

Title: The 'innovation turn' in the cultural industries: adapting the regional productive system to globalisation. Evidence from three image-producing sub-sectors in the Paris region

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Abstract:

To improve policy responses to regional economic development issues, recent research inspired by evolutionary economic geography has focused on cluster life cycles models. This paper uses a cultural economy vantage point to critically discuss these diachronic models and to provide an alternative conception to the temporalities of clusters dynamics. Starting from the observation of an organisational and institutional shift (encapsulated in the concept of "innovation turn") happening in three image-producing industries in the Paris region (animation, video game and multimedia & web industries), the paper first points to how a territorially-based collaborative innovation model of development has emerged, and incidentally transformed the metropolitan cognitive framework. It then discusses the contributions of formal/informal institutions in clusters' evolutionary developments. From this, a rationalist linear scenario to understand economic change at regional level is refuted and an alternative co-evolution pattern between firms and organisations' practices, narratives and institutions is presented.

Keywords: Cluster, Innovation turn, cultural economy, Co-evolution

Section 1: Introduction

In a context of increased perceived global competition and the growing role of innovation as a business strategy, clusters are increasingly used as elements of regional economic development policies (1999). However, if the workings of geographically concentrated and interconnected firms and organisations in a given domain have been the focus of a large body of research (COOKE, 2001a; PORTER, 1990; STORPER, 1997), their dynamics are still imperfectly understood (MENZEL and FORNAHL, 2007), with the consequence of limiting clusters developments-oriented policies. Recent research have acknowledged the lack of an appropriate understanding of cluster evolutionary developments and tried to address this cognitive gap by analysing clusters life cycles (MASKELL and MALMBERG, 2007; MENZEL and FORNAHL, 2007). The sequential "models" that result from this are robust in sketching the emergence, growth, sustainment and decline of most clusters in *descriptive* terms. However, I argue that several analytical limitations appear, one being a diachronic or *fixist* view to clusters' transformations and a second being linked to gaps in the theoretical explanations of clusters "shifts" (LORENZEN, 2005) or life cycles.

Among potential theoretical approaches, evolutionary economic geography (EEG) (BOSCHMA and MARTIN, 2007; BOSCHMA and FRENKEN, 2006; BOSCHMA and LAMBOOY, 1999) is increasingly mobilised in the recent literature. However, its focus on firm-level dynamics face the risk of marginalising theoretical underpinnings brought by institutionalist-influenced analyses (MACKINNON et al., 2007). Institutions in this regard are mostly seen as outputs of firms' changing organisational routines rather than forces of change. I argue that institutions are by no means external to clusters' dynamics, but quite on the contrary can significantly contribute to - or restrain - economic change. It is this gap in recent research on cluster dynamics that the paper seeks to address.

More particularly, I set out to discuss two major aspects. First, I suggest another relation to time in cluster change, different from the diachronic approach where shifts are conceived as a series of "fix" sequential configurations. Although some visible effects can be grasped through the large-size diachronic net of cluster life cycle descriptive models, the paper suggest at a finer level that the underlying dynamics that drive cluster change are more chaotic and, above all, much more continuous a process. This invites to critically discuss the relations between the ceaseless reshaping of clusters and the long-wave tides of the descriptive models. Second, acknowledging the importance of firm-level routine organisations, I nonetheless attend to mobilise the cultural economy and, to some lower degree, the cultural political economy body of research to give evidence of the role of institutional and cultural change in enabling economic shifts (such as cluster

transformations). As a consequence of these two strands of analyses, and based on empirical material on three emergent/growing Paris Region image-producing industries, the paper analyses two competitive theoretical models of cluster evolution, between, on the one hand, a rationalist evolution (*linear pattern*) and, on the other, a co-evolutionary path (*braided pattern*).

The paper starts with a critical overview of the literature on cluster evolutionary developments. A particular attention is given to both descriptive models and theoretical underpinnings provided by research following an EEG line of approach. Section 2 move son on the explanation of the research position and protocol by mobilising cultural (political) economy concepts. Section 3 provides contextual elements to the case studies under consideration. Based on material mostly drawn from interviews, section 4 provides a critical appraisal of a linear rationalist model of explanation for the "innovation turn" happening in the three clusters and sets out to discuss an alternative view based on a co-evolutionary change. Section 5 details how a complex system of ceaselessly changing narratives constantly reshape the regional cognitive arena while section 6 focuses on the role of emerging practices embodied in formal and informal rules. Section 7 discusses the results in the light of the theoretical debates on clusters shifts and provides some conclusions and policy implications.

Section 1: State-of-the-art

With innovation becoming a major concern for regional development policies and a predominant source of interrogations for regional studies, clusters are increasingly analysed as "regional innovation systems" (COOKE, 2001b:1) or as "innovation clusters" (HAMDOUCH, 2007). Applying the idea of an "innovation turn" (LAGENDIJK, 1999) to now classical Porter-inspired definitions of cluster leads to the study of *socio-spatial organisations of geographically concentrated and interconnected firms and organisations in a given domain* (PORTER, 1990, 1998) *that turn their strategies and actions to promote and develop multiple forms of innovations* (product-related, process-based, organisational, institutional, etc.). The "innovation" turn can be experienced at the micro-level with firms developing strategies to enhance their "innovation capacity" either within the company's boundaries or in interacting with other firms (SZETO, 2000). It can also refer to firms and other organisations of a cluster developing *collective* actions at a meso level to improve the *regional* innovation capacity, following the assumption that the overall economic performance of a cluster is linked to its collective organisation (SUIRE and VICENTE, 2008).

Although the "innovation turn" might be helpful to grasp some current changes happening in clusters at both micro and meso levels, the notion needs to be considered

cautiously. Research should aim at critically disentangling the *making* of innovation as a preferred model for regional economic development. This paper wishes to contribute to such an attempt by analysing the theoretical underpinnings of an "innovation turn" undergone in the Paris Region Image-Producing Industries.

Cluster: workings and evolutions

I first build on recent works that consider clusters for their dynamics rather than their functioning. I follow in so MENZEL and FORNAHL's introduction to their analysis of cluster developments (2007) in which they highlight how a large part of the dedicated literature has, so far, mostly focused on the workings of clusters:

"(T)he strong research focus on the way clusters function is contrasted with a disregard for their evolutionary development, i.e. how clusters actually become clusters, how and why they decline and how they shift into new fields (see also LORENZEN, 2005). The few existing insights on the emergence of clusters, for example, lead to the conclusion that the processes responsible for the functioning of a cluster cannot explain its emergence." (MENZEL and FORNAHL, 2007:2)

In other words, if, for example, Porter's diamond sets out to qualify *how* a cluster works, the reasons "*why* do cluster change" to quote LORENZEN's editorial (2005) remain only very partially answered. That said, the recent academic production on regional development and clusters have witnessed a surge in the number of works attempting to qualify the "shifts" (LORENZEN, 2005) that affect clusters. Intermediary findings as expressed in MENZEL and FORNAHL (2007) justify this interest:

"These findings indicate two things: first, that clusters follow a kind of life cycle with different phases or stages of emergence, growth and decline that differ in their characteristics. The second is that theories that explain the dynamics of functioning clusters are not sufficient to explain their evolution." (Ibid, p.2)

The focus on "evolutionary development" of clusters has given birth to several dynamic model of cluster life cycle (CLC) acknowledging 3 to 4 stages (for an example see Figure 1) including emergence, growth, sustainment and decline. Several rejuvenation processes such as adaptation, renewal and transformation (MASKELL and MALMBERG, 2007; MENZEL and FORNAHL, 2007) account for non-linear changes. To illustrate this, figure 1 can be read from left to right but also, because of so-called "rejuvenation" processes, from right to left.

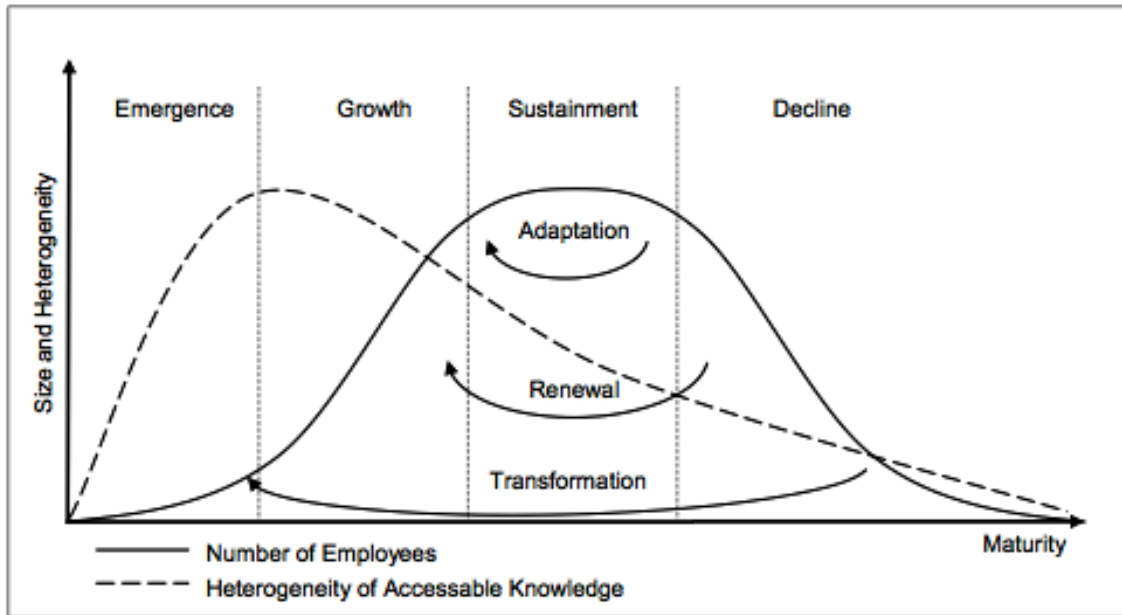


Figure 1 : A 4-stage model of Clusters Life Cycle in MENZEL and FORNAHL (2007)

This sequential non-linear model proves beneficial to emphasize how clusters are evolving socio-spatial organisations. This fits well with MASKELL and MALMBERG's (2007) idea that the characteristics of clusters do change over time according to their position in the life cycle (see also BRESCHI and LISSONI, 2001). However, it raises several difficulties at both a descriptive and analytical level. On the first aspect, the curve fails to account for the high uncertainty that weights on firms and organisations in a given cluster. The step-by-step model seems to under-estimates the permanent risks of failure that can occur at about *any time* in real life, i.e. including the early stages such as emergence and growth (for an example, see ORSENIGO, 2001). More attention should be paid to "*uncertainty*" for it has been analysed as instrumental in the production of "reflexive collective actions" at regional level (STORPER, 1997:49). Second, the model is based on a *diachronic* conception of time: to each stage its specific configuration. Evolutionary developments are thus presumably conceived as a series of shifts from one organisation or functioning to the next, reflecting what I would call a *fixist* understanding of clusters' dynamics. It may be that within a given stage (of emergence, growth, decline), a cluster goes through several configurations, or even more, as I intend to discuss here, ceaselessly reorganises itself. My hypothesis is that it is too simplistic to picture changes as the result of a step-by-step sequential shift. Evolutions can prove much more chaotic in real life, and reflect a *continuous process of transformation* of both firms' practices and strategies at micro level, and of collective actions at meso level. My paper will illustrate how the conceptualisation of time as sequential or diachronic does not fully render the incessant initiatives and evolutions that characterise cluster development. Third, the robustness of the "model" comes from the fact that it is empirically sound and can be

verified in all cases (don't all clusters go through phases of growth and decline, albeit at different paces?). However, the theoretical underpinnings of such models are not informed, leaving open the issue of the nature of the processes at work in clusters' evolutionary developments.

NEG, IEG, EEG: theoretical accounts for clusters evolution

What can be the explanations to account for clusters' shifts? First, Schumpeterian long waves of "creative destruction" could be applied to explain clusters formation and developments (SCHUMPETER, 1934). Based on classical economics assumptions, such as utility-maximising agents, the emergence and growth of a cluster would thus be linked to the capacity of a given region to host radical innovators and, above all, imitators that access to innovation, for instance, by ways of marshallian industrial district-types knowledge circulation or, more generally, in the forms of agglomeration externalities (see COOKE, 2001a:24 for a discussion on the geography of Schumpeter creative destruction).

A second line of explanation could be based on cultural and institutional perspectives as developed from the 80s onwards. By accrediting an instrumental role to culture and institutions, the emergence and growth of a cluster would thus intimately be related to territorially-built cultural resources, which can be tapped by firms. The GREMI argument for example makes clear that *innovation milieus* pre-exists firms' developments (AYDALOT, 1986).

A third perspective is based on the findings of Evolutionary Economic Geography (EEG), although the approach still lacks a unified theory (see the variety of perspectives presented in the *Journal of Economic Geography* Special issue on EEG, from networks analysis in GLUCKLER (2007) to "complexity thinking" of MARTIN and SUNLEY (2007). However, I gather from several contributions that cluster's evolutionary developments analysis is mostly to be conducted at the micro-level of firms. For ESSLETZBICHLER and RIGBY (2007), it is competition between economic agents located in different geographical spaces that lead to clustering and differentiated trajectories between places. For BOSCHMA and FRENKEN (2006), firms constitute the entry point: their bounded rationality and routine behaviours developed over time are key in explaining local and regional evolutions.

"Evolutionary Economic Geography aims to understand the spatial distribution of routines over time. It is especially interested in analysing the creation and diffusion of new routines in space, and the mechanisms through which the diffusion of 'fitter' routines occurs. Following this reasoning, the emergence of

spatial agglomerations is to be analysed neither in terms of rational location decisions, as in neoclassical theory, nor in terms of the set-up of specific local institutions, as in institutional theory, but in terms of the historically grown spatial concentration of knowledge residing in organizational routines." (BOSCHMA and FRENKEN, 2006:278-79)

However, I argue with others (MACKINNON et al., 2007) that the clear-cut distinction between EEG and institutionalist economic geography perspectives is not clear-cut (nor beneficial). For instance, although MASKELL and MALMBERG (2007) focus on the micro-level of firms strategies and mobilise the classical apparatus of EEG (such as selection and retention processes), the authors exemplify implicitly how institutions cannot be left apart in trying to understand evolutions in spatial organisations. Their attempt to analyse clustered organisations' linkage between micro and meso levels, that is between firm-level creation and circulation of knowledge and what they term "localised institutions" is emblematic. Similarly, MENZEL and FORNAHL's (2007) theoretical underpinnings of their 4-stage cluster life cycle model does leave room to what they call "systemic effects". If the size and heterogeneity of a cluster (what they refer to as the quantitative and qualitative dimensions of clusters) are anchor points in their explanation of cluster evolutionary developments, they do not limit their observation to "direct" – read firm level – elements but they encompass, especially when analysing the growth phase of clusters, the critical role of collective actions and of institution building (MENZEL and FORNAHL, 2007). However, these works tend to consider institutions rather as outputs of micro-level actions, which MACKINNON et al. (2007) refutes as a bias towards "individual rationalities alone" (ibid., p. 3). The latter authors goes further in their critical analysis of EEG's recent attempt to depart from neo-institutional economics perspective by re-asserting the role of institutions in explaining economic change:

"The separation between evolution and institutions within the fledgling EEG risks overlooking the important role of institutions in shaping processes of economic change (Hodgson, 2006; Nelson, 1995; Stanfield, 2006). Indeed, institutions (along with technology) have themselves been regarded as important 'carriers of history' in institutionalist economic geography (Martin, 2000), acting to preserve existing social practices and routines and to transmit elements of them into the future." (MACKINNON et al., 2007:3)

Furthermore, I follow their argument when they state that institutions should not be conceived only as elements of inertia:

"In response to the rather impoverished view of institutions as sources of inertia, the simple fact that institutions are also subject to processes of change and

transformation must be asserted (Lawson, 2003). In addition to constraining action, institutions also enable it in various ways, not least by providing the social rules that reduce the uncertainty confronting economics agents to manageable levels (Stanfield, 2006)."

This reasoning considerably revises the EEG micro-level perspective by pleading in favour of a better assessment of institutions and their contribution to clusters shifts over time.

Section 2: Position of the paper and research methodology

My paper intends to build on this position, albeit by mixing two vantage points, to reconsider how clusters' shifts are essentially *continuous dynamic processes* rather than diachronic sequential evolutions. I argue that, on top of analysing micro-level knowledge creation and circulation (as suggested by MASKELL and MALMBERG, 2007), it is by looking at the permanently evolving organisational and institutional configurations that clusters' change can be better understood. This approach acknowledges the key contribution of STORPER in his attempt to link institutions and innovation (STORPER, 1996):

"economies can be conceived as sets of rules, largely implicit in nature, which actors generate and by which they coordinate themselves under conditions of uncertainty. The task of analysis is to understand the cognitive and efficiency properties of functioning systems of conventions, *as well as their emergence and transformation over time.* (STORPER, 1996:761. Emphasis is mine.)

Although this agenda setting proposition provides a clear direction for research, I wish not to limit the analysis to "a system of conventions" but to take into account institutions in a broader sense as for example HODGSON's who define them as norms, established practices, customs, and habits that constitute "systems of established and prevalent social rules that structure social interactions" (HODGSON, 2006:1). One could even go further by asserting that narratives on, and more generally, the representation of economic change by clusters' members, are part of the processes of evolutionary developments. To analyse such dimensions, I first need to draw several methodological and conceptual inputs from the cultural economy approach.

Neo-institutional and Cultural (political) economy perspective

Clusters analyses have questioned the nature and forms of relations (or in an extended meaning "proximities") between geographically concentrated firms and organisations. If economic relations (commercial, industrial, etc.) are one element, there is a well-shared consensus on the idea that clusters are more than pure market-based relations, or, in a non-specific definition of the term, are socially constructed (STORPER and SALAIS, 1997). Forms of proximities can thus be cognitive (shared knowledge), relational (inter-personal networks), institutional (norms, values, formal rules) and organisational (BOSCHMA, 2005). However, although these varied aspects are key to describe the workings of clusters (GILLY and TORRE, 2000; PECQUEUR and ZIMMERMAN, 2004 on "organised proximity"), here again, the *dynamic* construction of organisational arrangements and the incessant production of institutions have received less attention, resulting in neglecting their influence on clusters' evolutionary developments. I argue that all these aspects of firms and organisations' interactions in clusters relate to the cultural production of the economy to which I now turn.

Although the scope of their empirical research considerably differs from the cluster issue (decision-making in the real estate investment industry), I build on from HENNEBERRY and ROBERTS (2008), whose recent paper provides a case for a cultural economy perspective. The now well-known starting point of the argument is that economy is not an independent sphere but is part of the broader social realm:

"Cultural economy refutes the notion of the economy as a separate system; a realm separate from the political, social and cultural aspects of life, with its own system of rules dealing with the production, allocation and distribution of resources (AMIN and THRIFT, 2004; DU GAY and PRYKE, 2002). (...) Culture is, therefore, part of, and helps to make, markets and economies. To remove culture from economy makes no sense (Amin and Thrift, 2004)" (HENNEBERRY and ROBERTS, 2008:1221-2)

From this, emphasis can be placed on the roles of discourses, values and symbols:

"Economies are based on heterogeneous material culture within which actions and practices are pursued. These are not just economic aids but are a fundamental part of what the economy is (Thrift, 1998). Such practices are articulated by and articulate (economic) discourses (Law, 2002). Beliefs, values and symbols (culture) are thus embodied in the actions which form and perform the economy (DU GAY and PRYKE, 2002). Consequently, economies, markets or firms cannot be separated from the descriptions of them. Rather, the discourses used to describe and manage economies also help to make them." (HENNEBERRY and ROBERTS, 2008:1222)

Thus research should not aim at analytically separate economy and culture but to consider the evolution both of firms and organisations' practices and of their discourses on such evolutions as *interlinked* dimensions of the same reality. Furthermore, it can be said with SUM (2005), following a cultural political economy perspective, that narratives and values contribute to the making of hegemonic systems of representation that influence, in our approach, the dynamics of clusters. In other words, analysing cluster change should not be cantoned to the evolution of routine organisations at firm level but should also give consideration to the social construction of institutional change, in which power relations are ceaselessly (re-)negotiated in the economic imaginary of places.

Paper position and research protocol

This paper sets out to use the cultural economy approach to cast light on the organisational and strategic shifts happening in three sub-sectors of the Paris Region image-producing industries (video game, Animation, Multimedia & Web-design). According to cluster life cycle models, these case studies are apparently moving from emerging to growing stages, although in reality their dynamics remain hard to forecast. In this familiar setting, I wish however to question how this diachronic shift combines (or not) with the continuous institutional and cultural adjustments happening in the three clusters. This will lead me to questions:

- the temporalities of cluster change by providing a conceptual framework in which large-grain diachronic life cycles are the visible - but not mechanistic - effects of underlying permanent cultural and institutional changes;
- the modalities of cluster dynamics by opposing two competitive analytical grids based, on the one hand, on a rational self-justifying linear adaptation process to globalisation (shared between most local-regional actors), and, on the other hand, on a co-evolutionary process in which organisational routines of firms, cluster-level coordinated practices, metropolitan institutions and discourses (especially on local-regional economic change) constitute the interlaced strands of the same braid.

To do this, the research protocol has consisted in reconstituting the evolution (if any) of the cluster both at firm and collective levels. The focus was on un-traded interactions occurring between firms and organisations of these sectors in the Paris region. These interactions, when observed, have been qualified (forms and content). However, the research has not been restricted to the practices of local-regional economic agents. Based on the cultural economy approach, I have sought to inform the changes in both the narratives and the norms and habits structuring inter-organisations'

interactions. This has necessitated the making of a documentary corpus, which has been constituted thanks to three types of data collection. First, public-type documentation has been gathered by the analysis of websites presentations, press reports and press announcements, officially edited reports, plans and documents, etc. This has provided both basic data, including quantitative, on firms and organisations' interactions in the clusters. It has also, been the support of a more critical analysis on the strategy (objectives, time-horizon, etc.) of local and regional actors of the clusters. Second, to access to effective interactions, the research protocol has used participatory observations techniques, to understand how firms and other organisations of the clusters under study interact at a collective level. This has been done by attending several meetings in which strategic elements were discussed between actors and by participating in collective events such as BarCamps, Mobile Mondays, etc. Last, a series of 80 semi-structured interviews with industry members (CEOs of SMEs and larger firms, official industry representatives), industry associations, public bodies (development agencies, economic affaires departments) and academic institutions in these three sub-sectors have been conducted (three rounds from April to July in 2006, 2007 and 2008). The analysis is cautious in distinguishing "experienced facts" from "modal references" (BLANCHET and GOTMAN, 2003), thus providing data to acknowledge how both practices and their representations have evolved over time.

Section 3: Case study presentation

The Image-Producing Industries in the Paris region are an example of a historical but still vivid cluster in a metropolitan setting (SCOTT, 2000). Started as early as the Lumière brothers' cinematographic projections in 1894, it has concentrated since its beginnings most of the French industry's firms, employment and financial capital (between 2/3 and 3/4 of the French workers in the image-producing sub-sectors are currently located in the Paris region (CAMORS and SOUALRD, 2006)). Although products distribution is partly linked to cultural determinants, most markets of the sector are now global. Flexible production (PIORE and SABEL, 1984; SCOTT, 1988) is the norm in an industry that is mostly based on temporary projects handled by networked individuals and firms (a limited number of multinational companies and numerous SMEs (HALBERT, 2008)). The cluster has a tradition of innovation that accounts for its persistence over a century as it managed to adapt to changing markets either in the form of lateral specialisations (from movies to animation for example) or diversification (emergence of new media like the web industry). This is how several sub-sectors emerged and grew in the 80s and 90s, among which video game, animation and multimedia and web industries that provide the empirical material of this paper.

Globalisation challenges and the early 2000s crisis

But for some niche activities (especially in the web-design sector), these three recent sub-sectors are competing on global markets where both costs reduction and innovation are perceived as critical to survive. As competition from lower labour costs countries is intensifying, innovation becomes the prevalent solution for most firms:

"Innovation is our only solution to stay afloat." (Interview n°8, Animated movie, May 2008)

However, most SMEs suffer from their limited size and have small if any room for investment in R&D activities, especially since i) the multimedia and information technology bubble bust of the early 2000s and ii) the now chronically lacking capital-risk in France.

"When the new-economy bubble bust at the beginning of the decade, institutional investors became extremely cautious, especially with start-ups. The entire chain of investment was under pressure." (Ministry for the Economy, Tableau de bord de l'innovation, novembre 2006)

Although finding relevant statistical data on such emergent sub-sectors proves to be difficult (sources are mostly business organisations that leverage their statistics to lobby public authorities), the early 2000s have been a time of "crisis" or "haemorrhage" to quote managers and industry representatives. Some firms have closed down, while others have reduced their number of employees or relocated some of their staff to more welcoming regions (Ubisoft to Montreal). This resulted in job destruction for the Paris region showing that emergent sub-clusters are vulnerable. The mechanical progress from emergence to growth to sustainment of the clusters life cycle models should thus be considerably nuanced. Today's situation is one of uncertainty: prospects for both growth and decline are equally plausible.

Although one answer to the crisis has been to seek alternative locations, most firms, and especially SMEs that did not have the culture and financial means to relocate, engaged in collective actions. At first, the objective was to gain public support to weather the storm. It started at the national level with intense lobbying to influence the "rules of the game" (Interview n°5, President, Professional Association, Video Game, May 2006) before moving to local-regional levels where policy-makers proved to be responsive to the difficulties encountered by the image-producing industries. The metropolis thus progressively emerged as a relevant horizon to address industry bottlenecks and develop stronger ties with other locally-based organisations such as higher education institutions (HEI), public-funded research units and local and regional public bodies (including

economic development agencies). In this sense, I argue that the first decade of the century has witnessed a major evolution in the organisation of the cluster, where geographically concentrated firms and organisations have developed new forms of interactions to which I now turn.

Organisational shift

To describe the main aspects this shift, I use six variables (frequency, intensity, degree of formalisation, width, depth and content) that constitutes an analytical framework for the study of collective interactions between firms and organisations in a cluster. The definition and modalities of these variables are detailed in the following table (for more details, see HALBERT, 2008).

Table 1 : Collective actions variables

Variables	Definition	Modalities
Frequency	Number of interactions over a period of time	Low... Medium... High
Intensity	Number of interactions	Small... Medium... High
Degree of formalisation	Presence of formal interactions	Informal... Informal/Formal
Width	Number of communities*	One... to... Multiple
Depth	Number of collective functions shared in the cluster	One... to... Multiple
Content	Types of collective function**	Skill, Land, Regulatory Environment, Networking, Innovation, Marketing, etc.

* Communities understood as SMEs, Large Enterprises, Business Organisations, Public Research Units, Local-Regional Public Agencies and Departments, Other Associations and organisations, etc.

** Types of collective functions can be separated between input- and output-related as follows. Input-based collective functions aims to improve: access to land and to skill (initial and lifelong training of workforce, labour circulation) as well as change in the regulatory environment (incl. tax breaks, incentives...). Output-based collective functions aims to improve networking (to enhance productive encounters between local-regional firms and organisations), innovation (to strengthen market differentiation from other non-local competitors) and territorial marketing (to improve the external and internal image of the cluster and reinforce its attractiveness on customers and workers).

that is mentioned spontaneously in most interviews conducted for this research (HALBERT, 2008).

Cultural change

Interviews with economic agents that have succeeded in surviving throughout the first decade of the century acknowledge a strong difference between the values and practices in the late 90s and the current ones. Animation of the video game industry were considered, in spite of the existence of inter-personal networks, as a "secretive *milieu*" where firms were reluctant to develop collaborative attitudes. Video game development was achieved mostly within firms' boundaries and secrecy did not encourage cooperation. Today's situation has considerably changed. Not only do firms, especially SMEs, do see collaborations as a solution to weather globalisation challenges but also do they show a quite high level of awareness on the mechanisms of territorially-based collaborative innovation. HD3D IIO's CEO, a consortium that associates 17 partners (SMEs, large enterprises, HEIs and research units) to develop a platform of interoperable tools for the animated film industry, sees in this project an attempt to bypass a sector-specific inherited culture of competition-driven reflexes. Instead, he believes that HD3D IIO is a striking illustration of cross fertilisations both at management and R&D levels.

However, the main focus of my paper is not to qualify the organisation shift of three image-producing sub-clusters in the Paris Region but to decipher the theoretical underpinnings of such an evolution by mobilising the cultural economy vantage point to which I now turn.

Section 4: From diachronic self-justificatory explanation to institutional co-evolution

Interviews with representatives of firms and local business associations mostly explain the turn towards innovation as the result of an adaptation to a globalising economy.

"There is something like a consortium of firms with the idea that working together improves the marketing. The idea was to seduce Hollywood and to counter-balance the dominant place of London. But one of the unexpected outcomes is that firms get to discuss to each other. As most of the people are in charge of R&D, you go into details, really down-to-earth stuff, and you start having links with other firms that you wouldn't have expected." (Interview n°2, CEO, Industry, June 2007).

My position is not to discuss the veracity of the globalisation challenges underlined in section 2 of this paper and the opportunity of developing innovation as a collective and individual solution. My objective is to analyse how a common understanding of these issues results in the definition of an evolutionary model for the cluster that can be summed up, on the basis of the interviews, as follows:

- 1) As both markets and production are becoming more global in the image-producing sectors, inter-firm competition has stiffly increased.
- 2) Innovation, sometimes assorted with marketing, is the only viable solution and strategy to pursue because (labour) costs competition is out of reach in developed regions.
- 3) Implementing this strategy requires firm-level internal and collaborative initiatives that should be supported at cluster-level by collective actions.
- 4) The multiplication of collaborative innovation projects is thus the result of the adaptation to stiffened global competition.

This narrative sees the adaptation of the metropolitan economic scene as a linear and quasi-mechanistic reorganisation to an external hazard (i.e. global competition). From problem setting, to strategy formulation, to operational designing (tools, procedures, routines) and to effective implementation, the process of change seems straightforward and follows a rational and utility-maximisation linear path to explain a structural change in local actors' practices.

Figure 3: The innovation turn: a rationalist linear path



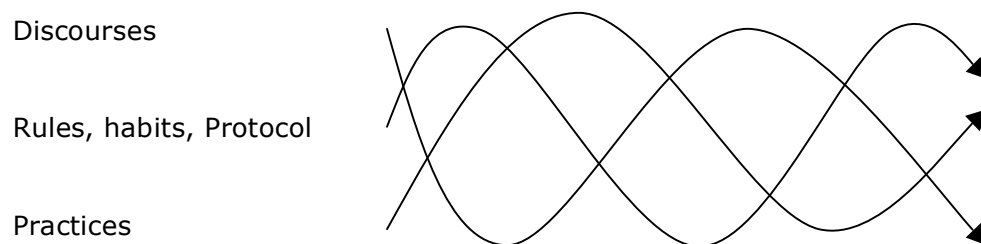
This model of change should however be taken with caution: the linear all-too logical and nicely deductive narrative ought to ring a bell. As is often the case with materials produced during interviews, it proves extremely difficult to prevent, at least at a first level of exchange, self-justificatory answers. It is a way to rationalise *ex post* actions taken in a situation of extreme uncertainty at the time. Thus, it hardly comes a surprise if, under the surface of logical explanations, there remain many cracks and blurred areas. First, such narratives do not provide explanations on the *making* of the linear model. How has the concept of innovation emerged as an answer to globalisation challenges? Whose contributions have gained attention and whose have failed to get an audience? Second, how has the formal collaborative and collective dimensions of innovation been put forward on the agenda, rather than informal actor-to-actor interactions that used to be the norm until then? Third, how has such a strategy been implemented - with undeniable success - in a complex system of multiple cross-community agents with converging *but also* diverging interests and objectives?

These interrogations point to several important limitations of the rationalist linear model. First, there is obviously not a single pilot in the cluster but a complex multi-actor system with intense grass-root level initiatives that cannot be easily driven. It is highly implausible that all these actors (with their varying backgrounds and cultures) have managed to design a shared straightforward solution without at the same time developing elements of convergence in their discourses, cognitive understandings, and

formal and informal rules and practices. Second, at a more theoretical level, drawing on from the cultural economy perspective, it seems rather illusory to analytically distinguish the production of economic discourses and analyses (formalisation of the problem, formulation of a strategy, for example) from the effective practices and tools deployed to answer an external hazard such as the challenges of globalisation. All aspects co-evolve and influence each other in a non-linear and often contested dynamics. This leads me to an alternative cultural economy-influenced model of economic change, that, because of its formal representation, is referred to as the braided co-evolutionary model. The argument is that firms and organisations' practices do not evolve on their own, for instance by passing from zero collective innovation projects to plenty. Economy is not external to the social and political metropolitan realm and a change in routine organisations (that define firms according to BOSCHMA and FRENKEN (BOSCHMA and FRENKEN, 2006) is only one part of clusters' evolutions. My hypothesis is that both *narratives* that describe the ongoing economic changes (and thus contributes to make sense of the direction to follow, and are eventually embodied in one or more strategies) and metropolitan institutions (rules, values and habits, including formal ones) that facilitate the interactions between firms and organisations, do also evolve, enabling and incidentally shaping changing practices. This being said, I now have to turn to analysing the evolution of discourses in order to cast light on the emergence of new practices between firms and organisations, understood as the proliferation of collaborative and collective innovation-oriented projects.

Figure 4

Braided co-evolutionary model:



Section 5: Constructing a narrative, changing a culture

Innovation is not a novelty in the image-producing industries. Both the image industry as a whole, and the Paris region cluster in particular, are examples of a continuous process of product, process and organisational innovations that has led to integrate new markets in the regional spectrum of activities (from movie production to television, video game, web-design, etc.). At a more fundamental level, the very content of the cultural products developed in these clusters are innovation-, or at least, novelty-driven by definition. It should not come as a surprise that innovation is thus praised by local economic agents in these sectors. What is more interesting is to understand how, at the end of the 90s and throughout the first decade of the century, innovation has shifted from a firm and sometimes inter-firm level everyday practice to become the paramount solution to most difficulties of image-producing industries in the Paris region. To do this, I attempt to discuss first the genesis and circulation of the concept of innovation as a solution for regional economic development and image industries development. At the outset of this work, I ought to insist upon the fact that this is a hazardous task that risks at least a double bias. First, here again, the discourses that I analyse are often tainted with *ex post* self-justificatory answers. They need to be confronted to each other to dig out the actual experienced past facts necessary for the analysis. Second, the final narrative presented in this paper, as always, is strongly dependent on my own interpretation. In particular, as the position of the article is to try to discuss cluster dynamics in the light of a cultural economy perspective, it may be that I risk underestimating some elements linked to, for example, the evolution of firms considered as organisational routines. To significantly reduce this risk, I have systematically considered discourses and informal and formal rules *from the perspective of grass-root level actors*, not jumping too quickly to cluster-level organisation.

Territorially-based Collaborative Innovation: the predominant narrative

The cluster literature has always attempted to link geographical concentration of economic agents to knowledge circulation, and to some extent, to knowledge creation (DAHL and PEDERSEN, 2004; SCOTT, 2006). The Paris region's image-producing industries are no exception: innovation enhancement is acknowledged both by public and private actors as the first and foremost positive externality resulting from geographic agglomeration. All official documentations (i.e. general audience presentation

documents, strategic notes, etc.) emanating from local, regional and national governments, public bodies in charge of economic development as well as local business associations set innovation as *the* priority. The consensus is in fact so strong that it remains impossible in this paper to quote all examples.

Examples:

Ex 1: Silicon Sentier, a regional business association representing around 100 firms in web-based technologies, sees itself as: "an exchange and visibility-oriented platform for innovative Start-ups aiming to enhance experimental and 'cross-fertilisation' projects. Through its vision and actions, Silicon Sentier wishes to contribute to innovation, growth and employment." (Silicon Sentier, <http://siliconsentier.org/> accessed on 7th January 09, author's translation).

Ex 2: The mayor of Paris has promoted innovation as a key element of its economic policy and created on this occasion the *Agence Parisienne de l'Innovation*:

"(Paris has) a capital role to play to stimulate intelligence and creativity for the Parisian metropolis. (...) The knowledge, intelligence and innovation economy is a predominant instrument to build the future of Paris citizens." (B. Delanoé, Mayor of Paris, Official address to the Conseil de Paris on issues of Innovation, Research and Higher Education, 26th May 2008).

Ex 3: Cap Digital, the "competitive cluster" of the Paris Region (*pôle de compétitivité*) related to image-producing industries sets out:

"to establish the Paris Region as a leader in the digital industries, most importantly by developing the global influence of the Region's businesses and universities. The cluster aims to boost the digital content sector by enhancing the creativity and competitiveness of the companies. (...) This cluster, which currently has 400 members (80% of them VSEs and SMEs), has defined four priority (...) (including) research and innovation related projects." (Cap Digital, <http://www.paris-region.com/ard/paris-region-economic-developpement-agency/paris-region-s-economy/competitiveness-clusters/cap-digital-3983.kjsp?RH=1204728097126>, accessed on 16th January 2008).

Furthermore, the predominant use of innovation has not been cantoned to a general overarching strategy for both image-producing sectors growth and Paris region economic development. It has also diffused through all other dimensions of the "classical" collective actions seen in clusters. On top of the multiplication of initiatives to develop collaborative

innovation-based projects, labour circulation and training, access to land, marketing or networking have been re-considered in the lens of innovation. The analysis of collective actions undertaken by local and regional business associations like Silicon Sentier or Capital Games as well as the Cap Digital association demonstrates a general alignment under the innovation banner as illustrated in the following table.

Table 2: Innovation as a banner for collective actions

Domain	Traditional aim	Revised objective	Examples
Workforce	Labour training / circulation	"Skills" or "talents" formation and sourcing	HEIs position
Land / Real Estate	Access to offices	Co-location between <i>innovative</i> start-ups	Paris municipality's Pépinières (buildings for start ups) are now relabelled <i>Paris Innovation</i>
Marketing	- Access to non-domestic markets - reinforcement of internal identity	Selling the Paris Region as an incubator (for both external and internal purposes)	"Paris = innovation" equation
Networking	Access to potential partners	Cross-fertilisation and innovative projects enhancement	Silicon Sentier's Mobil Mondays and other informal gatherings

The predominance credited to innovation in its collaborative and collective forms needs to be discussed. How has this concept emerged and been forged as the preferred solution to adapt to globalisation? I have found two parallel circuits of knowledge circulation that can account for such a cultural change in the clusters under study.

First, there has been an industry to public bodies diffusion, initially at national level but, soon after, at metropolitan level. The early 2000s "haemorrhage" (Le Diberder's report on the Video game industry, 2002) or "electric shock" (Interview n°45, Regional Business association, Video Game, May 2006) that has affected the industry has found in concept of innovation a balm that could sooth the industry's difficulties and, above all, comfort policy-makers in supporting the industry. Both Sell and Apom (the two professional unions lobbying for the interest of video game editors and development studios) have based their campaigns to gain public supports on innovation and creativity. Several reports written by industry members, numerous meetings with high-level administrative and political senior executives as well as access to national level newspapers, have

transformed the list of issues to be tackled into agenda setting objectives. Lobbyists aimed at changing the regulatory environment (i.e. adaptation of labour legislation to simplify the management of fluctuant workforce requirements) but also to gain financial supports. To achieve the latter objective, they suggested a tax incentive for R&D activities (*Crédit Impôt Recherche*) as well as the recognition of video game as cultural product, enabling development studios to receive subsidies dedicated to support cultural production. The 2001-03 lobbying campaign proved efficient with, among other measures, in 2004, the creation of a dedicated public funds for multimedia products (*Fonds d'Aide à l'Édition Multimédia* - FAEM) and, in 2008, a 50% tax break on human resources affected to approved R&D activities. Confronted to the lack of private venture-capital, the industry has thus managed to socialise (by means of public financing) some of the financial risks associated to innovation. In doing so, their collective lobbying enabled the acculturation of some government officials to the "innovation = economic development" equation, especially in the departments and services in charge of i) culture promotion and of ii) economic development affairs at both national and regional levels. However, the definition of the concept of innovation has remained quite unspecific. It is associated to the concept of Research & Development when it aims at getting the support of the Ministry for the Economy and to creativity when seeking help from the Ministry of Culture.

It is the second simultaneous process going from academic research to public bodies to industry members that has considerably narrowed the scope of innovation to what I refer to as the territorially-based collective innovation. First, the analysis of national and regional governmental official production on regional economic development is largely influenced by academic references on the cluster literature.

"As Alfred Marshall did a century earlier, Michael Porter has shown firms' advantages in concentrating in the same region (...). Bringing together industrial actors, scientists and educational institutions of the same territory, as in the cluster models, constitutes: a source for innovation (as proximity stimulates skills and knowledge circulation as well as more innovative projects), a source for global attractiveness (geographical concentration increases international visibility) and an alternative to industrial relocations (firms' competitiveness is linked to their territorial anchoring and proximity to skills and useful partners)." (*Diact, Inter-ministerial Committee for Regional Planning and Competitiveness*, official website, accessed 15th June 2007)

The academic literature has been "*directly*" implemented by national governments. The Localised Productive Systems (*Systèmes Productifs Locaux*) policy consists in giving a label ("SPL") to a local business association that aims at developing collective actions for the development of a territorially-based industry. Similarly the recently created French

competitive clusters policy (*pôle de compétitivité*) supports industry/research partnerships at local and regional levels. In both cases, innovation is always seen as a collaborative process between firms and organisations of a given territory. If this notion has reached the local and regional political and administrative scenes by ways of the direct implementation of national policies (LPS, *competitive clusters*), it also used indirect means, i.e. via higher education institutions, with the training of students that eventually worked in local and regional economic development agencies and departments.

The diffusion to metropolitan level (and infra) decision-makers and to their related services is also acknowledged in their official documentations. The Ile-de-France Regional Plan for Economic Development insists on building an "efficient cooperation dynamics that will foster development" and asks for public policies that aim at "sustaining the promotion and animation of economic *filiales* in order to facilitate interactions between SMEs, research units, large companies, higher education institutions and institutional actors". The Regional Development Agency (ARD) aims at creating the best conditions for "*innovative milieus*".

This eventually connected at local level with some members of the image-producing industries that were looking for public support but had yet no precise understandings of the local, regional and national administrative-political system. Although such circulation of ideas proves hard to follow, I have gathered by cross-examining several interviews that in the video game industry, the interaction between an operation manager working for the Economic Development and Employment Department of Paris 20th *arrondissement* (district) and an entrepreneur has been critical in the organisation of the most important regional business association in the sector. The example goes as follows. F. Weil, a video game aficionado owing an SME in this sector, was looking for public support to develop a collective answer to the undergoing crisis. He knew from his personal network and professional experience that the Lyon video game industry had managed to organise itself as early as 1999 (Lyon Games). With this idea "vaguely in the back of his head" as he said himself, he met C. Tréton who was in charge of economic affairs in the *arrondissement* where he worked. Although, she was in charge of local business issues, C. Tréton had a reasonably good knowledge of the LPS policy initiated since the 1990s by the national government. She first introduced this scheme to F. Weil, who seemed not be aware of it at that time, and opened up her address book. She recommended the entrepreneur who eventually received the Paris Development Economic Agency's support, which help him gain the national government's LPS label leading to the creation of Capital Games. Later, building on this first national recognition and the Paris municipality support, the association convinced other local public bodies to participate, including the Ile-de-France Region. This example gives a detailed view on the incessant interactions happening between the local and regional public authorities and industry members within

the metropolis. It could easily be extended to other sub-sectors in the image-producing industries such as with the cases of the *Pôle audiovisuel* (movie production) or *Silicon Sentier* (multimedia and web-related sector). In all these examples, public bodies have contributed to the construction of a cognitive framework in which collective and collaborative practices between firms and between firms and other local organisations are given emphasis.

The simultaneous circulation of ideas on regional and local economic development related issues between image-producing industries and civil servants, at both national and local-regional levels, has contributed and still contributes ceaselessly to the shaping of a common cognitive framework in which innovation is increasingly blended with the notion of collaboration at metropolitan scale. A critical appraisal of this acculturation between individuals and organisations with considerably differing backgrounds and organisational routines should emphasise that, although innovation is the aligning concept for most organisations and individuals, the definition of this territorially-based collaborative innovation remains a very fuzzy one. It could be argued that this results from the difficulty expressed in many interviews to give a definition to the concept of innovation. I would however be inclined to see the fuzziness not as a flaw of conceptualisation but as a deliberately entertained blur that permits to accommodate parties following diverse objectives. On the one hand, innovation is often the mainstay of companies' economic models in the context of fierce competition. Innovation is mostly a means to improve product differentiation and gain market shares. On the other hand, public authorities conceive it as an instrument to enhance job creation and/or cultural production for the general well-being. Innovation is described for example as:

"(...) the long-term growth engine of the economy (...) capable of laying the foundations for future generations and will benefit proportionally more to the whole community than to those who directly produce innovation." (Ministry for the Economy, 2007, official documentation).

It should be noted at this point, that this fuzzy accommodating concept of territorially-based collaborative innovation is in fact built on the least discriminatory elements that local and regional actors involved in the clusters' development have found. This brings two comments. First, the collaborative injunction should not be understood only in a problem-solving perspective, i.e. collaboration does not simply refer to how innovation is supposedly achieved in the contemporary economy and society. I argue that it embodies a more essential aspect of the evolutionary development of the three clusters under consideration. Indeed, it goes with, and, in fact, permits the ongoing organisational convergence that is currently happening at the meso level. The (socially constructed) process of building a common cognitive framework is therefore not anecdotic in

evolutionary development of clusters. I argue that quite on the contrary, it proves instrumental in ensuring the production of an obviously heterogeneous but nonetheless shared cultural material that accompanies the evolution in firms' practices. Second, the territorial dimension of innovation refers to the use of place as an element of identification. If the "*French touch*" concept is still frequently quoted to account for the supposedly original creativity of nationally trained workers by prestigious educational institutions (Les Gobelins, Louis Lumière), reference to place in most narratives has now moved to Paris and, frequently, to its metropolis.

"In fact, it's an already extremely active *milieu*. It's just that people doesn't know about it. We are trying to "transfer" the Paris brand to these firms, something like a *From Paris* tag. A good example is Dailymotion: it is a Paris-based company but nobody knows it. Take Google, and everybody know where it's from!" (Interview n°11, Business Association, Multimédia, March, 19th, 2007)

Co-location is thus not only a meaningful way to reduce transaction costs and to develop trust between organizations as emphasized in traditional cluster theories. It also refers to a more cultural dimension as it offers a common *sense of place* that serves as a possible trigger for (joint) actions. In this context, the reference to Paris, albeit with multiple and sometimes overlapping definitions (from the national capital city to the extended metropolis), works as a vehicle bringing together firms and organisations with very different objectives, routines and cultures. From this, I suggest that it does not come as a surprise that territorial marketing is one of the first collective activities undertaken in the three case studies. It is obviously a tool to penetrate international markets by selling a regional concentration of complementary firms that was until then poorly recognised as forming a system. But it is also a way for local actors to identify themselves to a metropolitan *milieu*, with the advantage of "anchoring actors belonging to the same industry in the territory" (Senior Executive, Regional Office of the Ministry of Industry, May 2006).

Several intermediary conclusions can be proposed at this point. First, it appears that clusters' evolutionary developments are not limited to a change in firms' practices but also encompass the ceaseless transformation of a cognitive framework that informs the strategies and practices of interconnected firms and organisations. The development of a shared vision for the image-producing industries in the Paris region, as embodied by the concept of territorially-based collaborative innovation, results from permanent comings and goings first between clusters' actors (local/national/regional and public/private), and, second, between cultural material (knowledge, values, narratives) and economic agents' practices. These necessary comings and goings imply that time is instrumental to permit

acculturation and translation between the diverse communities of practices and cultures involved in regional economic development. It also points to the fact that without such forms of (socially built) institutional change, defined as the transformation of heterogeneous cultural materials, efforts at developing collective projects are bound to face severe difficulties. One hypothesis of the failure of the movie industry to develop the same dense un-traded collaborative and collective actions as more recent image-producing sectors at the metropolitan level, is that the sector has not managed to develop the similar type of cognitive convergence, especially within industry members.

Second, although some individuals play a critical role as initiators of the organisational shift, and because of the importance of the cultural dimension in the process at work, it requires more than several individuals to move on to the stage of effective implementation of collective and collaboration actions. In other words, scale matters. It is quite remarkable that the most dynamic clusters (in terms of intensity of interactions and range of collective actions) are the ones that have been built at a very local level (municipal or infra), mostly within the Paris municipality, but have managed to rapidly gain a regional metropolitan perimeter. Those who have not, like the LPS Deltares, have become dormant organisations.

The construction of a common cognitive framework has led to the design and implementation of new coordination tools, that in return have influenced both firms' practices and the cultural shift, contributing to a co-evolutionary braided development as defined earlier.

Section 6: Implementing innovation, constructing new rules

Even if given adequate funding, the implementation of territorially-based collaborative innovations needs more than a cultural *aggiornamento*. Cooperation also requires filling in the existing gaps between the differentiated practices of the varying metropolitan actors involved in innovation. I argue that interconnected firms and organisations of a given cluster need to produce codes and routines of cooperation as they go. I now turn to the making of such formal and informal norms and procedures that permits these interactions. As it is out-of-reach to develop an exhaustive approach to qualify such institutional change, I focus on emerging new cooperation practices in the specific domain of collaborative innovation-oriented projects (rather than other types of collective actions that are also present in the three clusters).

Interviews acknowledge that pre-"innovation turn" R&D collaborative projects were mostly based on a firm-to-firm basis. However, practices have evolved, as other stakeholders such as public agencies have been increasingly involved, especially as funding partners. To follow administrative rules (including transparency requirements), public subsidies for innovation-based projects tend to follow a Call For Projects (CFPs) procedure. Accessing available funding for R&D and innovative projects (from the multiple public agencies such as Agence Nationale de la Recherche, Fonds de Compétitivité des Entreprises, Fonds d'Aide à l'Édition Multimédia, Oséo or Oséo-Agence de l'Innovation Industrielle) therefore requires to respect the eligibility and selection criteria. In 2005, the CFPs route has been given a more integrated design with the development of a first stage single-window evaluation. The image industry-related *competitive cluster* Cap Digital (one of the 67 initial *competitive clusters* selected by the national government in 2005) is an association that act as a labelling organisation with its own selection procedure (that goes from the initial call for projects to eligibility check, experts' evaluation (scientific, business, management) and final label attribution). The Cap Digital label constitutes either a pre-requisite or an added value to search public and private funding.

The first observation on the emergence of formal routines that specify the interactions between innovation-projects holders and public bodies, is that there is not a set of stabilised routines. The number of formal rules and procedures tend to follow an exponential growth as new actors step in to support innovation projects. For most research consortium, and even for the *competitive cluster* Cap Digital, learning by doing remains the predominant attitude. The *competitive cluster* for instance gives an illustration of a formal although evolving device that shapes the interactions between firms and organisations and that has sometimes been qualified as "bricolage":

"When we came to the stage of submitting our proposal to the *competitive cluster*, Cap Digital sent us a consultant whose contribution in reformulating our proposal has been very precious. As a consortium, we were literally discovering the workings of the *competitive cluster*, which, on the other hand, had just been created. There was no anteriority to refer to, no "directions for use", not even template documents." (Guillaume Gouraud, Leader of Play All consortium, interview given to Cap Digital, 2007).

Although the selection process by Cap Digital is now more clearly formalised, my point here is to underline the importance of such tools or instruments in redefining the practices of innovation in the cluster. My reflections here are directly inspired by the political sociology approach to *public policy* instruments (LASCOUMES and LE GALÈS, 2007) that states that

"instruments at work are not neutral devices: they produce specific effects independently of the objective pursued (the aims ascribed to them), which structure public policy according to their own logic." (Ibid.).

I argue that the evolutionary developments of clusters cannot be grasped without reference to the transformations of institutions, as embodied here in the formal/informal instruments used by local and regional actors. Either explicitly or more indirectly, such devices contribute to shaping the values, narratives and practices circulating in the cluster. As an example, I detail the impacts of the Call For Projects (CFP) route in formal interactions between partners as opposed, for instance, to traded firm-to-firm product development-based relations. I argue that CFP transforms, among other aspects, the temporalities, forms, size and objectives of territorially-based collective innovation practices.

First, CFPs impose to innovation-based project holders their own temporalities. With one or two calls per year at most, the time-horizon to which the industry and their academic partners are used to is now considerably altered. SMEs in particular find it particularly difficult to plan their activities a year ahead and have to reconsider their organisational routine "to be able to catch the train on time" (Interview n°42, CEO, Multimedia & Web, May 2008). The short-term horizon of firms trying to stick to, or to anticipate, fast-changing markets, but also the longer-terms of academic research, have to now roll with the metropolitan CFP tide in order to benefit from collective innovation-dedicated funds. Similarly, CFP instruments come with eligibility and selection criteria that here again have important direct and indirect (because of project holders' own anticipations) impacts on the forms of innovation-based projects. It becomes clear that except for some small-scale product-oriented projects financed by Oséo, most projects are explicitly multi-partner to satisfy the requirements of funding institutions. ANR expects at least a

partnership between a firm and a public research unit, FCE requests that at least 2 firms and one research institution cooperate. Following the same line of argument, the location of partners has become integrated as an important issue by several public investors. FCE specifies as compulsory that at least one partner has its research effectively achieved in the pre-defined perimeter of the *competitive cluster* (more or less the Paris agglomeration in this case). The implementation of CFPs by multiple public agencies also conditions the size of collaborative innovation-based projects. Although there is a wide spectre of funding opportunities (virtually from 30,000 euros to 6+ million euros), subsidies emanating from larger agencies such as ANR, FCE, AII are all requesting budgets that need important financial capacity from project holders. As research activities are supported by public financing between 30 to 45% of total costs (public research units can be 100% subsidised), firms that intend to develop projects are forced to come with several thousands or even millions euros of their own. The result is that despite the fact that funding is virtually opened to everyone residing in the Paris region, large firms and/or already constituted networks of SMEs are mechanically privileged. Project holders are therefore encouraged to include at least one large-scale partner (such as Orange, Thalès, etc.) to improve their chances during the competitive selection process. Quite obviously, CFPs also have impacts on the content of the project, due to targeted calls. Last, CFPs also reflect on the objectives pursued by innovation-based projects, especially in terms of their (officially) expected outputs. The analysis of around 80 successful proposals shows that the groundbreaking nature of the research is not often put forward in the objectives. The emphasis rather goes to economic and "social" effects, such as market development, improvement of a service, productivity enhancement, job creation, etc. Only a limited number of projects, even when academic teams are involved, show an explicit orientation towards upstream R&D. On the contrary, most projects are either market-oriented (expected output is often a prototype ready to be developed) or dedicated to improve a collective tool for the local industry (HD3D-I00, Play All, Sebastian).

Two intermediary conclusions can be put forwards at this stage. First, ceaselessly evolving formal and informal institutions are instrumental in the definition of the innovation turn happening in the clusters under study. I argue that these tools bring in their own effects and contribute to shaping the evolving practices of clusters' members. This comes as a direct result of explicit goals ascribed to these instruments, and by extension to the values, symbols, rules and norms that qualify a given cluster. It also results from indirect effects such as anticipatory behaviours from local firms and organisations. It also reflects incidental effects, for instance, when larger firms or existing networks of SMEs benefit from lower transaction and learning costs, that is when they have already internalised the changes happening in the formal and informal local

institutions. Second, I make the hypothesis that such instruments also impact, in return, the local and regional actors' cognitive framework. Academic research units are increasingly taking into account potential collaboration with the private sector because it becomes a necessary pre-requisite to access to funds to support their research activities. Similarly, firms are increasingly forced to conceive their future in relation with innovation-driven cross-community networks, and, as a consequence, to tackle intellectual property and multi-partner management issues. In this regard, evolving formal/informal routines of interactions do not only result from the cognitive framework and everyday practices of local-regional actors; they also contribute to simultaneously shaping both of them.

Section 7: Conclusion

The analysis of three Paris Region Image-producing industries is used in this paper to discuss evolutionary developments of clusters at a theoretical level. Mobilising concepts from cultural economy approaches, I discuss the theoretical underpinnings of clusters' dynamics. One of the main outcomes of the research is to provide details on how institutional and organisational changes happening in clusters (as exemplified here by an "innovation turn" that led to strengthened collective organisations) are socially constructed. This is the result of a complex co-evolutionary dynamics between multiple aspects of geographically concentrated firms and organisations' interactions, including permanent renegotiations of narratives, cognitive framework, instruments and rules, habits, discourses, and practices. The case studies more particularly show how:

- proliferating *practices* of collaborative and collective innovations i) require changing procedures and habits that facilitate interactions between local and regional actors, ii) give empirical evidence to narratives building on the "Paris=innovation" equation;
- *discourses* on regional economic development in general, and on the image-producing industries in particular, ask for informal and formal devices to transform the concept of territorially-based collaborative innovation into effective actions;
- formal *instruments* as well as informal interactions that result from the paradigmatic change in the cognitive framework (from a culture of secrecy to one of collaboration) not only permit but also directly and indirectly shape emerging practices of collaborative innovation.

This leads to two discussions. On a theoretical level, the importance of narratives and institutions in clusters' transformations pleads in favour of a better understanding of "evolutions in economic geography" (MACKINNON et al., 2007) rather than for an evolutionary economic geography that neglects, at least in BOSCHMA and FRENKEN's definition (2006), the role of institutions in economic change. More precisely, I argue that the use of alternative vantage points (mostly cultural economy in this paper, but also

some contributions from the cultural political economy and the political sociology approach to instruments) can be fruitful to understand clusters' evolutions.

Second, and as an illustration of this, the interlaced co-evolution between firms and organisations' practices, narratives and institutions (*braided co-evolution path*), questions life cycle models and their diachronic or *fixist* sequential configurations, by providing another conception of time, that is made of perpetual adjustments. A methodological outcome this research is thus to underline the necessity to inform mostly *descriptive* clusters life cycles sequences by entering the black box of their dynamics. In other words, it is impossible to understand the emergence, growth, and decline of clusters without an in-depth analysis not only of firms and organisations' practices but also of their ceaselessly evolving narratives, strategies, values and habits. On the theoretical front, the observation of at least two competing conceptions of time (one being diachronic and long term, the other being more simultaneous and immediate) questions their articulation. How do the permanent adjustments within clusters and the long waves of their life cycles articulate? The paper provides some hints on this aspect. A first understanding, following implicitly from life cycle clusters models, is that each phase in the evolution of cluster corresponds to a given configuration. The Paris Region image-producing industries would exemplify how a shift from emergence to growth has been the result of firms' changing practices regarding innovation and of the social production of an adequate cognitive framework. However, I argue that the correlation should be looked at very carefully. First, it proves perilous at the moment of writing to decide the nature of the shift that has been under consideration. Was the early 2000s announcing decline or only a temporary crisis linked to external factors (new-economy bubble)? Is the current stage one that will see a shift from emergence to growth or from emergence to decline? Will there be any shift at all, in terms of size and heterogeneity of actors, in these clusters? Second, if the early 2000s crisis was to be remembered as the triggering event, how can important pre-existing signals be interpreted (such as the emergence of business organisations producing collective local actions, in the late 90s)? All in all, I argue that the linkage between the permanent renegotiations of metropolitan actors interactions in the clusters and the long-term shifts in clusters' life cycles cannot be automatically superposed. The rationale that would deduce important shifts of a given cluster as the mechanical results of a readjustment is misleading. In other words, life cycles cannot be predicted from the observation of the perpetual co-evolution dynamics affecting clusters. Changes can have effect, under certain circumstances, where, in other, they simply lead to no transformations in a cluster. The next stage of the research agenda should thus discuss the conditions that facilitate or prevent the ceaseless dynamics of a given cluster to impact its development. Based on the observation of the Paris region image-producing industries, I make the hypothesis that a key determinant

resides in the political economy of the cluster.

Although it was not the focus of the paper, it was hinted that the roles and strategies of several actors have been critical in initiating, diffusing and implementing the discourses, tools and practices of the so-called territorially-based collaborative innovation (academics, policy-makers and their agencies, business associations and representatives, etc). This indirectly points to the necessity to disentangle more finely clusters' dynamics in the light of the underlying power relations at work in the co-evolution process analysed in this paper. I suggest – but further demonstration is needed – that an intermediary level of central but competing actors has formed. Be they development agencies or regional business organisations, they all claim a legitimacy deriving from their ability to effectively engage with the variety of cultures and practices of the metropolitan cluster. They use their everyday interactions with firms, public bodies, academics, and policy-makers to develop a unique knowledge base on the extreme heterogeneity and complexity that characterise clusters in metropolitan settings. More consideration on their roles is thus needed so as to understand how power relations linked to regional economic development issues are renegotiated in the metropolis.

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