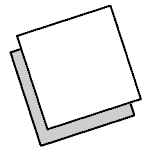
An executive summary for managers and executive readers can be found at the end of this article



# Towards an institutional theory of the dynamics of industrial networks

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***Keywords*** *Networking, Relationship marketing, Industrial relations, Organizational change*

***Abstract*** *The study of interorganisational cooperation has gained increased currency. An important empirical and conceptual contribution in this field owes much to the network approach. The picture provided by the network approach contrasts with other models that regard cooperation as a mere contractual and legal inter-corporate connection. Whilst accepting the existence of formal types of collaborative arrangements, the network approach emphasises the importance of informal and emergent cooperation. This paper is an attempt to extend the current perspective by focusing on interorganisational cooperation in the context of collective action phenomena. These usually involve a large number of actors concerned with the formulation of market rules, the prevention of instability and disorder and, in general, the promotion or defence of their mutual interests. The paper offers an institutional explanation of why and how collective actions emerge and influence the shape and evolution of industrial networks.*

There is nothing permanent except change (Heraclitus)

## Introduction

**Economic exchange process**

Change is a key feature of any economic system. Conventional theories have traditionally conceived change and stability as contrasting characteristics. In fact, change has been regarded the same as instability and stability the same as absence of change. This view has, however, been challenged by the network approach, a model developed by the International Marketing and Purchasing (IMP) Group which regards change and stability as interwoven issues. On the one hand, industrial networks are assumed to be stable inasmuch as the economic exchange process tends to take place within the existing framework of interorganisational relationships. In fact, ties and bonds amongst actors as well as the cost of changing a web of relationships favour the establishment of stable links. On the other hand, industrial networks can be regarded as "living" structures in which the way actors, activities and resources relate to each other is continuously changing not only because of the dynamics of the economic process but also on account of movements of actors attempting to increase their control over activities, resources and/or other actors.

Nonetheless, despite the existence of significant research directed towards modelling the dynamic processes governing the evolution of industrial networks, IMP researchers have so far mainly focused on processes of change induced by economic and technological factors. However, as Douglass North, the Nobel laureate, put it, there is a growing evidence that institutional considerations are likely to be particularly relevant:

> Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change (North, 1991, p. 3).



In this context, this paper attempts to extend current views on the dynamics of industrial networks by focusing on the institutional role played by collective action processes, i.e. movements of groups of actors aiming to promote or defend their mutual interests. The paper begins with an overview of some of the most insightful contributions in this field made by network approach researchers. The second section addresses the so-called collective action perspective. The section which follows, introducing the institutional dimension of interorganizational relationships, develops a three-dimensional model of industrial networks which is illustrated by a case study. The paper ends with a number of recommendations for managers.

## Change in industrial networks

### Process of interaction

Firms are not independent entities acting on their own in the market. To develop their activity they have to interact with other firms and organisations, such as governmental departments, associations or regulatory commissions. This process of interaction may give rise to lasting and stable relations through which firms adjust products, production and routines. Such relations are often built over a long period since their development requires time and resources and may involve commitments for the future. Firms' behaviour can thus be described as a cumulative process where relationships are created and developed to guarantee firms' control over the resources they need, the selling of their output, and the pursuit of their objectives. This system of interdependent organisations engaged in the production, distribution and utilisation of goods and services, forms an industrial network where the particular position assumed by one actor affects not only its performance but also the evolution of other actors.

This vision owes much to the network approach, a model developed under the stream of research carried out by IMP over the past 20 years (Hakansson, 1987; Axelsson and Easton, 1992; Naudé and Turnbull, 1998). For a detailed description of the history and provenance of the network approach, see Turnbull *et al*. (1996) who trace the theory and development of the IMP Group.

### The struggle for control

Change is a key feature of any industrial network. According to Hakansson (1992), it can be induced either by the dynamics of the economic cycle or by actors struggling for control. The struggle for control is particularly interesting in the context of this paper inasmuch as it involves two interwoven and opposite tendencies. The first, named "hierarchisation", leads to an increased control of resources or activities by a decreasing number of actors. The second, defined as "extrication", occurs when such a control is diminished and, as a consequence, is spread throughout the network.

The process can be described as follows. In industrial networks the most general objective that actors pursue is to increase their power, which can be achieved through an extended control over resources or activities. The control process can be developed either directly (i.e. through ownership) or indirectly (i.e. via relationships with other actors). In both cases, increasing control requires resources. If control is expanded through ownership, actors have to have the means (e.g. financial, material or human resources) necessary to acquire new resources or the capacity to perform new activities. If control is extended through relationships, actors have to get involved in new webs of relations with other actors, which also requires resources.

Given the fact that resources are by definition limited, in both cases actors have to decide how to allocate their resources. In other words, for each situation they first have to decide how they wish to use their respective

resources to increase their power in the network. Following Hakansson (1992), this means that gaining an increased control over resources or activities will probably lead to a decreased control over other resources or activities. When control is exerted indirectly, this is likely to be particularly important in terms of pressure for change. Indeed, when an actor aims to increase its power through an extended control, it has to develop new relationships, in most cases at the expense of a reduction of its involvement in other relationships. Therefore, the author contends, both a building/organising process (hierarchisation) and a disrupting/disorganising process (extrication) tend to occur. This means that for any individual actor, the control process involves a set of different types of links with other actors. For instance, it may encompass cooperative relationships among actors sharing similar interests, but it may also give rise to conflicting relationships involving actors with opposite interests.

### Actors' network theories

As Hakansson and Johanson (1993) point out, in this process a key role is likely to be played by the actors' network theories, i.e. their perceptions about the present relations between actors as well as their expectations and intentions. Indeed, network theories have a bearing on the connections which will lead to the process of change inasmuch as each actor's network theory tends not only to influence its actions and struggle for control, but can also be communicated to other actors and thus influence their respective actions.

In general, changes induced by joint actions have much to do with these processes. On the one hand, they tend to increase the power of the actors involved in such actions so that they can expand their capacity to influence the shape of the network(s) in which they are embedded. Moreover, as recognised by Gadde and Hakansson (1992, p. 179), those changes are ''politically important'' and must ''... be judged more in terms of their effects on the power structure than on the way in which they influence the activities or the use of resources from an economic point of view''. In addition, joint or collective actions constitute a means of aggregating, aligning and mobilising dispersed interests so that changes can be pushed in a particular direction. This concentration of disseminated and fragmented power is thus an example of Hakansson's concept of hierarchisation.

### Continuous and discontinuous industrial networks

An important contribution to this issue is addressed by Lundgren (1992). The author contends that two kinds of change may arise in industrial networks: continuous and discontinuous. The former tends to result from the coordination of activities undertaken by actors within the existing pattern of exchange. From a network perspective, coordination involves both mutual adaptation and learning which, influencing the resource structure, may create the conditions for future changes within the network. On the other hand, discontinuous changes generally occur as a result of mobilisation processes which break old patterns of exchange and create new ones. As Lundgren (1992) stresses, this perspective does not contradict the traditional thinking in the network approach since the distinction between continuity and discontinuity is a matter of degree and level of aggregation. While at higher levels of aggregation almost all changes can be considered continuous in nature, at lower levels discontinuities are more likely to occur and may explain significant network changes at that level.

The process of mobilisation is discussed in detail by Lundgren (1992). Quoting Scott (1987, p. 159), he defines mobilisation as ''... the process of forming crowds, groups, associations and organisations for the pursuit of collective goals''. Although Lundgren (1992) states that a collective goal is not a necessary condition for discontinuous changes, he recognises that the

mobilisation process is likely to evolve in a smoother way if actors have a common vision, i.e. a common network theory, and share mutual objectives. Moreover, the author separates the mobilisation process into two broad categories. The first, named ''integrative mobilisation'', refers to changes based on existing activity cycles. The second, labelled ''changing mobilisation'', refers to changes induced by the creation of new activity cycles and/or the breaking of some of the old ones. Both processes disturb the existing patterns of coordination of activities and may give rise to new networks or, at least, the fast re-structuring of the established network(s). Nevertheless, Lundgren (1992) claims that interaction between different and quite often contradictory factors makes things in practice much more complex and difficult to anticipate. First, mobilisation is always constrained by the existing resource and activity structures, which will probably slow the progress of discontinuous change. Second, mobilisation requires a very strong commitment from the actors involved. This means that it is more likely to occur during unstable periods when problems are recognised by a larger number of actors.

Moreover, a number of more recent works touch on these issues, albeit in a superficial way. For instance, Hakansson and Snehota (1995, p. 273) state that:

> Changes aimed to stabilise or to change the networks are always a matter of two or more actors working together with or against others. The actors adjust to others as they know, from experience, that it is the only way to get others to adjust to them. Interactions thus lead to joint actions among actors that shape the structure of business networks and create the connected relationships and result in ties, links and bonds . . . As a consequence no single actor alone is capable of maintaining or changing the structure of the network.

And Hakansson and Henders (1995, p. 152) argue that:

> Because the actors are connected through resource use in activities, the changes implemented by one actor affect the change activities undertaken by other actors. This interconnection, combined with the fact that many network members must be mobilised in order to achieve a desired change, creates the network dynamics.

**Concentration of power**

In conclusion, the network approach provides a conceptual basis for the understanding of processes of change induced by joint or collective actions. First, joint actions are in general concerned with processes of struggling for control which are a major source of change in industrial networks. Second, both Hakansson's (1992) and Lundgren's (1992) works are particularly appropriate when analysing such type of phenomena. While Hakansson stresses the importance of the concentration of power in fewer and fewer actors, Lundgren calls the attention for discontinuous changes induced by processes of mobilisation.

Nevertheless, the need for further improvements remains. In particular, it is necessary to take into account the process through which collective forms of organisation emerge, as well as the way they influence the shape of industrial networks. The section which follows addresses these issues.

## The collective action perspective

**Collective action**

In general, organisations which develop an activity for the provision of collective benefits acquire the bulk of their resources from contributions from their members. These contributions can take a variety of forms, such as money, materials, services, time, or simply psychological commitment. Once control over such resources is achieved, the organisation may use them to

attain two main collective goals: to produce a direct product or service to its membership; and/or to influence other actors' activities. Collective action problems may arise when members of such organisations are free to choose whether to contribute or not to the provision of the collective benefit. In a situation like this, self-interest may induce people not to join the action because they may benefit from the effort of the others without paying for it. In this context, free-riding is the opposite of cooperation since this means to contribute to the collective action and, thus, to relegate self-interest to second place. In short, cooperation becomes a matter of a tension between individual and collective interests which, in most cases, assumes the nature of a conflict between short- and long-term interests.

### Individual versus collective rationality

Most of the theoretical and empirical research on problems of individual versus collective rationality owes much to Olson's (1965) seminal contribution addressed in *The Logic of Collective Action*. This book, beginning with an analysis and conceptualisation of the so-called collective action problem, attempts to establish ways of inducing people to cooperate on a collective basis. Olson (1965, p. 14) concentrates his efforts on the study of organisations which provide public or collective goods, i.e. ''goods that are available to everyone if they are available to anyone''. Such organisations may assume, for example, the form of business cartels, professional pressure groups, trade unions, and civil rights groups. In this type of organisational structure, Olson (1965) observes that collective benefits are, in most cases, insufficient for motivating individual contributions. In fact, when large collectivities offer public goods as their sole incentive both the ''imperceptible effect" and the ''free-rider problem'' are likely to jeopardise collective actions. First, as groups become larger, individual contributions to the collective action tend to be greater than the perceived individual proportion of the public good shared by each member. In other words, it becomes increasingly difficult for each member to ascertain what the returns are on his or her contribution. Second, in large groups members are more likely to tolerate instances of non-contribution. In this context, any member acting on a rational and utilitarian basis may maximise his or her benefits by not making any effort on behalf of the group. If a significant number of members adopt this pattern of behaviour, then suboptimal amounts of the collective good will be produced and, at the extreme, the collective action carried out by the group will be nil.

Extending his analysis to small groups, Olson (1965) states that these are more likely to mobilise interests and, therefore, to induce individual contributions to collective actions. The author suggests three explanations for this. First, the ''imperceptible effect" becomes less relevant. The smaller the group is, the more each actor can anticipate and perceive his or her benefit from the collective action. Second, in small groups the ''free-rider problem'' is less likely to occur because members tend to react if one of them does not contribute to the provision of the collective good. Finally, the smaller the group is, the lower organisation costs tend to be, e.g. the costs of providing the collective good, the costs of maintaining the organisation, and the costs of communication and bargaining among group members.

### "By-product" theory

Nevertheless, even in small groups the initial problem remains: how to motivate group members to contribute to the collective action? Olson contends that this problem can only be solved if individual rewards are offered to complement the collective benefit. According to his ''by-product'' theory, these selective and private incentives are likely to play a key role in motivating individual contributions. Such incentives can be either positive or

negative, and are limited to two types: monetary and social incentives. While the former is mainly economic in nature, the latter is essentially related to each actor's desire for approbation and the dislike of disapprobation. Social incentives work especially through the mechanism of criticism and shunning by the other members of the group.

### Collective action issues and problems

Much of the theoretical and empirical research on collective action issues can be traced back to Olson's (1965) seminal and very influential work. His legacy and the concern with collective action problems have become widespread across a broad range of disciplines. Udéhn (1993) provides a comprehensive overview of Olson's legacy and Heckathorn's (1996) analysis attempts to supply an integrative framework to examine collective action problems.

Nonetheless, Olson's (1965) contribution has been subject to numerous criticisms. Firstly, his formulation of the collective action problem as essentially an N-person prisoner's dilemma (Hardin, 1982) has been considerably refined and elaborated upon. As some commentators have noted, self-interest alone is unlikely to account for the emergence of collective actions (Miller, 1992). Secondly, Olson's (1965) theory is guilty of what Macneil (1990) terms the Hobbesian fallacy: modelling man as an individual and independent atom rather than a social actor within an interdependent community of other actors. Finally, Olson's formulation of the problem fails to explain the emergence of institutional groups of interests (Van Waarden, 1992) and social movements (Munck, 1995).

### Selective incentives

Of the subsequent refinements to Olson's approach, two deserve special attention in the context of this paper. The first relates to Taylor and Singleton's (1993) and Posner's (1996) attempts to extend Olson's (1965) notion of selective incentives to encompass notions such as ''community spirit'' or ''group solidarity'', and explain why in some cases groups are able to solve collective problems by themselves and in others the problem is only solved by recourse to an external agent (e.g. the state). Whereas Taylor and Singleton (1993) are concerned with the conditions that enable endogenous resolution of collective action problems, Posner (1996) is concerned with the influence that interaction between legal and non-legal sanctions has on the behaviour of collective forms of organisation.

### Homogeneity and interchangeability of individuals

The second useful extension of Olson's (1965) work relates to the relaxation of the assumptions concerning homogeneity and interchangeability of individuals involved in collective actions (Udéhn, 1993). Whereas Olson (1965) stresses the role of political entrepreneurs in large and heterogeneous groups, often a small subset of interested actors – i.e. the ''critical mass'', according to Oliver and Marwell (1988) terminology – may be sufficient to mobilise time, money and other resources to produce a collective benefit despite the majority of members contribute little or nothing.

In concludsion, research on the collective action phenomenon encompasses some key issues that can effectively contribute to the construction of a model of change in industrial networks induced by mobilisation of interests. The conceptual framework developed around the collective action problem is undoubtedly relevant since the tension between individual and collective interests is a key element for understanding the emergence (or absence) of collective forms of organisation as well as their impact on the shape of industrial networks.

**The institutional driving force**

**Vertical and horizontal relationships**

The network approach has traditionally been considered a flat, two-dimensional model. On the one hand, it encompasses vertical relationships along the manufacturing and distribution channel (Ford *et al*., 1998). The buyer-seller relationship has historically been the first to be studied, but other links have also been considered, e.g. between suppliers and customers of customers. The second dimension, referred to as horizontal, addresses relationships among competitors (Araújo and Mouzas, 1997). Taking into account the role played by collective actions, a new type of actor has to be considered: the "*collective actor*". From an interorganisational point of view, a collective actor is a net of relationships created in order to cope with a collectively perceived and shared issue. In other words, a collective actor is an issue-based net (Brito, 1999).

Collective actors may or may not adopt formalised structures. The former are those that, being created through an explicit contract, assume a formal structure. They encompass such different forms as trade associations, farmer cooperatives, consortia of firms for joint sourcing, and regulatory commissions. However, non-formalised collective actors may also come into existence as simply virtual nets of relationships without any kind of formal organisational structure supporting them. This may be the case of informal groups of actors developing lobbying activities. They exist as a collective actor since a net of relationships has been set and developed in order to perform a particular collective action. In short, formalised or not, collective actors consist of nets of relationships that support the formulation of internal rules, the making of decisions, and the implementation and execution of their actions.

**Collective actors**

A collective actor becomes stronger to the extent that it is able to firmly associate, align and move in the same direction a large number of different elements, and it can intervene, stabilise or change the linkages and associations that constitute the network's structures. The strength of a collective actor depends on its capacity to collectively interpret issues, to align interests, and to intervene or, quite often, to interrupt others' interventions. Nevertheless, collective actors may not survive for long periods of time, especially if they have an informal nature. Aggregating and aligning disparate sets of interests into a coherent set of objectives and programmes of action as well as promoting cooperation amongst selfish and potentially opportunistic agents is an arduous task. Priorities and circumstances change and collective actors that do not fulfil early promises cannot hope to survive for long. They constitute vehicles for aggregating, aligning and mobilising interests as well as pushing change in a particular direction for a period of time. But often they are relatively fragile, unable to resist trials of strength or by-pass obstacles placed in their way without loosing significant momentum and credibility. Moreover, collective actors are sometimes set up simply to address the resolution of a specific problem and as soon as progress is made on that front, their existence is no longer justified.

Collective actors affect not only the organisation of individual actors and their strategies, but also the structure of relationships and the balance of power within industrial networks. In this sense, cooperation, assuming the form of a collective action, tends to play a key role in shaping the "rules of the game" and the structure of the network. From this point of view, cooperation, complementarity and coordination must be perceived in the

context of groups of actors (i.e. nets), rather than merely at the dyadic level as Mattsson (1985) suggested.

**Institutional relationship**

Furthermore, the existence of collective actors and the relationships established around them introduces a new relational dimension to the traditional network approach model: the ''institutional relationship''. In this context, the model assumes a three-dimensional nature.

Figure 1 shows the economic network which corresponds to the two-dimensional industrial network as it has traditionally been addressed by the network approach. Above it, collective actors emerge as a result of a process of institutional aggregation of a range of dispersed and fragmented interests into an expected coherent and unified action. In this sense, they are nets of relationships created in order to cope with a particular issue (or set of issues) concerning a group of actors. This means that the immediate objective of a collective actor is to provide a product or service to its membership, and/or to directly influence other actors' activities. In any case, given the interdependence among actors (collective or not), any joint action will always affect other actors. Accordingly, irrespective of the specific objectives pursued, the ultimate goal of a collective actor is to reinforce its members' power within the overall network. This is achieved through an increased control over resources, activities and/or other actors so that they can influence the structure and future evolution of the system. Although such a goal may quite often not be clearly perceived as such, it is likely to be achieved through the formulation or reformulation of the rule system that guides and regulates business practice, the prevention of instability and disorder, and the support to common values and beliefs.

**Equilibria and disequilibria**

According to this model, network changes are likely to be the product of a series of equilibria and disequilibria – most often precarious in nature – which result from the interdependence among three components of the system:

(1) the distribution of power between individual actors;

(2) the distribution of power between their respective representative bodies;

(3) and the interaction process involving both individual and collective actors.

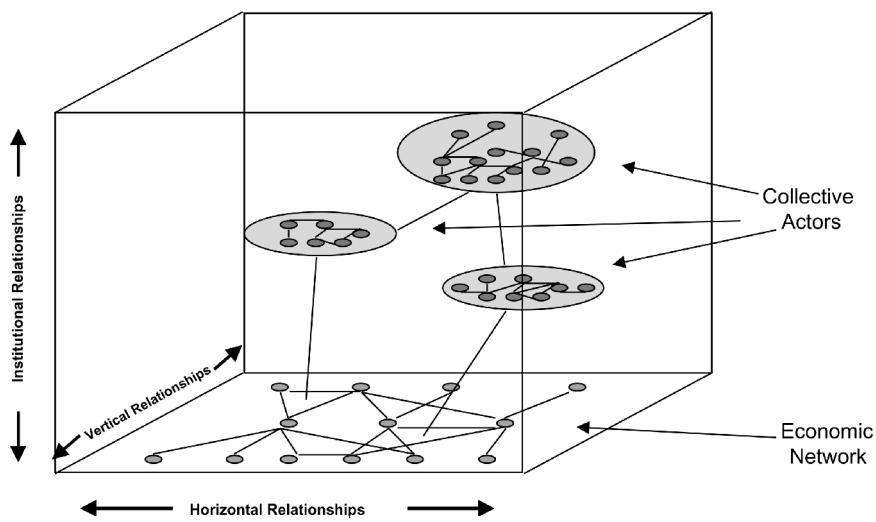


*Figure 1. The three-dimensional model of industrial networks*

In these circumstances, equilibrium and disequilibrium become a matter of a broad process of interaction which involves individual relationships as well as multiple forms of institutional relations within, across and among collectivities which aggregate different types of actors sharing similar interests concerned with the multiplicity of issues that are likely to affect the industrial network.

In sum, institutional relationships must be regarded both as network structuring tolls and sources of change. They are network structuring tools inasmuch as they affect the processes and structure of industrial networks. They are sources of change because they are likely to give rise to imbalances that, being the outcome of a process of equilibria and disequilibria, tend to permanently create the conditions for alteration, transformation and movement.

## A case study: the port wine industry

**Research project**

The model described before was developed on the basis of a research project focusing on the port wine industry. Port is a fortified wine named after Porto, the second largest Portuguese city from where it has traditionally been shipped. However, port begins its life in the Douro valley, a region which starts some 100km east of Porto and extends as far as the Spanish border. This is an administratively demarcated region where an estimated 30,000 farmers grow what is considered to be one of the great wines in the world.

Despite the intervention of tens of thousands of actors in port production and shipping, they can be grouped into four main categories (Figure 2):

(1) farmers,

(2) wine cooperative societies,

(3) shippers and

(4) distributors.

Traditionally, grape growing and port making were undertaken by independent farmers who sold their wine to the shipping-houses. These, in turn, organised the transport of the wine from the valley down the river Douro, and stored and aged it in their lodges located in the Porto suburb of Vila Nova de Gaia. Furthermore, the shippers promoted and sold the wine all over the world to hundreds of distributors.

**Vertical (dis)integration**

Over the past decades some meaningful changes have occurred in this process, most of them related to the emergence of new actors and processes of vertical (dis)integration. First, a number of wine cooperatives in the Douro region were created in the early 1950s. Originally, these co-ops received the

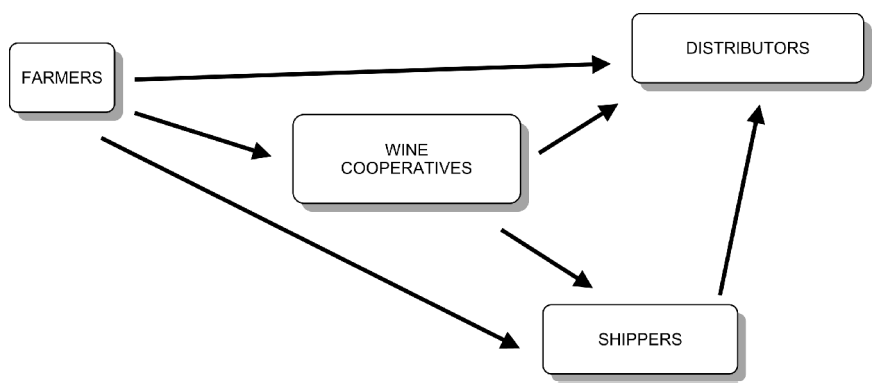


*Figure 2. The port wine supply chain*

grapes from the farmers, produced the wine and then sold it to the shippers. Today, some cooperatives are also selling part of their production directly to the distributors. Second, most farmers, who continued to sell their production to the shippers, have closed their wineries. This means that they are exclusively producing grapes while a major part of the wine is made by the shippers. This shift has been further reinforced because most shippers have also acquired large estates (called *quintas*) in the Douro valley where they grow some of the grapes they need. Finally, since the mid-1980s, some farmers have began to age and bottle their own wine, and ship it directly from the Douro valley.

**Production and distribution**

The port wine industry is characterised by a number of aspects that make the study of change induced by institutional driving forces particularly interesting. First, it is embedded in a stable, mature and differentiated social structure. The split between production and distribution is both social and geographic. As stated before, all but the final phase of production is centred in the farms of the Douro valley, whereas Porto and Vila Nova de Gaia are the distribution and trading centres. Socially, the split is between a rural, provincial and relatively isolated social structure dedicated to grape production, and a more cosmopolitan, wealthier and better educated élite focusing on the technical aspects of production and trade. Second, the clear geographical boundedness of the network and its dependence on activities directly tied to the land make it relatively easy, in practice, to identify the actors involved despite the existence of several tens of thousands of agents concerned with both production and trade.

**Technological change**

Moreover, in the port industry, technological change relating to viticulture and vinification techniques is relatively less important than other forms of change such as the ones caused by market conditions. Finally, it is an industry where power asymmetries (concerning both individual and collective actors) play a crucial role in, for example, economic exchange relationships, the shaping of actors' perceptions and beliefs, and the processes of network structuring.

Figure 3 shows the importance of the institutional dimension within the port wine network. It makes clear the existence of two basic nets of relationships. One is connected with the production of port in the Douro valley. It includes

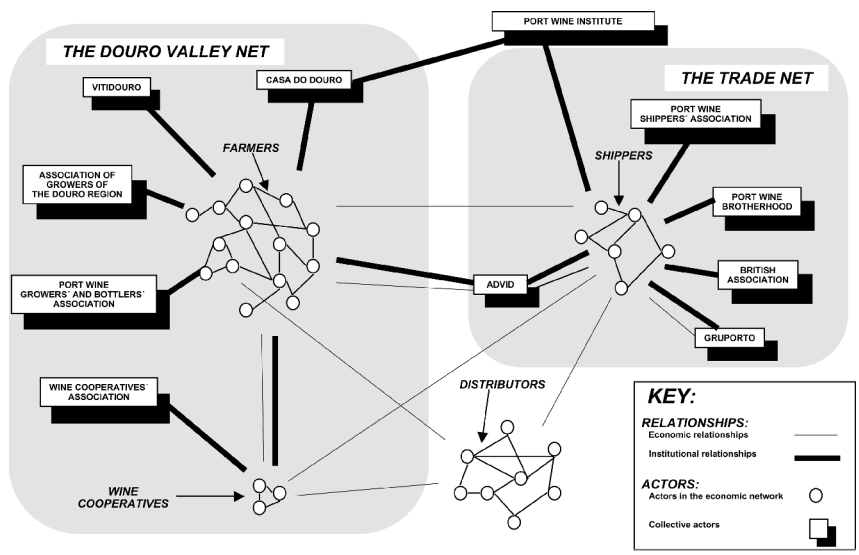


*Figure 3. The port wine network*

not only the farmers and wine cooperatives but also a number of associations such as the *Casa do Douro* (the Farmers' and Growers' Federation), the *Associação dos Produtores Engarrafadores* (the Port Wine Growers' and Bottlers' Association), and the *União das Adegas Cooperativas* (the Wine Cooperative Societies' Association). The other net is centred around the trade of port. It includes the shippers, *Gruporto* (a consortium of shipping-houses) as well as a number of associations, e.g. the *Associação das Empresas de Vinho do Porto* (the Port Wine Shippers' Trade Association) and the British Association. The Douro valley net and the trade net are connected by both economic and non-economic links. The former essentially involves the farmer-shipper relationship. The latter encompasses the relationships established with and through the *Instituto do Vinho do Porto* (the Port Wine Institute, the governmental organisation which controls and supervises the production and trade of port) as well as with and through other collectivities such as *Gruporto*.

**Industrial network**

The port wine industrial network is thus characterised by an important feature which cannot be neglected: the existence of a significant number of collective actors such as the Farmers' and Growers' Federation, the Port Wine Shippers' Trade Association and *Gruporto*. Most of them are attempts to influence the shape of the network inasmuch as they contribute to the creation of rule systems that guide and regulate business practices, uphold common values and, in general, tend to reinforce the strategic position of their members in the network.

For instance, ADVID is an organisation made up of both farmers and shippers whose members cooperate in terms of technical research on viticulture and vinification. The outcome of the research is publicised by books, seminars and conferences in order to disseminate information and knowledge to other actors in the sector. The Port Wine Brotherhood is another collective actor. Created in the 1980s by managers and owners of shipping-houses, it aims the diffusion, promotion and consolidation of the worldwide reputation of port wine. Acting as guardian of traditions, the Brotherhood undertakes a number of initiatives such as solemn enthronements of new members and blind vintage tasting. The Port Wine Growers' and Bottlers' Association is also a collective actor. It was created by a number of well-known producers aiming to promote and increase the exports of port directly from the Douro valley. In short, these collectivities concern themselves with defining, advancing and promoting their members' interests across a broad spectrum of issues as well as attempting to prevent instability and disorder in their dealings with other groups of actors.

**Economic and institutional relationships**

In conclusion, different types of actors in the port network use different forms of both economic and institutional relationships in their efforts to rewrite the scripts of interaction, change (or preserve) the rules that govern business and social practice, and reverse balances of power. The motives and dynamics underlying the formation and persistence of these coalitions of actors as well as their role and impact on the evolution of the port industrial network are critical to the understanding of change in this particular business system.

## Managerial implications

The importance of collective actions aggregating economic, social and political interests is not an idiosyncrasy of the port wine industry since it is also a typical feature of many other industrial networks such as the regions of Baden-Wurttemberg in Germany, Jutland in Denmark, Emilia-Romagna in Italy, Smaland in Sweden, and Oyonnax in France. By way of illustration, let

us take the case of the south-west German industrial district of Baden-Wurttemberg. As Sabel *et al*. (1987) claim, this is an economic system where small and medium-sized firms are linked with and through a wide range of collective forms of organisation that affect the fortunes of the industry as a whole.

This issue deserves the attention of Herrigel (1993) who argues that the dynamics of this economic system is mainly achieved through a collective effort:

> The collective process of negotiation over system reform is organised through formal and informal networks. Industrialists, bankers, trade association officials, and government people hold official positions on the governing boards and advisory councils of the *Fachhochschulen*, banks, small and medium-sized firms, and industry associations (Herrigel, 1993, p. 232).

**Cooperative relationships in industrial districts**

A similar situation is found in the Third Italy which encompasses a number of industrial districts located in the provinces of Abruzzi, Emilia-Romagna, the Marche, Tuscany and Veneto. Best (1990, p. 238), in his book *The New Competition*, states that:

> The Third Italy is a goldmine for studying institutions by which individuals can achieve the benefits for joint action that are beyond the reach of individual action.

The collective character of most of the cooperative relationships in industrial districts is summarised by Powell (1990, p. 322):

> . . . non-market, non-hierarchical modes of exchange represent a particular form of collective action, one in which cooperation can be sustained over the long run as an effective arrangement.

**Regionally-based economies**

This shows that the nature and the importance of collective action within industrial districts is similar to the one found in the port wine industry. However, we lack the relevant yardstick to compare the importance of collective actions across different industrial districts and, although collective action is frequently mentioned as playing an important role in the operation of industrial districts, I know of no empirical study which has focused specifically on this phenomenon. From my point of view, the key conclusion is that, in all regionally-based economies, collective action movements seem to play a significant role in the shaping the structure and processes of the industrial networks in which they are embedded. As Herrigel (1993, p. 227) puts it, referring to the case of Baden-Wurttemberg, industrial power refers to ". . . the capacity to participate in the (re)definition and (re)composition of the organisational and institutional structure of the industrial system itself" rather than on the mere ". . . capacity of individual units to control and/or distribute resources within a given system of production". Herrigel (1993, p. 227) makes evident the collective nature of such movements by arguing that ". . . power is more of matter of identity and collective understanding than one of resources and control". And Lorenz (1992, p. 195) adds:

> Cooperation among producers in industrial districts has two principal aspects. It takes the form of the provision of collective goods . . . Collective goods generally are provided through the auspices of some local institution: business association, trade union, or possibly municipal or regional government. Cooperation also takes the form of adherence by producers to a set of norms of competition.

In conclusion, there are two important similarities between the port wine industry and industrial districts. The first has to do with their basic characteristics, i.e. clear geographical boundaries, the industrial population being made up of many small and medium-sized economic units, and so

forth. The second is more fundamental and has to do with the nature of the collective action phenomenon. In both cases it cannot be seen simply in terms of the provision of a collective good. Rather, collective action is a vehicle for changing the structure and interaction rules of the industrial network.

In this context, the managerial implications of the model are valuable, especially regarding the mangers' scope of action and the role of interests.

**Managing relationships**

*Managers' scope of action*

Firms are not atomistic units acting on their own in a faceless environment. To develop their activity, they have to interact with each other. This tends to give rise to close and stable relationships through which firms adjust resources and activities. Managers' action can thus be described as a process of managing relationships in order to guarantee the control over resources, activities and even other actors so that his/her firm can achieve its objectives. This perspective leads us to regard management as the art of relating firms with the environment rather than a mere adaptation to the environment.

Therefore, the collective action phenomenon and the institutional dimension of relationships extend the scope of managers' action. Each firm's evolution depends both on its actual position in the network, and on the conditions stemming from the structure and processes of the overall network. In this context, firms may, eventually, influence the shape of the industrial network in which they are embedded through collective actions carried out with other actors sharing similar interests. In this sense, collective actions assume a pre-competitive character.

**Social and political networks**

*The role of interests*

Collective actions are undertaken by groups of actors often connected within and across networks qualitatively different in nature. This means that if financial statements, technological factors, product lines, human resources, and so forth, are undoubtedly important, managers cannot forget that firms are embedded not only in economic but also in social and political networks whose impact cannot be neglected.

In short, managers must be aware that interests may be influenced by economic reasons, but these are not the exclusive *sine qua non* of interests. In other words, business is not only driven by economic reasons, but also by interests which often assume an economic, social and political nature.

## Conclusion

One of the characteristics of the model described in this paper is that interorganisational relations are often polymorphic and fluid over time. This inconsistency is likely to allow for the reconfiguration of nets of relationships according to changing constraints and/or demands. In these circumstances, industrial networks become interaction fields characterised by an increasing degree of polyvalence and volatility where issues crystallised around common and conflicting interests are likely to assume a crucial role in explaining actors' behaviours and networks processes. The model proposed aims to deal with these new types of collective issues which tend to give rise to domain-oriented collective actors, cross-cutting the established order of economic exchange relationships.

This conceptual development, extending the scope of applicability of the industrial networks model, opens up new avenues for empirical studies using the network approach. By widening the concept of exchange to include

forms of exchange other than straightforward economic exchange, and by developing and refining the concept of "actor", a plethora of new possibilities emerge for network empirical studies. By way of example: collective strategic positions and collective strategic actions in industrial networks; multi-level relationships between different classes of actors; the role of regulatory bodies in industrial networks; the emergence of industry/trade associations as well as technical and product standards bodies; and the formation and development of industrial districts and geographically concentrated industries from a network perspective.

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