

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/259197536>

On Transdisciplinarity in Organizations, Innovation and Law

Chapter · January 2000

DOI: 10.13140/RG.2.1.2056.6161

CITATIONS

2

READS

68

3 authors:



Marc Jacquinet

Universidade Aberta

91 PUBLICATIONS 27 CITATIONS

SEE PROFILE



J.C.R. Caetano

Universidade Aberta

13 PUBLICATIONS 8 CITATIONS

SEE PROFILE



Henrique Curado

Polytechnic Institute of Porto

13 PUBLICATIONS 5 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Health and technological change [View project](#)



Globalização económica estudos de caso [View project](#)



Proceedings
of the International Transdisciplinarity 2000 Conference

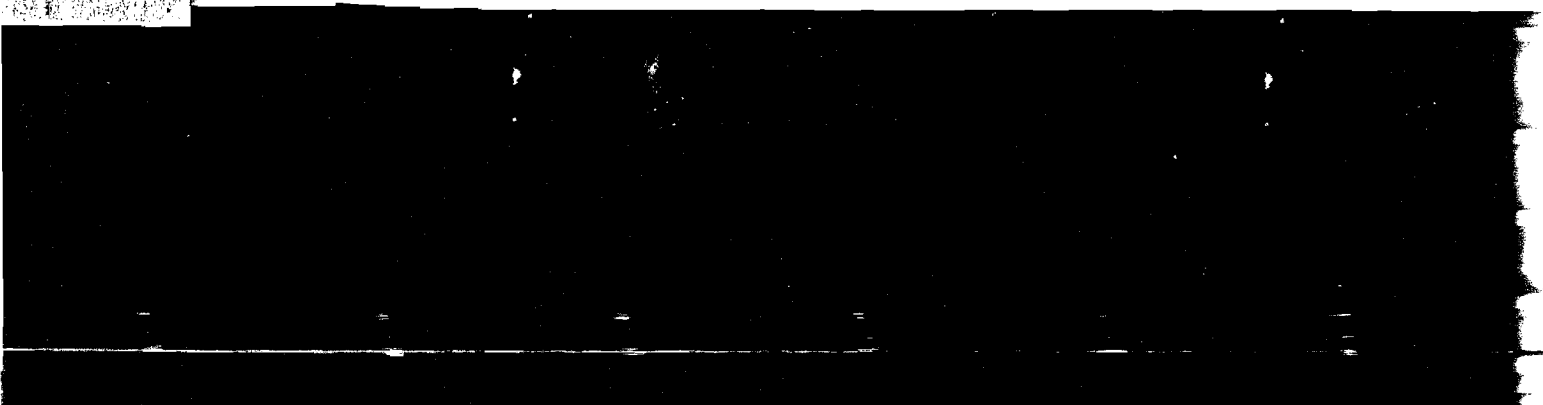
Transdisciplinarity:
Joint Problem-Solving
among Science,
Technology and Society

Workbook I:
Dialogue Sessions and Idea Market

Edited by

Rudolf Häberli
Roland W. Scholz
Alain Bill
Myrtha Welti

Swiss Federal Institute of Technology, Zurich, Switzerland
February 27, 28, 29 and March 1, 2000



On Transdisciplinarity in Organizations, Innovation and Law

João Carlos Caetano – Universidade Aberta, Portugal
Henrique Curado – Instituto Politécnico de Viana, Portugal
Marc Jacquinet – Universidade Aberta, Portugal

ABSTRACT

Contemporaneous societies are facing complex economic problems, i.e., problems constituted by relationships of distinct types (managerial, technical, economic, political, etc.), and those, in turn, are incorporating deeply diverse elements which are not foreign to the history of the various economic, political and legal systems. We assume in our paper that those problems are "abnormal" or, in other words, that current theory and techniques available do not allow to understand all their features. Departing from a pluridisciplinary perspective (organization theory, economics of innovation and law), we will argue the necessity for developing a transdisciplinary method to deal with emerging problems and realities. Through concrete examples, it is shown that transdisciplinarity involves a renewed effort to develop a common conceptual framework and new tools apt to be used by scholars of different disciplines. Through the metaphor of the two black boxes (the firm and the technological innovation), we will suggest further ways to improve the theoretical future of the social sciences.

Key words: transdisciplinarity, social science, law, organization, economics, methodology, qualitative analysis, complexity, history.

1 Introduction

Social sciences underwent a deep and cumulative transformation since World War II and we are now seemingly at a turning point. Indeed, the inherited structure organizing the whole constellation of disciplines in Humanities, Natural Sciences and Social Sciences (and related disciplines like Law) is still the one prevailing before 1945, and since then the practice has evolved and new fields of research have blossomed with different fortunes.

One of the central changes is the integration in research practice of non-linearity and unpredictable events, at least in deterministic way. This is the emerging paradigm of complexity and transdisciplinarity, which is also fed by the implications of gender and "differential" or non-traditional studies and history.

Our point is to argue the validity of a transdisciplinary method – going across, through, beyond, and between disciplines – in particular for organization and innovation studies (economics, business economics, law, and sociology, just to name a few) and law (economics of law, law, and sociology) which are based on a broader ground, not just in terms of scope and method, but also in terms of philosophy underlying a vision of the world.

In a way, we can say that our starting point is a reflection on a problem, which crosses disciplines and should be encompassed as beyond the mere conception of the problem of one particular field of research. We will illustrate this point based on organizations and innovation research and law so as to give a concrete image of the point we want to make.

We see several interests in our view of transdisciplinarity. First, we have different points of view, due, among other things, to different disciplinary background; we also come from different cultural framework, and, despite those differences, we have the same enthusiasm in an integrative perspective. Second, our impression is a sort of perception of convergence both in emerging phenomena and in epistemological problems. We perceive the common necessity for a more open method of research. Third, we are seizing the opportunity to enter into the debate of the reorganization of social sciences with some contributions without purporting to exhaustiveness. This debate is crucial not only for the organization of disciplines into universities, departments and research institutions, but also for methodological and epistemological problems emerging in the very practice of (social) science.

But what do we mean by complexity and transdisciplinarity?

We would like to clarify this binomial complexity-transdisciplinarity. The former refers to the reality or realities scientists are investigating and consists of a nexus of interrelated phenomena unreducible to a single dimension, whose meaning is context dependent. This is the case of economic or legal phenomena that we consider here also as social realities. The relationships between the elements under study are a core concept for complexity. Transdisciplinarity is related to the intellectual effort necessary to understand the former, and consists of an epistemological and methodological apparatus taking into account the context and the relations between the parts of the whole under study. Usually, methods are based on the reduction of phenomena to one crucial dimension. The latter is given scrutiny and monopoly to one discipline often jealous of its own territory. The transdisciplinary movement goes across boundaries and is aimed at cross-fertilizing disciplinary methodologies and knowledge (S. VILAR 1997).

We would like to focus on two dimensions of complexity which are in turn two dimensions of transdisciplinarity or method for the social sciences broadly defined. We want to consider, on the one hand, the *history* or evolution of a phenomenon and, on the other hand, its *plurality* or multidimensionality.

The importance of history, or diachronic study, for social sciences is twofold or even threefold. First, the history of the problem under investigation enlightens the emergence of new realities or entities and the very transformation of a phenomenon. It is a tool for building contexts which reveal the complex relations and their transformation. A second interest is based on the methodology of history and the very nature of the discipline: the study of humanity in all its complexity. This is to say its integration in the transdisciplinary methods. A third point could be the understanding of the history of the disciplines treating the phenomena under interest.

The multifarious nature of social phenomena such as organizations, technological change and law, which are our focus here: it is another central characteristic of complexity, and must be integrated in the transdisciplinary paradigm for the intellection of the "world under study". This is the point we want to illustrate and which will cross the "three" topics purposely selected: organization studies, innovation and law. First, in organization studies, as well as in economics, we will show the necessity of going further than the classical economic paradigm, already under way, namely with a return to the study of institutions. The institutional studies may be viewed as an integrative too which permits relating the three subject areas in a transdisciplinary perspective. Second, the study of technology and innovation is by nature interdisciplinary and we would like to focus once more on the necessity of an integrative method that has to go further than the previous attempts. Questions two and three are the opening of two black boxes of economics: the firm and the innovation process. Finally, from a point of view of Law as a field of study, we will show the complementarity with other disciplines like

economics or sociology in problems like organizations, technology, growth, contracts and environment studies.

Our conclusion will focus on the questions stated in the introduction and will offer guidelines for further considerations. There is still a long way to go and the road is strewn with surprises that, more often than not, are unexpected encounters, and these pave an unplanned way, which makes only utter sense looking backward.

II Organizations

Economics studies organizations, or more exactly firms. It is found in a sub-discipline called *Industrial Organization*. Despite the heavy mathematical apparatus that is used, not to mention the financial resources, two world specialists declared ten years ago that economists "still have a weak understanding of many facets of organizational behavior". They insisted in their conclusion on three necessities: first, to "develop and apply techniques that deal with non-standard problems"; second, to "integrate observations from neighboring fields such as sociology and psychology – in a consistent (not *ad hoc*) way into the theoretical apparatus"; and third, to "increase the evidence/theory ratio, which is currently very low in this field" (Tirole and Holmstrom, 1989).

Are not these three reasons a good support for transdisciplinarity? However, a matter of concern is to be found in the progress made by the sub-discipline of industrial organization in the last decade. Despite the voluminous amount of publications in scientific reviews, books and meetings, the progress is, according to us, very unsatisfying, especially on the two last points raised by Tirole and Holmstrom. On the second point, this sub-discipline is still not ready to enter into transdisciplinarity. Economics is still plagued by a strong positivist ethos. On the third one, investigation in economics should integrate qualitative research and not just quantitative one, but this means another type of methodology and even a new conception of knowledge.

Some hopes lie in the growing discipline of management studies which is already multidisciplinary and some trends towards inter- and transdisciplinarity are more than obvious. Another possible positive evolution is the adoption of new research methods such as qualitative ones.

III Innovation

Innovation is usually referred to as technological innovation in the literature in economics. However, the concept of innovation is much deeper and wider, and is an integrating part of the broader and poly-faceted concept of change. Indeed, innovation is a social phenomenon and change is a global one. We are still striving against some linear conception of the technological change. Moreover, economics of innovation has to go beyond the theory of the entrepreneur and that of the innovating firm outlined by Schumpeter, and integrates the context or milieu of innovation. This transformation is not possible without a cross-disciplinary research program. This transformation is not possible without a cross-disciplinary research program, given the multifarious nature of the problem of innovation at both the economic and social levels just to mention these two. The innovation is not just produced by an individual (entrepreneur or firm) but is also a "collective" activity linked to time and space. Once again time and space are complex entities, multifarious and not reducible to a single dimension or point. To consider just the former, the challenge of time is central for physics as Prigogine once put it. It is also true for social sciences. The famous and forgotten sociologist George Gurwitsch built once the notion of multiplicity of social time. There is here a convergence, according to us, with the integration of history in social sciences. Today, innovation processes do not have the same nature as yesterday. Serendipity – an attitude to make accidental discoveries – is

not as widespread or, at least, as evident as it was, given the role played by science and big science.

IV Law

Nowadays, international and organizational dimensions (criteria) have an unusual importance in the definition and implementation/interpretation of economic law by agents involved in the economy (public authorities, firms, citizens/workers). The complex nature of questions concerning economic, juridical and political integration is present, e.g., i) in private and public practices that, step by step, are being considered (un)lawful by public authorities, ii) in the necessity of adopting rules in order to create competitive markets and specific organizational forms, iii) in the necessary reforms of traditional and emergent sectors of the economy.

Trade liberalization is becoming effective on a world scale, mainly by functional devices. The aim is to secure free access to external markets, traditionally closed ones, to a growing number of countries and firms. In a different way, regulations and instruments that establish free economic practices are turning into a regional scale, mainly by material devices. Entrepreneurship is being promoted purposefully by public actors through the creation of juridical structures. Their goal is to achieve economic efficiency (a good example is given by European Union: Bühner concluded, in 1991, that, in spite of a decrease of real profitability, European firms had registered a book value increase of profitability). There is an "European argument", based on operations research, that stresses the necessity for creating supports ("synergies"), namely juridical ones, able to promote specific processes of internationalization by giving more efficiency to industrial systems.

The complexity of international economic life illustrates growing and deeply unequal processes. This is true both for the diverse spaces of integration (regional entities, that register quite different levels of development, and the world economy) and in several economic sectors. Some of them are emergent: e.g., sportive professional market labor, in spite of its novelty, is already the most integrated European labor market. These spaces and sectors are interdependent, and it is possible to measure the structures of these different economic spaces. However, what do the profoundness and change of political, economic and juridical structures mean? What do freedom and economic rights mean?

Two main facts arise. One the one hand, new dimensions, concerning management, evolve and legitimate public policies. On the other hand, social context, i.e., the definition and implementation of public policies (e.g., competition, industrial, innovation and fiscal policies), becomes central. The necessity of a transdisciplinary method makes clear that is not sufficient to recognize (and even to measure) the increase of complexity and the new economic organizational forms. Social scientists must be able to understand the reasons of change and the conditions of social development of organizations. Differently, we loose the critical sense on the proper nature of the law we shall adopt. Is the harmonization of rules and procedures necessary and/or sufficient in order to obtain a real convergence of the different national economies and the most efficient solutions?

In European Union is taking place a "structures strategy" and a "size strategy" (J. Groenwegen and J. Van Dijk, 1993): paradoxically, there is not juridical integration, notwithstanding, it is intended to support the competitive position of firms through law. Pay attention to the novelty of mergers, the big transfers of economic rights every year, the real effort of international control entities to work together. Many recent mergers, acquisitions and strategic alliances have been considered as respecting competition rules; but they would not have been allowed just 20 years ago. Interestingly, competition rules

are the same since the Treaty of Rome (1957). The legitimization of industrial policy is made by the means of economics and law. It is apparent that the corporate performance depends on the reasonable behavior of firms (the CEO), and this notion has changed, because social expectations became different. We can conclude that the interpretation of rules changed. Why? Some neoclassical orthodox authors say there exist market uncertainties that justify these different behaviors. This argument is also invoked by both the European Commission and the European Court of Justice. This is a quite "disciplinary" and insufficient analysis: it ignores the specific burden of the past and the transversal reasons of change. There exist a liberal ideology — free entrepreneurship, individualism, property rights, competition, limited state — that is assumed by the dominant theory in economics and liberal law. But there are also social values that bear on the evolution of the deep sense of the proper normative solutions: e.g., technology, work force, information, social institutions and their interests (Buchholz, 1989). This is the reason why, today, the rules of competition are being reformulated in European Union. But there still exist paradigmatic limits: law matters. See, for example, the central role played by research and development centers in favor of European corporations. Although they violate competition rules, many agreements and practices among the former are considered apt to incorporate benefits to populations and, thus, reinforce the competitive position of Europe in world global markets. New competition rules are aimed to make the rule what is still the exception.

The growing and complex nature of these phenomena is not reducible to the harmonization of procedures, to the adoption of common material rules, or to the juridical coordination among states. On the contrary it must serve to ask for the best solutions. There still remain different interests inside international organizations, both for regional and world spaces (see, e.g., what happened in the last WTO summit, in Seattle, on December 1999). National states have not, usually, the option to withdraw. Our point is that the traditional tools in economics and law became insufficient to understand the newest changes of industrial structures and behaviors. It seems the "new" competition rules benefit big industrial corporations (only these ones have benefited from exemptions to the competition rules, favoring the development of new technologies).

Our transdisciplinary perspective considers the hypothesis that the actual "problem of economic society" is not anymore how to allocate "given" resources. Rather, the issue is how to secure the best use of resources which are known by any member of the society, in order to define ends whose relative importance only individuals know (Barnett, 1992).

V Conclusions

Firstly, we stress the necessity to integrate time (history) in social sciences contemporaneous to the study of organizations, innovation and law. The aim is both to conceive the correct framework and mainly to understand the complexity of phenomena under interest, integrating, among other things, the "specific weight" of the past. Secondly, another point is the critical dialog across disciplines that imply a redefinition of disciplinary organization and methodological concerns. Thirdly, disciplines have to be aware of the importance of new international and organizational dimensions. Finally, all this raises more questions to cope with than it offers answers.

References:

- Barnett, R. (1992) *The Function of Several Property and Freedom of Contract*, in "Economic Rights", Cambridge University Press: New York, pp. 62 f.

- Buchholz, R. A. (1989) *Business Environment and Public Policy*, Prentice Hall: New Jersey.
- Groenwegen, J. and J. Van Dijk, (1993) *Changing Business Systems in Europe*, VUB Press, Brussels.
- Tirole, J. and B. Holmstrom (1989) "The Theory of the Firm", chapter 2 in R. Schmalensee and R. Willig *Handbook of Industrial Organization*, Volume I, Amsterdam: Elsevier.
- Vilar, S. (1997) *La nueva racionalidad: Comprender la complejidad con métodos transdisciplinarios*, Barcelona: Kairós.