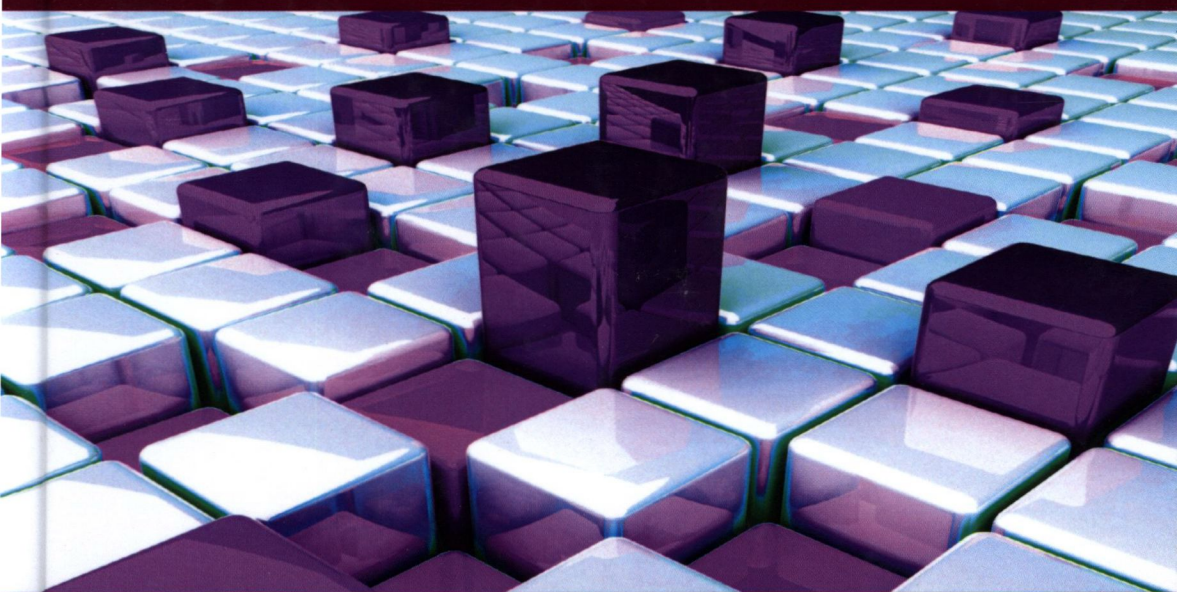


INNOVATION, ENTREPRENEURSHIP AND MANAGEMENT SERIES

INNOVATION BETWEEN RISK AND REWARD SET



Volume 2

Innovation and Production Ecosystems

Bernard Guilhon

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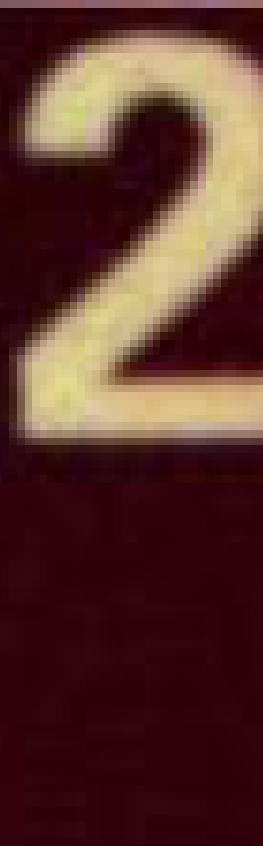
INNOVATION BETWEEN RISK AND REWARD SET
Coordinated by Bernard Guilhon and Sandra Montchaud

"We do not know where Silicon Valley is really located", Feldman writes, because these types of organization, when they are dynamic, are moving and fluid.

Innovation and production ecosystems or clusters are proliferating today because they seem to be adapted to the demands of innovation, growth and employment. The process leading to their institutionalization escapes a summary analysis of the behavior triggered by monetary incentives or, at the very least, makes it richer. The relational aspect becomes predominant, the interactions between the participants testify to the difficulty of separating the geographical and social dimensions.

In the most prominent American clusters, public/private linkages and the building of social links express the centrality of networks in the innovation process. The European vision seeks to articulate entrepreneurial discoveries with vertical public interventions. The competitiveness poles in France suffer from the fact that public choices seem to be torn between two contradictory objectives: efficiency and equity.

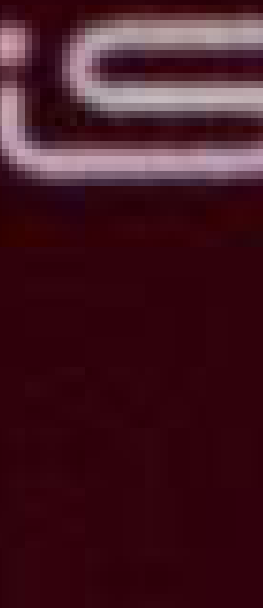
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Bernard Guilhon

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Ecosystems



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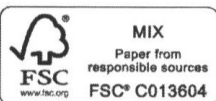
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Innovation and Production Ecosystems

*For Elisabeth, my wife, who spent much time
meticulously rereading this book, suggesting changes, and asking
questions that helped me clarify my ideas.*

*For Alice, my daughter, who provided me with the
material means that allowed me to work
in good conditions at Sophia Antipolis.*

*For Stéphane, my son, who accepted
that we often could not see each other
so that I could make progress with this work.*

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Introduction

Economic geography is simultaneously global and local. This is what several authors have called the cluster paradox: a global economy, more complex and relying on a knowledge economy, gives a more significant role to locations. Therefore, economic geography is characterized by specialization and dispersion. A number of metropolitan areas, each of them specialized in a range of activities, seems a far more productive industrial organization than one that relies on one or two large diversified cities [POR 98]. Ecosystems are thus forms of organization that tend to multiply.

We can think about innovation and production ecosystems (to make things easier, we merge this notion with the concept of clusters) in terms of the following points. First, the literature provides several definitions. Porter's definition is the most quoted:

“Geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, trade associations) in a particular field that compete but also cooperate” [POR 00, p. 15].

The definition of cluster includes two aspects: on the one hand, the spatial dimension evoked by the idea of geographic concentrations and, on the other hand, the technological-economic dimension conjured by the idea of industries functionally related through companies that are involved at all stages of the value chain. In the

same work, Porter redefines the idea of cluster based on the notion of geographic proximity [POR 00, p. 14], without specifying “the precise scale of this geographic concentration [which] is left to the imagination” [MAL 06, p. 55].

For the authors of this article, the gradual shift in meaning of the definition of “cluster” is confusing. The issue deserves some thought: are clusters first characterized by interconnections between companies working in associated industries or are they spatial phenomena? The economic mechanisms at work are different. In the former case, functional industrial clusters are not demarcated by well-defined geographic boundaries. ICT and the Internet in particular make it possible to establish connections between operators on a global scale. In the latter case, geographic proximity makes it easier to adopt common rules, exchange tacit knowledge and interact face to face, besides strengthening localized learning.

The success of this concept, whose definition is sufficiently vague and flexible, has allowed us to apply it to different realities and, consequently, it has made it difficult to make a precise political assessment. “The trend to oversimplify, which is linked to the popularization of the definition of cluster, allows us to find clusters everywhere” [PES 11, p. 5]. Despite these remarks, a certain number of central features are emphasized to various degrees in different works, as the vast majority of authors implicitly refer to a combination of space (geographic proximity) and system (functional relationships). These characteristics are: agglomeration economies, the relational aspect linked to proximity, the interdependence of the actors, the importance of tacit knowledge, and the dynamic externalities associated with the spillover of knowledge and leading to localized learning.

The second point concerns the nature of public intervention. If most authors agree on the need to conceive new types of interfaces between public and private actors, we still need to clarify the goals and forms of public intervention, and to analyze its requirements in terms of the decision makers’ skills and expertise.

The third point has to do with the increased effectiveness of these forms of organization simultaneously on an analytic level (the sources

of these advantages) and in terms of quantification, leading to documented quantitative–qualitative case studies which, however, are occasionally limited by the information available. The field surveyed includes the United States of America, France and the European Union considered globally.

The fourth point is of a methodological kind. Each ecosystem specifically builds its assets, coherence and governance arrangements. In this field, there is no model that could be copied. In other words, the catch-up theory regarding a leading country and follower countries, based on the notion of the “advantages of backwardness”, could not be extrapolated to the context of the ecosystems. We should recall that the four advantages given by backwardness are: the substitution of obsolete technologies with modern ones, the adoption of non-technological innovations (forms of industrial organization, management practices, etc.), the capital accumulation rhythm and the growth of productivity, and the relationship between the size of the markets and technological progress.

Transposition is not feasible, as we find it hard to explain why some activities develop in some locations and not in others. As we will see, this phenomenon may even be present in a single industry. As of now, we cannot understand the forces at work in the entrepreneurial and organizational migrations between locations and to research systematically the localized characteristics that attract or drive away the investments of firms. Consequently, we simply assume that the *location of the ecosystems* results from the different allocation of resources, a historical event, or a political decision. Local decision makers will continue to invest and get involved in the market, but theoretical thinking is somewhat powerless in relation to “the ways of increasing effective competitiveness and influencing the best results” [FEL 06, p. 2]. In other words, the performances obtained will be ascribed to economic and/or social mechanisms, while it will be impossible to establish these relationships with confidence. The performance of the clusters will very often be measured by means of regional indicators.

The problems tackled by this book can be seen in Figure I.1.

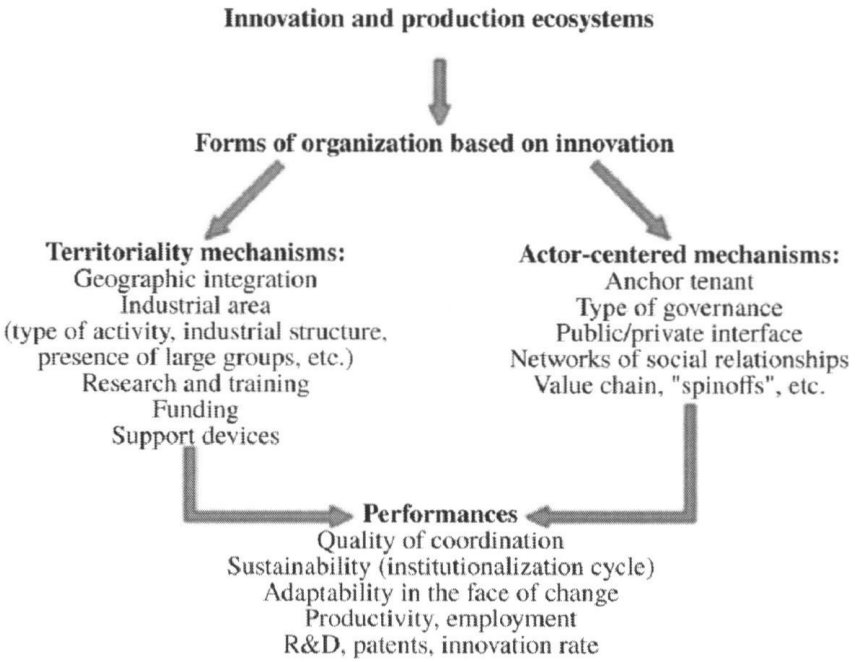


Figure I.1. *Problems tackled by this book*

This diagram emphasizes that innovation constitutes at once a process and a result. The process is considered in its technological, social and organizational dimensions. These aspects include the elements such as connectedness (social capital, social networks), technological diversity (combination of complementary pieces of knowledge), shared collaboration and creation, and finally the acknowledged ability of one or more actors to act as a catalyst and direct efforts towards collective action.

The result of this process can be analyzed from a social and organizational point of view (quality of coordination, sustainability of the ecosystem, collective adaptability in the face of change) and from a technological and productivity perspective (productivity, R&D, new products, etc.).

As a process, innovation is an integral part of the conceptualization and definition of an ecosystem. The factors at work are thought to lead

to performances that result from the actions taken by the actors. Let us consider an example, at first, social networks are built and structured progressively. Later on, they strengthen the coordination mechanisms (transfer of knowledge, creation of companies) and, in tandem with other factors, they are involved in the sustainability of the ecosystem.

Territoriality mechanisms are at once the result of history, the availability of specific resources, the institutional environment and the will of private and public decision makers (state, federated states, regions, local authorities). Actor-centered mechanisms have a more horizontal and transversal dimension, and they require types of coordination that allow those involved in the ecosystem, as well as external collaborations, to interact, besides making it possible to create a collectivity ability to adapt to change (technologies, products, markets). Each element is indispensable, but it only represents a necessary component of the whole and, therefore, it is not sufficient. Each element only represents a piece of the system of a localized economic development. This is in line with the remark about the emerging properties of ecosystems, based on which the resources created and accumulated, thanks to localized learning, are greater than the sum of contributions of each individual involved.

At the crossing of these two mechanisms, we can find the performances obtained: despite being hard to appreciate, they may be positive, stable and even in decline. The relational aspect that influences the quality of coordination becomes predominant to ensure a key function of governance. The interactions between those involved enable the creation of specific investments in physical and human assets, the definition of new practices and their internalization, while also avoiding opportunistic behaviors. *An ecosystem organizes, in a particular way, the social distribution of risks and rewards (not only monetary) between the participants.* Economic performances defined in terms of patents, new products and employment are naturally a consequence of technological development and the position of companies on the markets. They are also and most importantly the product of the quality of the relationships established within the ecosystem and, especially, of the transfer of information and knowledge – tacit and living – which are indispensable for the success of innovation. The process of institutionalization is at the center of this analysis. Thus, we can put forward a typical model, which only

represents a trend expressing a general movement of consolidation and then of institutional regression. There is no single strategy that can be applied to all the clusters. Each cluster creates a distinctive approach based on its resources, specific assets and mode of governance.

The plan of this work is structured around the following five chapters.

Chapter 1 is analytic. Innovation and production ecosystems are organized forms supposed to meet the demand for innovation, growth and employment. The process that leads to the institutionalization of these forms relies on learning paths that may be hindered by the constraints that limit actors in a context of globalization, especially the consolidation of localized skills, medium- and long-term collective decisions, the gaps between the production of new knowledge and its development, and the choices made in terms of location.

Chapter 2 emphasizes the issues raised by this approach, especially the justification of public intervention, the significance of *open innovation* and the configuration of industrial structures. What are the goals of public action? Does it aim to fix the regional imbalances and the inequalities they generate or, rather, to favor economic competitiveness, especially by developing cooperative projects between actors and networks? Can the structure of innovation ecosystems provide a level of density high enough to meet national and global needs?

If we consider France, this structural weakness has often been noticed: “the existing interactions between certain actors of the innovation system do not allow us to draw forth enough collaboration [...] what is being questioned is mainly the asymmetrical relationships between large groups and SMBs, as well as the weak links between SMBs and the world of public research (universities, *grandes écoles*, public research organizations) and, more generally, the relative lack of cooperation between public laboratories and companies” [FRA 16a, p. 17].

These issues have an effect on open innovation practices. Once the information produced by laboratories and universities takes on the