

## Resources development and actors coordination: what role for innovative milieus

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**Abstract:** The innovative milieu approach consists of exploring how and to which extent local environments contribute to the coherence and the competitiveness of production systems. In line with this work, the present paper explores the articulation of high value added services creation, regional development, and natural and cultural resources evolution. Based on conceptual and empirical research, the central issue of the paper is the link between the resources (understood here as relation processes between objects and production systems), the production systems and the markets in terms of co-ordination in time and space. In this research, innovation dynamics and the innovative milieu appear as key elements in the creation and the maintaining of material resources (landscape, soil, etc.) as well as non-material resources (know-how, knowledge, cultural resources, etc.). The paper argues that innovative milieus play an important role in the identification and the implementation of new resources based on existing objects.

**Keywords:** cultural resources; natural resources; innovative milieus; coordination; regional development.

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## 1 Introduction

A considerable amount of literature on innovation and regional development exists. Regional innovation systems (see Moulaert and Sekia, 2003 for a survey), learning regions (Florida, 1995; Macleod, 1996; Morgan, 1995; Simmie, 1997) as well as innovative milieus (Camagni, 1991; Crevoisier, 2004; Maillat et al., 1993) try to understand how and to which extent proximity helps – or prevents – regional production systems to evolve and to maintain a certain internal level of coherence. In the early 1990s, resources (specific resources in particular) have in this context emerged as an essential component of regional attractiveness and competition, and therefore as a stake within regional coherence. Knowledge, and knowledge creation and renewal through learning processes, became central to many important regional development contributions<sup>1</sup> (Colletis and Pecqueur, 1994; Lundvall, 1992; Maillat, 1998; Maskell and Malmberg, 1999; Porter, 1990), and cultural heritage appeared as a means for new, emerging economic activities (Lazzeretti, 2004).

In line with these works, this paper explores the way in which coherence is maintained through the establishment of continuity between resources, production systems and markets. It seeks to understand on the one hand the way in which this continuity is organised in space and time, and on the other to identify the possible role of innovative milieus in the construction of this continuity. To address this issue, an institutional and territorial approach of resources is used (Kebir, 2004). Resources here are defined as a relational process between an ‘object’ (know-how, raw material, building, artefact, etc.) and a production system. Resources appear as any object identified as being useful or potentially useful in the production process.

Considering the evolution of resources also requires an adequate conceptual framework. The innovative milieu approach makes it possible to take several dimensions of resource dynamics into account, especially actors and their interrelations and space and time. Our question is thus: do such milieus play an effective role in the dynamics of natural and cultural resources? Do other kinds of organisation play a role at the regional or local level?

This paper presents the results of research carried out within the Sixth Survey of the European Research Group on Innovative Milieus (GREMI), which explored the way in which creating high added value services, job creation and the evolution of (natural and cultural) resources are inter-related (Camagni et al., 2004). The research, in line with the GREMI Survey, was designed as exploratory in the sense that the conceptual results were built in parallel with the empirical survey: empirical findings were systematically incorporated in concepts, and concepts were mobilised in the subsequent case studies up to the end. The final results consist of a conceptual framework that gives a coherent

account of the various situations observed. In order to give some general validity to the conceptual results, we chose highly differentiated case studies.

This paper is structured as follows: the first part – conceptual and theoretical – begins by clarifying the articulation between innovative milieus and resources. Innovative milieus connect with economic dynamics on three dimensions: technology (learning and innovation), coordination (forms of interaction and networks of actors) and territory (the role of proximity and of distances). The central hypothesis of this research is that by articulating these dimensions, the innovative milieus make it possible to construct the resource dynamic (technological continuities in coordination and in time and space). This first section ends with the presentation of a conceptual framework that makes it possible to grasp the resource dynamic.

The second part of this paper presents the results of the survey, using the concepts developed in the first part. Four cases of resource evolution are presented (asphalt mine, watchmaking know-how, banking know-how) and analysed. In accordance with the logic of the GREMI VI survey, these four cases clarify the extent to which the existence of innovative milieus favours – or not – the evolution of resources.

## **2 Conceptualising the resources and their dynamic**

This first part presents the conceptual framework of this paper. Section 2.1 is a reminder of the innovative milieu approach in the perspective of resource evolution. Section 2.2 presents the conceptual results of the survey that is to say the definition and the typology of resource dynamics.

### *2.1 The innovative milieus and resource dynamics*

The innovative milieu approach (Aydalot, 1986; Crevoisier and Camagni, 2000; Maillat and Perrin, 1992; Maillat et al., 1993; Ratti et al., 1997) addresses economic dynamics according to the three following dimensions: learning and technological developments, interactions and networks, proximities and territory (Crevoisier, 2004). To understand the role of the innovative milieus in resource dynamics, these three dimensions must be investigated in order to grasp various issues at stake raised by this dynamic.

#### *2.1.1 Learning and technological developments*

Concerning learning and technological developments, the main issue resides in the way in which resources, production systems, innovation and markets are articulated, transformed, organised and how they evolve from a technical point of view. In terms of resources, this dimension implies using an approach that is radically different from two visions that immediately appear too exclusive. The first is the vision according to which resources are imposed once and for all, and that it is their scarcity that defines their use and allocation in the production system. In this paper, resources are considered as being largely created by human activity, and in particular via technology. In other terms, it is agriculture that creates the resource ‘arable land’ and not vice-versa (De Gregory, 1987).

The second vision that we also feel too extreme is one whereby resources are only a veil: an automatic subproduct of the functioning of the economic system that has no

constraints on development whatsoever. Arable land, eroded by poor use, can only be reconstituted over an extremely long period. Depending on the legacy left behind by the functioning of the economy (the imprint on the territory), development can take various directions but will be influenced by the existence of a certain number of objects. It is in this context that resources can play a central role within innovation. Certain landscapes resulting from declining agriculture are mobilised within the framework of a conversion to tourism; certain artistic or cultural competencies are incorporated within a multimedia project, etc.

This idea makes it possible to consider the two sides of resources. On the one hand, they appear as constraints in the sense that in a given region, the presence and quality of certain ‘objects’ and the absence of others will make certain technological developments impossible. It is a situation of lock-in: the region cannot escape from the trajectory inherited by its history. On the other hand, the presence of these objects will open up new opportunities that are not totally determined by the past. Some bifurcation may occur if the actors manage to imagine alternative paths. Under certain conditions, the lock-in situation can be overcome.

### *2.1.2 Interaction and networks of actors*

The second issue concerns forms of interaction and actors networks. Traditionally, economists’ attention focuses on the way resources are allocated among agents. The allocation will be effective – or not – depending on whether it respects the identity between the consumer of the resource and the individual who pays for its consumption. The classical example here is the over-grazing of common land. This vision can be contested on several levels within the innovative milieu approach. Firstly, resources can be managed in a sustainable way not via the market but via the rules of competition/co-operation based on community and networks. Secondly, it is not only the way in which resources are implemented and appropriated that must be envisaged, but also, and jointly, the modalities of their creation. Finally, a resource can be used for competing or complementary purposes. How, then, can the eventual tensions resulting from such a situation in the production systems be handled on a regional level? We think here of pollution problems (industrial, which affects the agricultural sector) land use, landscape use, know-how use, etc. The creation of a resource can also be made by other users (agriculture creates and maintains landscapes mobilised by tourism) or be a subproduct of the activity (professional experience being a good example here). In each of these domains, the modes of coordination among actors are multiple, and can take on a great variety of forms.

### *2.1.3 Proximity relations and territory*

Finally, the approach brings us to the third issue: the role of proximity relations and of territory: the third dimension of the innovative milieu. Each of the elements evoked above is based on efficient continuity within time and space: no competing use of a single resource without copresence in the same space; no conversion of a resource into an innovative product or service without access to this resource – an access that largely depends on the territory and the proximity relations; no community management without community, usually characterised by the proximity of its members, etc. We thus raise the question of proximity and distance, of geographical scales and of the distinction between

local actors and actors external to the region within long-term management of resources. To what extent does proximity influence the creation/destruction of resources or their identification/actualisation? Can one observe a more ‘sustainable’ form of management within a proximity framework? As an example, if – in parallel to exploiting a resource (e.g. mining) – no resources are created (accessible know-how that can be redeployed once the mine has been exhausted) it leads to disequilibrium in the region’s economy.

In the innovative milieus perspective, due attention will thus be paid to the way in which the processes of creation, destruction, identification and actualisation of resources within and via the production system articulate from one another in time and space.

If the production systems’ activities affect (create/destroy) the objects used as resources, the objects – depending on their nature – also affect the way in which the production systems develop. This takes place all the more since resources and production systems have varying temporalities – for example renewable on the short or longer term – as well as varying territorialities – for example whether they are mobile or not. Hence the necessity of setting up modes of coordination and management that are capable of ensuring both effective allocation (short-term economic constraint) and long-term renewal of resources.

Resource dynamics raise, as we have seen, issues from the point of view of learning, technological developments, forms of interaction and networks and finally of proximity relations and territory. The next step of reflection consists of developing a conceptual framework that permits empirical analysis of these issues.

## 2.2 *Resources as a process*

The conceptual framework used here is based on the idea that resources consist of a relation process between an object (raw material, knowledge, know-how, artefact, etc.) and a production system, and constitute the set of means available to man for his use (inspired by Bourrelier and Diethrich, 1989). In other words, resources refer to all those elements that, potentially, can be used, and be useful in a production process (Kebir, 2004). That is, all objects entering into a production process for goods or services. The resources are thus created here as an ensemble of four processes: creation and destruction, which above all concerns the object (raw material, energy, knowledge, know-how, etc.), and then identification and actualisation, which concern the way in which resources are incorporated and articulated within the production system.

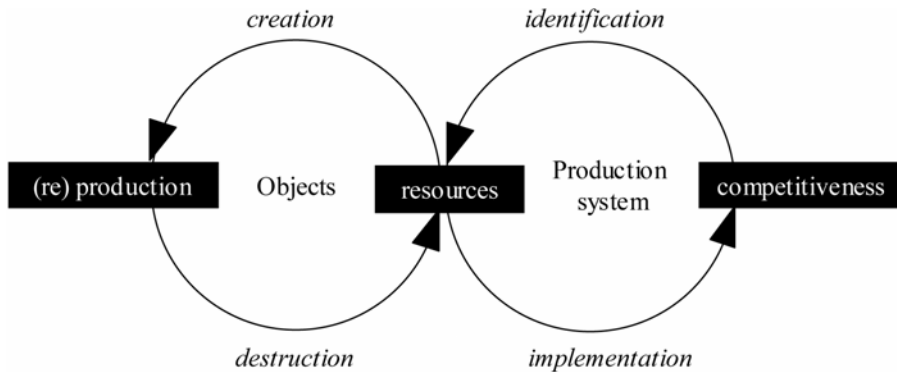
Identification is a primarily cognitive process. Do the actors manage to change their representation of the possible use of such or such object? The lock-in situations, characterised by the impossibility of changing the activity without losing the investments made in the past, may be overcome by finding alternative ways to obtain revenues from these investments.

In this perspective, resources involve objects entering into the technical process of production (such as raw materials, technical know-how, expertise, energy and heritage). Objects concerned with social coordination between various actors in production (such as trust, remuneration system, human resources management and the identity of various actors in production, etc.) are considered as ‘modes of co-ordination’ of the resource process. They are not considered here as resources.

According to this definition, resources are a human construct consisting of linking objects to a production system (see Figure 1). They derive from a vision of the environment (both material and cognitive), a vision of what can be or is useful for

development and what is not. In other words, the resource is an object (e.g. a raw material or knowledge) linked to a production system. This definition of the resource is in line with institutional approaches (Ayres, 1943; De Gregori, 1987; Hunker, 1964; Zimmermann, 1951) and with Raffestin (1980) as well as the relational approach of resources described by Bathelt and Glückler (2005). It also follows the so-called ‘*approche patrimoniale*’ (cultural heritage approach) (De Mongolfier and Natali, 1987; Ollagnon, 1984). Figure 1 illustrates this process.

**Figure 1** The resource as a process



The circle on the left groups together the ‘objects’ present in the environment such as raw materials, skills, knowledge, as well as objects stemming from a combination of them (building, cultural heritage). The prevalent logic in this sphere is that of the reproduction of objects. The main processes at work are, in the case of material resources, major natural cycles and in the case of non-material resources, learning and forgetting. This circle stresses the fact that all objects exist in their own right, and under no circumstances can be considered in economic terms alone. Before becoming a plank of wood, a tree is a tree. This approach thus makes it possible to take into account the resistance and the limits that nature imposes on human action, while considering that the resource is also a construct, in relation to the production system.

By ‘production system’, we mean all actors involved in production (industrial and service companies, research and training centres, public institutions, etc.) and the relations among each other and with the environment. Resources are identified and actualised in the production system. In fact, it is within the production system that the production intentions at the origin of the identification are born. These intentions evolve according to the perceptions and images on the part of the actors regarding the production system and the environment in general<sup>2</sup>. This system is where the resources are actualised, that is, by being used, transformed and implemented they become assets. The prevalent logic here is that of the production of goods and services. This logic is subject to the constraints of competitive pressure in the economic context. A typology of resource dynamics.

Considering the resource as a relation process between an object and a production system, the dynamic of a resource, that is, the way in which it evolves (whether it develops or on the contrary declines) depends on the way both articulate and interrelate within a concrete territory. Figure 2 shows a typology of the dynamics of resources based on these interrelationships.

**Figure 2** Typology of the dynamics of resources

Effect (output) Driver (input)	GROWTH OF THE RESOURCE	DECREASE OF THE RESOURCE
THE DYNAMIC OF THE PRODUCTION SYSTEM (PS) ....	<i>Case I</i> drives the object in a positive way <b>RENEWABLE GROWTH</b>	<i>Case II</i> ...drives the object in a negative way <b>EROSION/DEPLETION</b>
THE DYNAMIC OF THE OBJECT ...	<i>Case III</i> ...drives the PS in a positive way <b>SETTING OFF</b>	<i>Case IV</i> ...drives the PS in a negative way <b>SHORTAGE</b>

The left-hand column indicates which of the objects or the production system is the driver (or gives the input) of the dynamic of the resource. In other words, is it the existence of the object that, through its effect on the production system, brings about a change in the resource (e.g. the existence of old-abandoned industrial buildings stimulates the development of industrial tourism)? Or is it the production system that generates the change (the expansion of the production system generates the creation of new buildings, research centres, etc.)?

The first line shows the effects/the output of the dynamic of the resource (in terms of development or regression). Taking into account the different possible configurations, we can distinguish four archetypical cases of resource dynamics.

### 2.2.1 Case I – dynamic of renewable growth

In this case, the dynamic of the production system involves that of the object in a positive way (i.e. it favours regeneration) and the resource develops. This is a resource dynamic of renewable growth. Here, the identification and implementation processes are established and the issue is that of the installation/maintenance of the creation and destruction processes. This is the case, for example, in an existing production system that has reached a certain size, is stable or growing and requires clearly identified resources. There is an established market for these resources in the region. The problem then consists of organising a larger-scale replication of these resources. By replication, we mean creating resources that more or less compensate for their loss. Regeneration may be static and regenerate previous resources exactly as they were. It may also be dynamic and not only regenerate but also generate extra resources according to the demands of the production system. This regeneration takes very different forms depending on the type of resources, such as training and research for the replacement of skills that are disappearing as the workforce ages and classification and maintenance work relating to the architectural heritage.

### 2.2.2 Case II – dynamic of erosion and/or depletion

Here, the dynamic of the production system affects the object in a negative way (i.e. it leads to its destruction): the resource declines and is followed by the dynamic of erosion and/or (physical or economic) depletion. The identification and implementation processes weaken and deteriorate. The resource is not renewed. After a certain time, the risk is of the disappearance or abandonment of the resource. As the latter happens, a certain number of objects remain because their lifespan is longer than that of the production cycles that have disappeared (e.g. buildings, machines, grazing, people with skills, tunnels – in a mine – training and research institutions). The disconnection from the production system brings a separation between the economic sphere and the rest of the local society. The remaining dimension of these objects is extra-economic: cultural, natural or social, etc. If they no longer possess economic usefulness in the local context, these objects can have value for the community, the environment, etc. Three scenarios are then possible. In the first scenario, objects are forgotten and deteriorate at a rate dependant upon their physical and chemical characteristics as well as the environmental constraints. For example, fields or buildings are neglected, skills are forgotten or disappeared with the people who possess them, tools deteriorate, etc. In the second scenario, objects are moved geographically, finding new economic usefulness elsewhere with varying levels of prestige. Skills migrate with the people who possess them; transferable objects can be moved and reallocated, etc. and thus cease to be a potential resource in the region. Finally, in the third scenario, they become territory in the sense that they are incorporated into the ‘heritage’ part of the cultural heritage or landscape of a place. Their maintenance is thus assured, by a different logic from that of the past. They become part of the heritage, such as museum objects and natural reserves. The extended life of these objects results from the value they have for a local society, a value that justifies their maintenance.

### 2.2.3 Case III – setting off

In this situation, the dynamic of the object affects positively the production system (e.g. gives rise to the development of the activity and innovation). The resource develops in a setting off dynamic. Here, the processes of creation and destruction are established. The issue lies on the setting up/maintaining of the processes of identification and implementation. It involves, for example, recycling or restructuring preexisting objects in the territory. These objects have been created either by natural, social, cultural, etc., dynamics or by a previous economic activity that has collapsed and ‘liberated’ these former resources to turn them into objects without any economic connection. One way or the other they are ‘brought into the national heritage’, that is, they change status from historical or cultural goods, or are forgotten. Through this process, which may involve a phase of ‘being on hold’, these objects change in meaning in the eyes of certain actors who imagine new productive combinations incorporating some of the objects.

This last phase is particularly interesting from the point of view of territories because it is characterised by multiple new contacts between diverse actors. It is often necessary to take a step back. This raises the question of the ability of actors within a territory to imagine the interest in objects they may have on the part of potential external customers or partners. Dubet (1994) shows how this stepping back is an essential prerequisite for the mobilisation of specific skills of immigrants. In the context of regional development,

standing too close ‘organically’ (or emotionally) to certain objects (natural sites of interest, architectural heritage, ‘noble’ skills, etc.) can constitute significant obstacles. It can stop innovative projects based on the alternative use of these objects. The milieu can thus become an obstacle.

These redevelopments can, at the outset, be small-scale projects that mobilise a wide variety of energies and finance, but generally not enough of them. These projects are often at the limit of what is economically positive, and always mobilise voluntary help in the hope, eventually, of seeing a major development. These hopes are often disappointed, but not always. Occasionally, these radically new solutions create new frameworks for growth (new products or services which later see major development). Who would have thought, 20 years ago, that tourism on the farm or ‘industrial’ tourism would develop to such an extent?

A vital question is that of financing investments prior to any increase in market value. In fact, the process of setting off often requires investment for renovation and improvement. In the case of historical or cultural resources, it will be necessary to carry out historical research, write leaflets and guides, develop devices for official recognition (the classification of historic monuments, etc.), to make the sites safe, etc. For resources in expertise, it will be necessary to adapt the skills to new jobs and to enable the integration of people into new organisations. We may also ask who will finance this work? Who will advance the funds?

#### *2.2.4 Case IV – dynamic of shortage*

Shortage corresponds to the case when the dynamic of the object has a negative effect on that of the production system (i.e. it limits production) and the resource regresses: this is a dynamic of shortage. Destructive processes gain the upper hand over the creative process. In certain places and at certain times, vital input can fail or no longer be available in sufficient quantity. The breakdown of supply lines, the fact that young people turn their backs on certain jobs, a lack of interest on the part of the financial institutions in some activities, a reduction in salary differentials between two places, or any similar occurrence can place a question mark over the growth or even the very existence of a territorial production system.

The evolution of a resource can be marked by different forms of dynamics though time. Nevertheless, the existence of a ‘resource life cycle’ that would start with a setting off phase, followed with continuous growth and then eventually erosion and depletion, indeed shortage does not appear to be prevalent. The case studies showed that at each moment of ‘progression of the resource’, the risk of falling into a regressive dynamic is present. The emergent phase of setting off can be blocked by a lack (shortage) of many different means, of which financing is probably the most crucial. For example, regions trying to develop tourism will first base their supply on existing attractions. After a certain period of time, if the production system is not able to generate enough infrastructures (accommodation, transportation, hosting, etc.) or the development of new attractions or services, the project might stagnate or even disappear because of lack of ‘objects’. A renewable growth dynamic can be stopped if the production system fails to organise the renewing processes (learning processes, R&D investment) of the resource (know-how).

The objective of this first section was to conceptualise the notion of resource. The issues at stake related to resource dynamics were envisaged from the point of view of the

innovative milieu approach, that is, from a point of view of learning and technological development, interactions and networks and finally proximities and territory. Then, a conceptual framework allowing us to analyse the articulation between resources, production systems and markets was presented. Section 3 presents the results of the cases studies.

### **3 Resource dynamics and innovative milieus: results of the survey**

The case studies presented were carried out in the context of the Sixth Survey of the GREMI and took place in the years 2001–2002. The choice of the cases was made in order to allow comparison rather than to gain an in-depth understanding of a particular case of resource dynamic. Four highly contrasting cases of cultural and natural resources located in Switzerland were studied: the Asphalt mines of La Presta (Neuchâtel region), which became an eco-museum after many decades of ore exploitation, industrial watchmaking know-how and its cultural heritage in the arc of the Jura mountains, now used as a resource for tourism development and banking know-how in Geneva. These studies cover cases of material and non-material resources, highly urbanised spaces (Geneva) or more rural ones (the arc of the Jura mountains), old resources and relatively recent ones.

These studies are based on both bibliographic research and in-depth interviews with key actors. In each case, the processes of creation, destruction, identification and actualisation of the resources were highlighted. The way these processes interrelate as well as their temporal and spatial dimensions were analysed. The actors involved and the associated modes of co-ordination have been identified.

#### *3.1 Presentation of the case studies*

##### *3.1.1 The asphalt mines: from erosion and exhaustion to valorisation<sup>3</sup>*

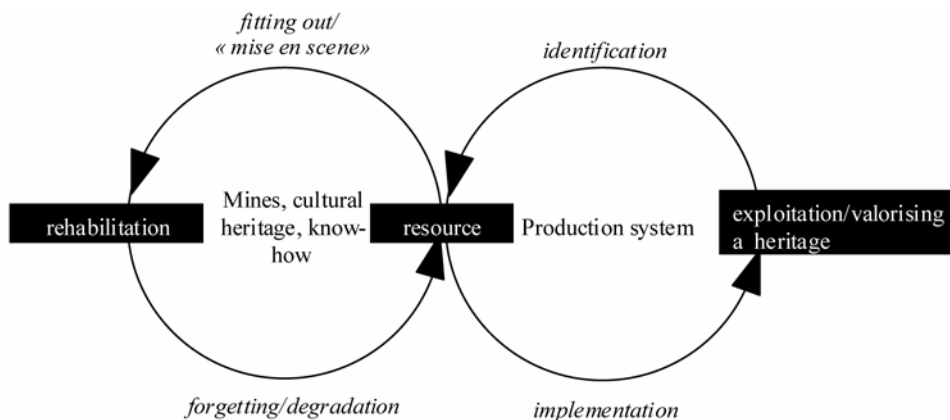
The La Presta asphalt mines are located in the Val de Travers, in the Canton of Neuchâtel, Switzerland. Created during the period of ore extraction, the mines are today open to visitors and constitute one of the main tourist attractions of the region.

The mines underwent a radical change of dynamic, moving from intensive extraction to valorising the remaining cultural heritage. This change of use took place via the creation of a ‘scenario’ for the mines and refitting them, and via rehabilitating the objects and resources, all aimed at bringing them in line with today’s demands regarding tourism. This approach was an innovative one, and took place in an innovative network structured around the company operating the mines. Today, the dynamic of the resources is that of valorisation, that is, creating the conditions (product definition, production process, market conditions, etc.) in order to give an economic value (additional or not) to a resource. The change from mining – whose dynamic was of erosion/exhaustion – to tourism brought a rupture in terms of geographical scale and territory: the major British company that operated the mine was replaced by a local enterprise whose objective is rehabilitating the site and operating it.

The development of the tourism activity is the product of an innovative network. This network is based on a series of complementarities (between tourism, valorisation of cultural heritage, restaurant, etc.) that made it possible to mobilise the resources

necessary for the creation of a composite supply that is likely to attract a maximum of visitors and to make the site profitable (the visits alone would not be sufficient). The creation of the product led to the emergence of milieu effects. However, these effects are limited to the development of the site. This being the case, we cannot speak about the dynamic interaction and learning that would be characteristic of a milieu-type organisation, since the network remains based on persons. There is, in fact no ‘beyond the individuals’ effect that characterises an innovative milieu. Figure 3 presents the dynamic of the valorisation that took place regarding the asphalt mines as a resource.

**Figure 3** The asphalt mines: a dynamic of valorisation



### 3.1.2 Watchmaking know-how and its cultural legacy: a dynamic of valorisation

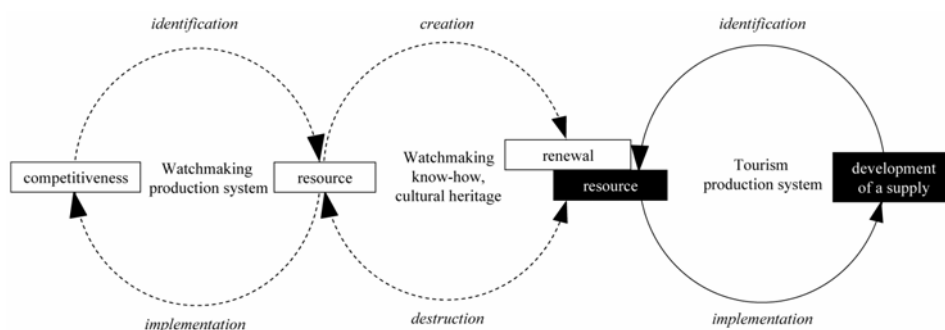
The arc of the Jura mountains is characterised by a strong and very old watchmaking industry (Crevoisier, 1993). Today, the worldwide renown of the watchmaking brands and projects has given the region’s tourism milieus an idea: that of using this renown and the region’s cultural heritage of watchmaking in order to create a tourist destination. In addition to the cultural elements (know-how, identity, image), there is also a rich material legacy (exceptional timepieces, machines, measuring instruments, etc.) managed by the region’s public and private museums plus an architectural heritage.

Setting up the tourism destination consists of developing a new type of use based on an existing resource. Using the know-how within the framework of regional tourism, promotion is a radical innovation and is at present in its very early stages. Unlike the former case of the mine, the development of the project is taking place in parallel (as a diverging route) to the original industrial use. It is marked by use conflicts between the watchmaking production system and the ‘new’ user-based production system (tourism).

At present, the issue at stake lies in the development and structuring of the tourism destination, which is so far relatively minor. The actors (tourism) developing the project are structured as an innovative milieu. They are at the origin of the identification process and are implementing the resource on a collective scale. A certain number of conflicts are emerging regarding this reorientation of the know-how and watchmaking culture. The watchmaking companies had, in fact, held exclusive control over these

aspects in the past. Even though they have long been carrying out cultural activities surrounding watchmaking, these were always developed with the exclusive aim of promoting their products and on an individual basis. The change to an activity in which tourism and hospitality become the main purpose, that is, from a production to a service activity, is not something that can be taken for granted. The viability of this project is largely influenced by the relations among the actors committed to the Watch Valley project. Figure 4 illustrates the dynamic of valorisation off that is taking place in connection with watchmaking know-how.

**Figure 4** Watchmaking know-how: a dynamic of valorisation



### 3.1.3 Banking know-how: a dynamic of renewable growth

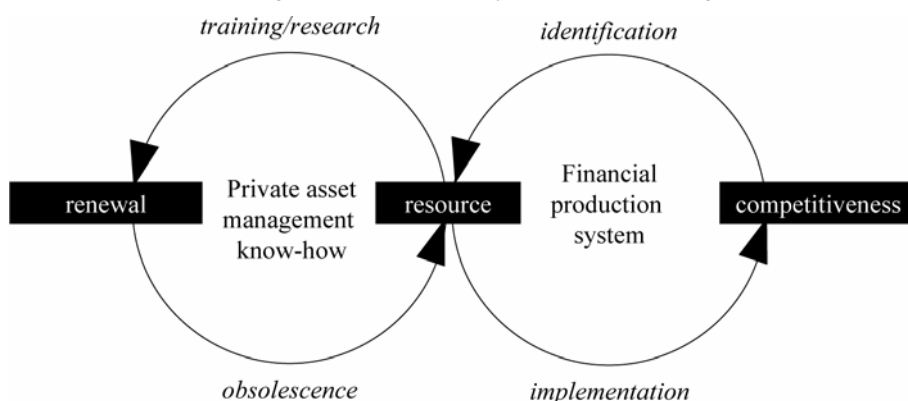
Private asset management and the financing of international trade are the main specialisations activities of the Geneva banking production system. Closely linked to the activities of ‘Geneva as an international centre’ (for international trade and organisations), these activities are based on a banking culture that was forged over time and is strongly embedded in the historical and cultural context (Crevoisier et al., 2001). It is also based on the local workforce and its specialised skills (Genève place financière, 1998a,b).

The tasks linked to these two banking activities have evolved according to the evolution of the markets. Although the asset management market has become considerably sophisticated from a technological and organisational point of view, the financing of international trade has in essence evolved a very little.

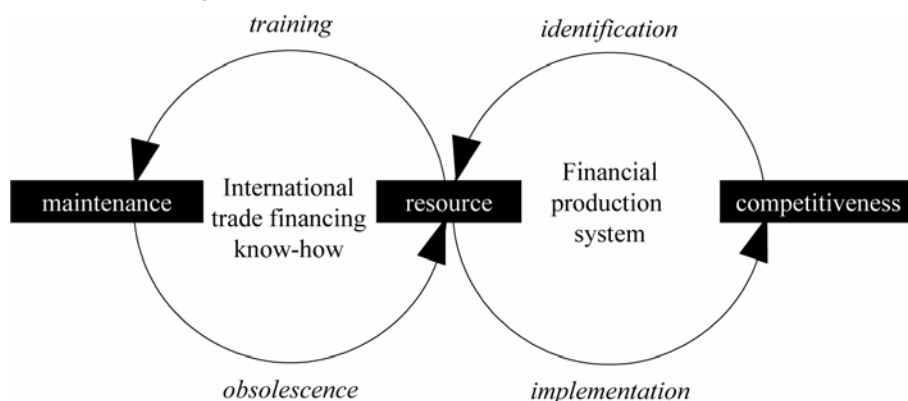
Both types of know-how follow a dynamic of renewable growth. At the time of the survey (in 2001), private asset management and the financing of international trade had been prosperous activities for many years and were positioned at an international level. Although the issue at stake for the banking production systems is to maintain their level of competitiveness, the strategies in terms of resources differ for the two cases. The know-how in private asset management has a technical dimension that is evolving rapidly and that must be renewed constantly. To cope with this rapid evolution, some strategies and institutions, through milieu effects, have been developed by the actors in order to keep this problem to a minimum. Know-how related to the financing of international trade, however, is evolving a little. The issue at stake is to maintain the object/resource by means of training (essentially on the job) for young recruits.

In this context, the permanence of the resource depends on the articulation between the evolution of the production system and the object. This articulation is predominantly organised within ad hoc institutions controlling notably the evolution of know-how. The perspective here is of building continuity. The development of the production system – highly positive over the last 20 years – brings a growing demand for trained staff. In the case of private asset management, new institutions have been set up (training centre, etc.). In the case of know-how related to trade, the question is more of maintaining the resource than of renewing it. Figures 5 and 6 illustrate the dynamics of renewable growth that are taking place regarding private asset management and the financing of international trade.

**Figure 5** Private asset management know-how: a dynamic of renewable growth



**Figure 6** Banking know-how regarding the financing of international trade: a dynamic of renewable growth



### 3.2 The dynamic of resources and innovative milieus

Various cases studied present different dynamics. Table 1 presents a synthesis articulated around various elements and processes that constitute the resource's dynamic, that is, the objects concerned, the associated production systems and the resources as such, the forms of organisation and the related territories.

**Table 1** Overall synthesis

		<i>Asphalt mines</i>	<i>Watchmaking know-how and culture</i>	<i>Banking know-how (private asset management)</i>	<i>Banking know-how (financing of international trade)</i>
Object	Creation	Geo-chemical process Learning via inter-personal contact, historical research	Learning becoming cultural heritage, interpersonal contacts	Learning in institution Training, research, interpersonal contacts	Learning on the job Training, interpersonal contacts
	Destruction	Degradation of the site, forgetting	–	Obsolescence	Obsolescence
Production system	Implementation: Economic activity	Extraction, then tourism	Industry and tourism	Tertiary, exporter	Tertiary, exporter
	Implementation: Economic importance	Few jobs, little structure	Cannot be measured (too early), in the process of becoming structured	Many jobs, highly structured	Small but highly structured sector
	Implementation: Competitiveness	Radical innovation	Radical innovation	Adaptative innovation	Little innovation
		Small market	International market targeted	Market constantly growing	Market constantly growing
Identification of the object as a resource	Perceived as a cultural heritage to be valorised	Perceived by two milieus, either as a resource whose use is ancient and exclusive or new and collective	Perceived as a resource	Perceived as a resource	
Resource	Dynamic of resources	Erosion and exhaustion, then valorisation	Renewable growth and, in parallel, valorisation	Renewable growth	Renewable growth
Organisation	Dominant actors	Large companies, then local actors	Watchmaking companies and institutions, tourism promotion	Local institutions and companies	Local institutions and companies
	Modalities for managing the resource	Change from the large company to the innovative network	Competing milieus	Milieus not highly innovative, but that favour interaction	Network effects
Territory	Territorial evolution	Rupture	Bifurcation	Continuity	Continuity

The first group of results concerns the objects studied. An analysis of the methods of learning applied in the various dynamics observed reveals the cases where there is a genuine creation of objects, as opposed to those where it is simply a matter of maintaining existing ones. We thus observe that interpersonal contacts intervene in all four case studies, whereas research – which permits the creation of new (non-material in this case) objects – only takes place in the case of the mines and of know-how in private asset management. In both cases, one of the issues at stake within the dynamic is precisely that of renewal and rehabilitating the object. Regarding watchmaking know-how, learning is essentially institutional. The actors learn to work together, which makes it possible to structure the implementation process. The renewal of the know-how in itself remains, for the time being, in the hands of the original production system, that is, the watchmaking system. At this phase of the tourism promotion project, there is thus no issue at stake related to the object itself. In the case of know-how related to the financing of international trade, the essential factor is that of reproducing the know-how: the profession is evolving little on the technical level. We note, moreover, that the learning observed in the different dynamics is taking place at different levels, thus bringing about diffusion effects whose extent varies from case to case.

The second group of results concerns the production systems that make and mobilise the resources studied. A first criterion is that of the degree to which the resources studied are structured. The second indicates their weighting in terms of jobs, in relation to the other regional production systems. We note, without great surprise, that the resources involved and active within radical innovation (mines and watchmaking know-how) are both associated with a tourism production system that offers relatively few jobs and that is as yet not highly structured. The main issues at stake are, in the former case, the operation and valorisation of the asphalt mine site, and in the latter – for the actors within tourism promotion – the development of the market by means of a promotion concept based on the watchmaking character of the region. The cases of banking know-how (incremental innovation) are, however, both marked by mature, well-structured production systems where the main issue at stake is maintaining the level of competitiveness.

The objects studied constitute a resource within the framework of tourism promotion and industrial production systems and concerning services. They have a single purpose, except in the case of watchmaking know-how, where the resource is mobilised in both the original activity (watchmaking) and in the new one (tourism).

Maintaining the link between object/intention, in the case of the mines, is a matter of the viability of the company operating them. If this company should close (and if no other buyer were found), the link could fail and the resource would disappear. In the case of watchmaking know-how, and at this stage within the implementation of the resource, it is maintaining the relations between the actors affected by the project that is crucial. Here as before, the link depends on the individual actors. For banking know-how, the link is more solid in that it concerns the entire production system and is not based on the actors but on a structured, impersonal whole. Beyond this, and in order for the resources to be durable, the objects and production systems must maintain themselves, despite possible market crises (which could lead to the economic resources in question being exhausted) and despite phenomena of degradation, obsolescence and of forgetting.

In terms of organisation and coordination method, we note the existence of conflicts regarding use in the case of watchmaking know-how; the development of the Watch

Valley project implies a new way of using the resource, and one that is taking place simultaneously with the original use.

In each of the cases observed, the role of proximity coordination appears important. The presence of a site of interest (the mine) that was in the process of being abandoned led to identification and innovation by a local innovative network essentially based on non-commercial relations and on the basis of mobilising the resources of the state. In the second case, the existence of a local resource previously operated on an individual basis by the watchmaking companies has led to the reidentification of an existing resource and to innovation by an innovative tourism milieu seeing international opportunities. In the case of international trade, it is the circulation of the workforce among various companies constituting the financial centre that appears crucial. Finally, and regarding asset management, the training system develops on-site, in order to be in line with the evolution in financial techniques that is taking place in other international centres. For these two latter cases, the first is marked by network effects and the second by milieu effects. Control over the resources studied takes place at different levels, such as that of the local or national institutions and that of the market.

The problematic of managing resources on the long-term is moreover related to the coordination methods and other strategies developed by the actors who control and articulate various processes that constitute its dynamic. We can also raise the question of the territoriality of the processes concerned. One wonders, in fact, on what scale they operate in temporal and spatial terms. A major distinction appears in the geographical origin of the change between the two first cases and the two last ones. The origin is endogenous, characteristic of movement regarding what is available in the two tourism cases (mine and Watch Valley project). The nature of the resources plays a vital role in the type of product/service developed. The main problem of the management modalities is access to these resources, which are partly controlled by other actors. In both cases, the evolution of the resource dynamic brings about changes to territory. In the case of the mine, the move from mining to tourism activity is marked by a rupture of scales: from a secondary activity, it became a tertiary one, and from being an international operation, the process and the actors of the resource become mainly local or national. The case of watchmaking know-how is different. Here, it is a question of a diverging route. The original activity lives on, with the tourism activity developing in parallel. Although the resource's territory is becoming larger with the arrival of the tourism actors, the spatial and temporal scales remain stable and new types of client mobility are developing.

In the case of both types of banking know-how, the resources are created and used in one and the same production system. The problem of access is present to a small degree in that competitors arrive in the region without necessarily contributing towards the renewal of the resource. These two production systems are sufficiently prosperous to renew their respective areas of know-how needed – as long as the question of innovation does not become a more pressing factor. Today, the impetus comes from the exterior (adaptation to clients and new technology). It takes place progressively and does not raise any particular problems. We observe, moreover, a stability regarding territories and scales.

In terms of the dynamic of resources, we are witnessing three different types of development. The asphalt mines are moving from a dynamic of erosion/exhaustion to a dynamic of valorisation, watchmaking know-how is 'growing new shoots', giving rise to the development of an activity of valorisation, simultaneously with its original industrial use. The two cases of banking know-how follow the dynamics of renewable growth.

Different in terms of content (their level of technology differs), they give rise to methods of coordination and of management that are more or less formalised and institutionalised.

## 4 Conclusions

To conclude, we could formulate the hypothesis according to which production systems undergoing crises, where the stimulation to innovate is considerable, will create resources (they will identify existing objects and incorporate them into new, productive combinations) but will not create new objects. Inversely, stable production systems, more mature, are less innovative but have usually developed ad hoc structures that permit them to create well-defined objects (training or specialised research institutions, museums, etc.) whose modalities for use are already in place.

Innovative milieus are the creators of collective resources. They take part in the identification process that is necessary in order to establish the link between an object and the intention to produce. They also participate in and drive the initial implementation of these resources, with all this implies (creation of objects necessary for the 'setting off' phase, implementation of the production process). Once the product becomes stabilised, however, and once innovation gives way to operation or standardisation, more formalised forms of coordination, focused on maintaining and renewing the resource, then emerge. We note, moreover, that innovative networks and innovative milieus appear clearly in cases where the dynamic of a resource changes.

A resource is a series of complex processes that evolve and are sometimes contradictory. In addition, both the territorial distribution and the dynamic of these processes can – just as we saw regarding watchmaking know-how – vary as the objects and production systems concerned evolve.

However, the relationships between the dynamic of resources and the evolution of the territorial production system raise the question of relationships between the economy, the rest of society and nature in a more fundamental way. A river, a mountain, the history of a region, skills from the past, modern skills, a brand image, etc., are objects whose creation and destruction are, to a very great extent, a matter for social, political or natural dynamics. The justification of economic effectiveness is not, therefore, enough to explain their conservation or abandonment.

In fact, it is sometimes very difficult to draw a line between what is an economic resource and any other natural or cultural object. The distinction seems to be blurring today and, in extreme cases, it is tending to disappear.

The elements on which today's competitiveness of a region is based are surely not the same than the ones that will create competitiveness in 20 years time. What can we say, for example, about a regional community that may choose to take a risk on the development of the culture of show business? Hydrogen-powered aircrafts? Traditional agricultural skills? African medicine? Is the idea to launch out in one of these directions eccentric or unjustified? The right question is, of course, about the conditions under which the investment in these 'objects' could bring about – eventually and perhaps unintentionally – future economic competitiveness.

This question is difficult because societies must constantly make choices. For example, a preference has to be given to subsidising theatre companies or to restoring historical heritage. It highlights not only the question of economic efficiency, but also

more broadly the social and cultural values favoured in a given context because the creation of objects is far from being a simple question of economic allocation.

The conceptual framework developed in this paper suggests that regional societies that manage to keep alive the processes of creation, identification and activation are those who may see their resources evolve in a positive way. In this sense, the apparition of innovative milieus at a certain historical period is crucial in order to reconnect 'objects' with productive activities. During other periods, it is the capacity of the local society to produce and preserve knowledge, natural and cultural heritage, that seems crucial.

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## Notes

<sup>1</sup>The same issue was also found at the level of the firm in cases where building specificity through continual adaptation was needed (Resource-based approach, Foss, 1997).

<sup>2</sup>In this sense, we are distancing ourselves here from the hypothesis of perfect rationality that implies full alignment of the information (resulting from the environment) and the reality of this environment. The perceptions and representations are crucial in identifying what constitutes a resource and what does not.

<sup>3</sup>The historical section of this case study is based on the works of Jelmini, 1987.