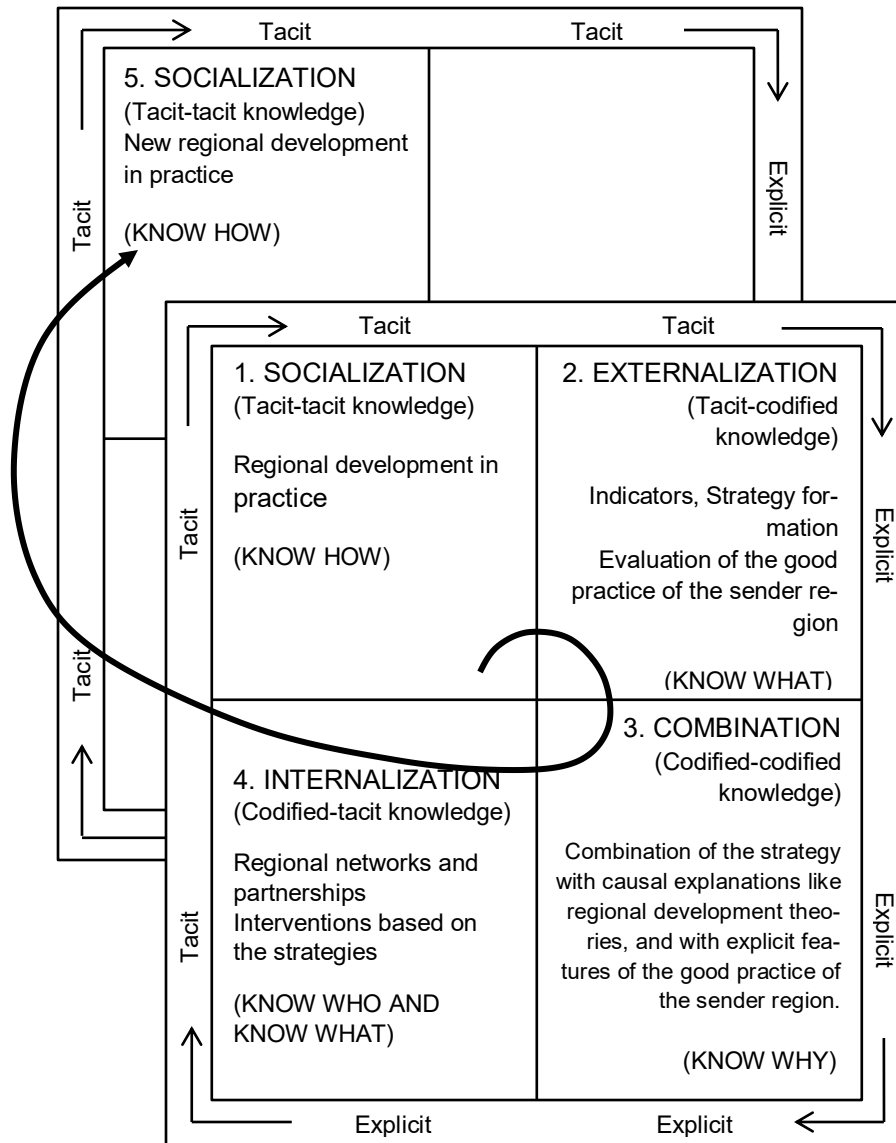


Figure 2.3. Regional development policy and transnational learning in the context of the SECI model

From the point of view of transnational learning in regional development policies

- It is easier to transfer codified knowledge, i.e. regional development theories ('know-why'), regional development strategies and indicators ('know-what'), than tacit knowledge embedded in regional contexts and actors ('know-who' and 'know-how').
- The transformation of codified knowledge in regional development might fail in the internalization phase of the SECI process since regional networks and partnerships are often not willing to change their regional practices, and their ways of operating.

- The transformation process of regional ‘know-how’ is slow and incremental and it needs to include a process of translation (see chapter 4) of the good practices of other regions into the local context. This process is much deeper than copying or imitating, and the result of the translation process might be something new, a new regional practice which is socialized by the regional actors.

Development paths

From the regional development network perspective, it is important to search for strategies for escaping regional lock-ins. These strategies should aim at widening the already emerging new development path thus rooting it into the region. New development paths are often born outside the dominant regional practice, and to find and evaluate the necessary conditions for the creation of a new development path, transnational learning, in other words transferring or translating good practices from abroad, for instance, can be effective. However, the new path can also be based on the mobilization of endogenous resources, for example related varieties i.e. diversifying existing industries by combining existing areas of expertise, or simply upgrading existing industries. Still, in both using ideas from the outside, and generating them on the inside, transnational learning is important. Besides absorptive capacity, development capacity is needed in order to integrate new ideas into existing ones i.e. to translate and transform them to one’s own context. The first phase of the SECI process consists of the socialization of actors and the creation of a positive lock-in in the existing development path. One effect of cumulative learning is that it stabilizes the development path preventing it from changing. Transnational learning occurs during negative lock-ins in the development path, during an external crisis, or when the possibilities for new development paths are explored. The second phase is the externalization of tacit knowledge from another region due to an external crisis or problems caused by negative lock-ins in the local development path. Transnational learning, for example in the form of good practice, can sow the seeds for the creation of a new path. In the third phase, these seeds, in other words the preconditions, for the creation of a new development path, are combined with the existing regional elements and context. In the combination phase the new development path is formulated, after which it becomes rooted and stabilized in the region in the fourth, internalization phase. In the internalization phase the articulated new development path becomes tacit knowledge of the individuals, which is shared among regional actors in the new phase of socialization, initiating a new round in the SECI process (Figure 2.4).

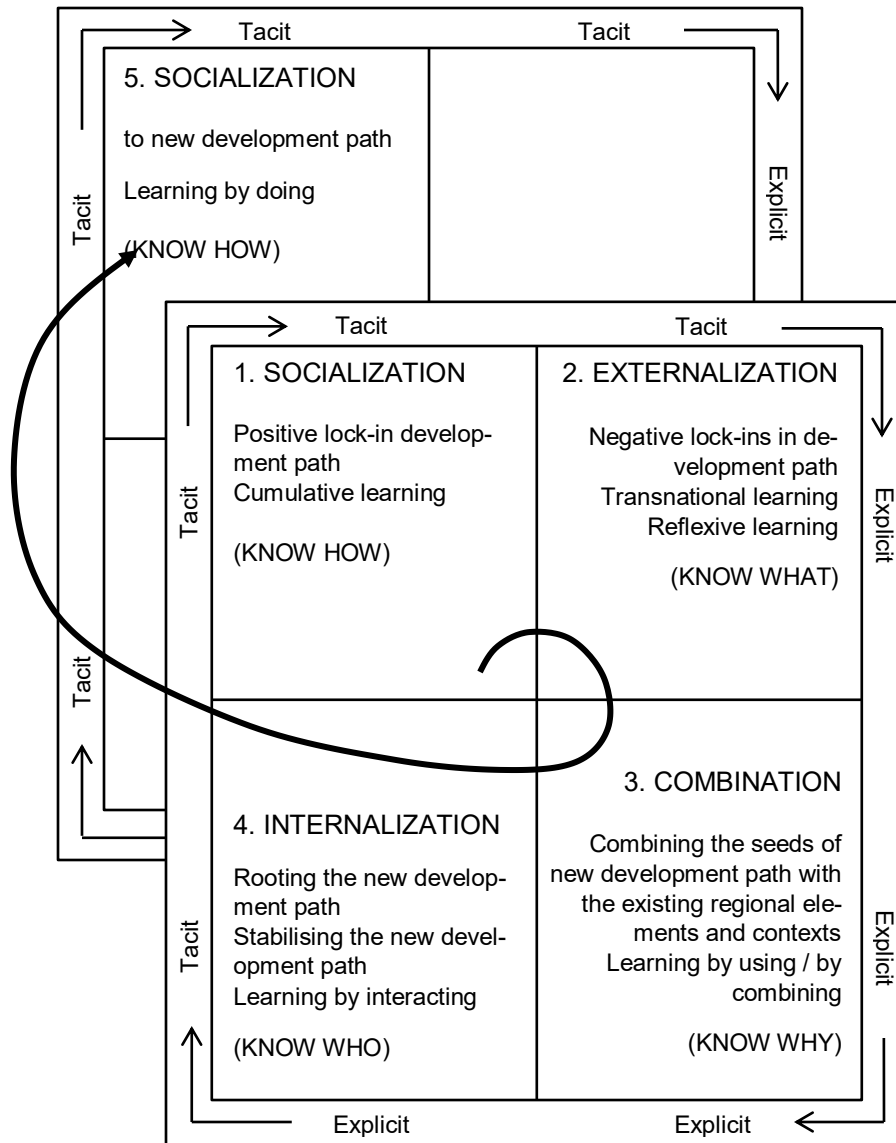


Figure 2.4. Path dependency and knowledge types in the context of SECI model

Absorptive and development capacities

Double loop learning (see Virkkala and Mariussen, chapter 3 in this volume) is a situation where regional actors begin to reflect on their practices or development activities. This is illustrated with the SECI model (Figure 2.5).

A precondition for the creation of absorptive and development capacities is the ability to reflect on one's own practices. In order to do this, actors need to be able to network, interpret, translate,

combine, internalize and socialize the knowledge. In this context absorption capacity is divided into (transnational) networking and interpretation ('know-what'), and translation and combination ('know-why'). Development capacity (realized absorptive capacity) can be divided into regional networking and internalization ('know-who'), and socialization ('know-how'). It is important to point out that we use the concept of networking in two senses: first as the ability of regional actors to join transnational learning networks ('relational concept'), and second as their ability to form territorial networks ('territorial concept').

The SECI process starts from the existing regional practices, based on tacit knowledge that local actors share due to processes of socialization (existing regional 'know-how'). Regional actors and networks with absorptive capacity scan and evaluate regional strategies and practices from other regions. However, in order to do that properly, they have to join transnational learning networks and interpret the strategies and practices of other regions to suit the needs of their own region ('know-what'). This phase can also be called benchmarking. The absorption process is facilitated by cognitive proximity between the sender and receiver of knowledge or good practice, as the propensity to acquire knowledge from other regions is shaped by the perceived cognitive distance from the source of knowledge. Also the existence of a common framework, such as the EU platform of Smart Specialization (see Mariussen and Virkkala, chapter 5 in this volume), creates more cognitive proximity between regions and actors.

In order to be effective the absorbed knowledge must be diffused and translated in the regional context. This occurs when it is combined with already existing knowledge or translated into a form that fits the existing structure of regional knowledge. This means the ability to assimilate and apply new knowledge in the regional context as well as the ability to combine internal and external resources and knowledge bases ('know-why').

The new knowledge should be assimilated and anchored in practice, which requires that regional actors are capable of networking, and that they have the ability to take advantage of their own competences and resources. Networking ability (or capability) includes the ability to involve people and empower them to act as a network, the ability to make people work to reach joint goals and renew them in an ongoing process, the ability to promote interactive processes, and to steer activities towards seeking goals and enabling co-operation (Sotarauta 2005). The regional network should find a new common view and sometimes also define a new mental model based on the input of transnational learning. This might imply changes in the regional network ('know-who') as well as new strategies and visions concerning regional development issues that are prioritized by the regional actors. Besides regional networking, however, also internalization is needed, meaning anchoring the new knowledge into regional practice. The new knowledge can promote a continuation of the existing development paths, or broaden, widen or modify it, or it can provide new openings based, for example, on related varieties. It can also develop or strengthen the weaker actors or firms in the region, create new resources, and utilize the existing resources better.

The socialization of new knowledge consists of the internalization of new regional practice, new ways of acting, practicing regional politics, and of being organized (new regional 'know-how'). The new regional practices might be an improvement from the earlier one, and transnational and regional learning processes might open up new horizons and opportunities for new development paths. These begin to unfold when individuals and small groups detect new opportunities and weak signals of a changing society and plant the first seeds of change (Sotarauta 2005).

I have illustrated how transnational learning inputs can nurture the knowledge spiral on a regional level. Still, it is also important to recognize that when regional actors continuously learn in the knowledge spiral, and as knowledge is embodied in individuals and collectives, actors' skills, along with their absorptive and development capacities, become upgraded. The more networking, as well as acquiring, interpreting, translating and internalizing new knowledge takes place, the more one's absorptive and development capacities are developed and the higher the skills for developing the region, improving current regional practices and introducing new ones. The process is self-reinforcing and can be compared with the cumulative causation process in regional development introduced by Myrdal.

The knowledge spiral enhancing the knowledge space of regional actors and networks often leads to a process of cumulative causation in which regions with higher absorptive and development capacity improve their capacities to learn through the knowledge spiral much more than regions with weaker capacities. In other words, the self-reinforcing knowledge spiral strengthens the center-periphery divide in the knowledge-based economy and may lead to new divisions.

I argue that the actors and networks in peripheral regions can improve their absorption and development capacity in the knowledge spiral through transnational learning inputs. How is this possible if the prior knowledge and knowledge institutions, as well as the reflexivity of actors and networks are modest? In central as well as peripheral regions, there are normally at least some regional developers who can be encouraged to construct a network around the development of the region, or a specific resource or sector within the region, aimed at solving local problems (outmigration, pollution, ageing, unemployment, debt crisis). Also, actors and networks in peripheral regions can be encouraged to build transnational learning networks with actors and networks from other peripheral areas. Transnational institutions, such as the EU, could further support network building and transnational learning between peripheral regions with platforms of transnational learning. One example of EU platforms is the smart specialization platform which could be used as a forum for transnational learning and good regional practices in peripheral regions. It could also be useful to set up good practice networks or forums for agents who aspire to receive and learn given good practices. In order to be more effective these networks could be sector specific and focused on particular topics. Especially peripheral regions could benefit from the creation of such set ups. The idea is not for there to be competition between peripheries but rather for them to co-operate and

learn from each other's practices. A good practice from one peripheral area can act as an input in the development of another, and also encourage the knowledge spiral, which would improve the absorptive capacity of the region.

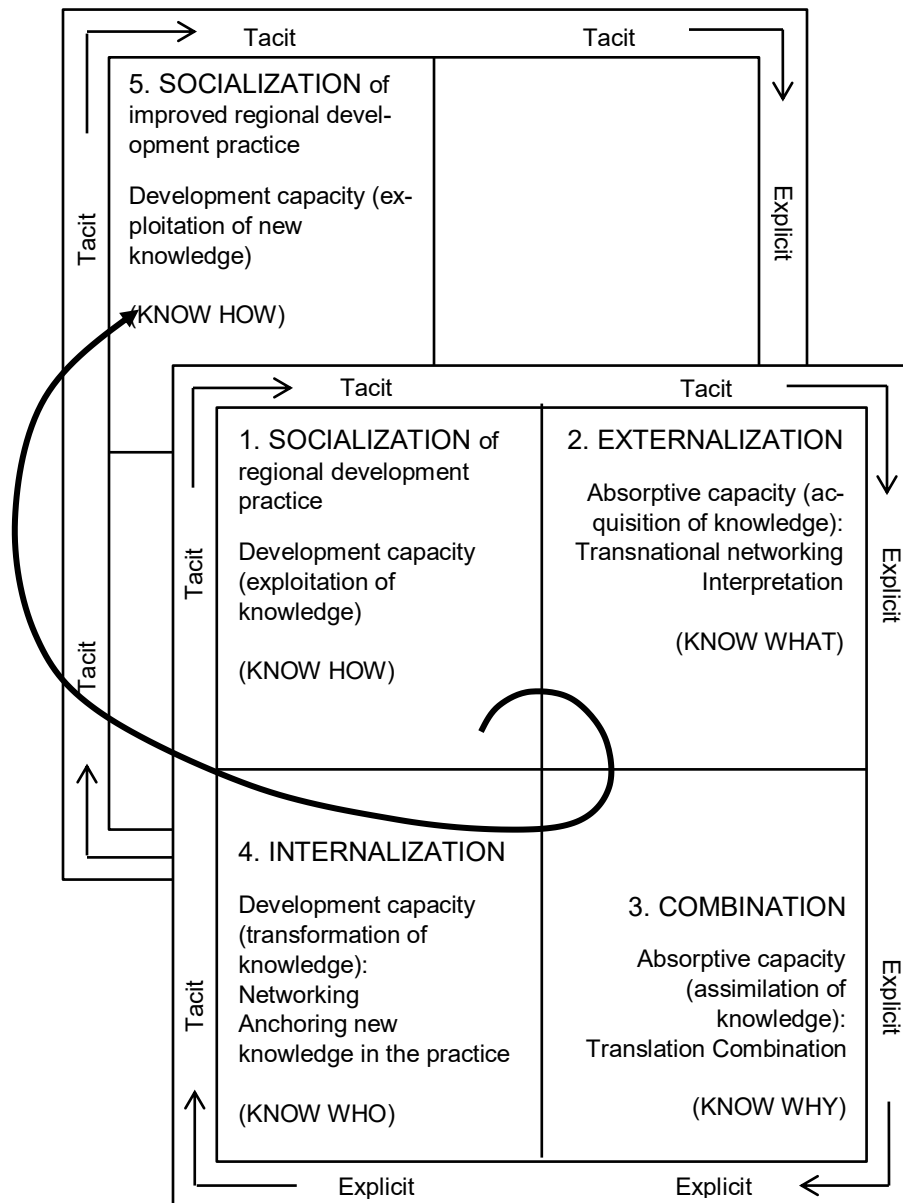


Figure 2.5. Absorptive capacity, development capacity and transnational learning in regional and local development.

CONCLUSION

Regional development can be looked at from many different viewpoints. This article has discussed the forms of and preconditions for transnational learning which can be used to promote regional development. We approach regional and transnational learning with the help of a knowledge typology (Know-how, know-what, know-why and know-who) and the SECI-model, according to which knowledge is created through a process of interaction between tacit and explicit knowledge. The conversion of knowledge can be supported by a specific place or 'ba'.

Transnational learning can be seen as part of an experimentalist regional strategy which emphasizes the search for new knowledge and opportunities. The preconditions for regional development in the context of transnational learning are the following:

1. Regions settled especially as sub-national units exist as spaces where economic, political and social actors network in order to define, institutionalize and implement regional strategies based on their visions and understanding of the region.
2. Regions and localities evolve and change over time in ways that affect regional and local development practices and prospects.
3. Regional development is seen as an evolutionary process, based on development paths, which in some situations might limit development possibilities. Transnational learning can help avoid negative regional lock-ins and open up possibilities for new development paths.
4. Regional actor networks have the ability to create knowledge and to learn both on an individual as well as on a collective level. In order to use the knowledge and good practices of transnational learning networks regional actor networks have to be motivated to change their regional practices, for instance due to crises, or to negative lock-ins in the local development path.
5. Transnational learning networks emerge, for instance, around a sector specific activity. Transnational learning is most effective between similar regions concerning, for example, the mode of innovation and learning based on STI and DUI. Further, it is best carried out in a small group of learning partners and with focused themes. In these groups regional actors can learn by reflecting, evaluating and translating the good practices of other countries.
6. Regional development networks develop the region with the help of different perspectives, for instance by using the regional innovation system (RIS) approach. Following this example, the development network reflects and responds to the development of the RIS. With the help of inputs of transnational learning the functioning of RIS can be improved, and in a situation where it doesn't already exist, it can be created and further modified if the regional development network acts proactively.

7. Regional actors need to have a high absorptive capacity i.e. the ability to acquire, assimilate, evaluate and translate the knowledge of another country and region, as well as development capacity, enabling them to transform and exploit learned practices in their own regional development practices.

I have illustrated how transnational learning inputs can nurture the knowledge spiral on a regional level. However, it is also important to recognize that knowledge is embodied in individuals and collective actors, and therefore also their personal learning capacity increases in the knowledge spiral. Through the creation of the knowledge spiral transnational learning can lead to a process of cumulative causation and produce a virtuous circle in regional development.

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