The Oligopolist's Discordance Made Acceptable?
Enacting Socially-Embedded Knowledge
to Act it Out in One's Favor

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Abstract:
Strategic surprise lies in wait. There is no surprise if competitors can figure out one's intentions before end. We examine how enlightened strategists can enact the socially-embedded knowledge that prevails over competitors' behavior to their very own favor. Findings suggest that firms can strategize successfully by (a) identifying the levers of collective knowledge; (b) using them as to deter competitors from reacting.

Key-Words:
• dialectical relationship between collective and competitive strategizing
• collective knowledge — socially-embedded knowledge – knowledge-based theory of the firm
• oligopolies — strategically interdependent firms

La discordance de l'oligopoliste rendue acceptable
Comment activer les règles du jeu à son propre profit

Résumé:
L'effet de surprise stratégique demande une préparation. Il n'y a pas de surprise si les concurrents peuvent deviner les intentions ex-ante. Nous examinons comment un dirigeant éclairé réussit à activer les règles du jeu des acteurs d'un district en sa propre faveur. Les données analysées suggèrent que les firmes peuvent mener une stratégie efficace (a) en identifiant les leviers de la connaissance collective (b) en les utilisant pour amortir les réactions hostiles de la concurrence.

Mots-clefs:
• relation dialectique entre les stratégies collectives et les stratégies concurrentielles
• connaissance collective - connaissance sociale
• oligopoles - firmes stratégiquement interdépendantes
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... the deceiving of the senses  
is one of the pleasures of the senses.  
Francis Bacon,  
The Advancement of Learning, 1620.

INTRODUCTION
Strategically interdependent firms — i.e. in the present paper, oligopolists — rely on the alternation of competitive and collective strategies: "What is relevant is the ability to react to instabilities by switching from more collective forms of strategizing to more competitive ones, and vice-versa" (Bresser & Harl, 1986, p. 425). Yet, firms that are willing to surprise their competitors by switching promptly face a cruel dilemma: on one hand, if they switch from cooperation to competition too quickly, ex-partners who suddenly and unexpectedly become competitors, may consider this is a betrayal, and apply adequate retaliation (Axelrod, 1984). On the other hand, if they switch too slowly and too progressively, they might lose the competitive advantage of a better timing over competitors (Bresser & Harl, 1986). Hence, ability to manage transitions with subtlety may well be the real core of competitive advantage for strategically interdependent organizations (Ibert, 1995).
The main issue for the oligopolist willing to engage in a successful transition from collective to competitive strategies — and vice versa — is therefore to make this move "acceptable" by other members of the community. In other words, this oligopolist is going act incongruously, but he has to make this choice congruous to the community with which he is almost inescapably going to be thrown in further dealings. So, he must prepare the terrain as to make his forthcoming discordance accepted by all community members, with the expected reward of being able to stay in this community and pursue dealings. He has to make his very deliberate incongruity socially congruous!
This distinction between congruity and incongruity was introduced by Jones (1975) who identifies such dialectics as the main mechanism of the emergence — or implementation — of unexpected events in the life of businessmen, politicians, officers and scholars. An event, or a behavior, are considered 'discordant', Jones explains, when (a) an incongruity arises in the normal order of events (p. 11); (b) "outcome of a plan is directly opposite to that which its originator intended" (p. 12); (c) "by occurrence of a congruity when incongruity would have been normally expected" (ibid.)
Hence, discordant strategies are those moves and actions that appear incongruous to a community when congruity is expected, or congruous to this very same community when incongruity is expected. For instance, a sudden price cut in the middle of a price war is not at all an 'incongruous strategy'. On the opposite, a readjustment of price according to an increase
of costs in the same settings would be considered as an 'incongruity'. Congruities that occur when incongruities are expected are likely to be seen as incongruities (Jones, 1975).

Definition of what is 'incongruous' and what is 'congruous' is embedded into social habits, traditions, symbols and practices: "Organizations provide a socially constructed context for actions. As people 'act practically' they interpret and negotiate such contexts. " (Blackler, 1993, p. 880). Not surprisingly, deception (e.g. Barton-Bowyer, 1980 ; Eck, 1970 ; Ekman, 1985 ; Mure, 1977 ; Moss, 1977) and self-deception theorists (e.g. Demos, 1960 ; Fingarette, 1969 ; Jervis, 1976 ; Dedijer, 1989) see in collective schemata the lever of every deceiving or self-deceiving process. As Goleman noted, "in a collective, as with the self, schemas shape the flow of information. In any group the relevant schemas are those that are shared by members, the subset of schemas that are the "we". The "we", I will argue, is as vulnerable as the self to self-deceptions. The motivating force behind the forming of shared illusions in a group is identical to that in the self: to minimize anxiety" (Goleman, 1985, p. 164).

Thus, collective schemata shape the accepted definitions of what is usual or unusual, i.e. what is incongruous or congruous. Yet, collective schemata are outputs and inputs to the socially-embedded knowledge that prevails upon collective practices — e.g. "communities of practice" (Brown, Duguid, 1991 ; Lave, Wenger, 1991). In return, "the origins of organizational practices lie less in rationality and more in their economic and social histories (including institutional norms, ideologies, control battles, demarcation disputes, technological choices, 'tinkering', 'muddling through', etc.). (Blackler, 1993, p. 880). Practice shapes the socially-embedded knowledge, that, in return, shapes practice.

Traditional views on this interaction between practice and socially-embedded knowledge tend to describe its dynamics as merely tacit and automatic. The building of tacit knowledge is seen as kinetic – e.g., bike riders that can demonstrate but cannot explain (Polanyi, 1962, p. 49) — or procedural (Scribner, 1986). Through socialization (Nonaka, 1994), knowledge comes 'naturally' into place; people lose their expertise when their task is decontextualized (Spender, 1993, p. 10). Collective and tacit knowledge appears, in that perspective, the sheer result of an unconscious and on-going process, that intertwines with socialization.

Yet, socialization is far from being only an automatic and unconscious process. Firms can be manipulative when dependent of competitors' fate (Pennings, 1981), and try to "enact" their environment rather than to undergo painful adaptation (Daft, Weick, 1984; Weick, 1977). Building our investigation on that perspective, we hypothesized that socially-embedded knowledge might as well be the target of many manipulative impulses. We present case-evidence of the awareness of socially-embedded knowledge as levers of successful competitive strategies in an oligopolistic market. We discover, through case study research, firms that are fully aware of the role played by collective knowledge as to make their moves 'rejected' (e.g. retaliated) or 'acceptable'. We root our analysis in a review of literature on socially-shared cognition, the knowledge-based view of the firm (i.e. distinction between tacit and explicit knowledge) and on economics and management works about strategically interdependent firms and oligopolistic markets. Consistent with the methodology of exploratory research, we present our findings in the form of a discussion. We organized our findings and propositions under the form of diagrams that may serve as a basis for further investigations of interactions between socially-embedded knowledge and collective strategies.
Competitive Interactions in Oligopolistic Markets

Industrial economists demonstrated a strong interest in competitive interactions in oligopolistic markets. In its duopolistic model, Cournot (1938) showed a definite independence of bidders' decision making. On the contrary, Chamberlin (1957) showed that both players in a duopoly were in a mutual interdependency, i.e. bids are generated by successive mutual adjustments. Discussing this interdependency in the context of oligopolies, Chamberlin asserted that recognition of this mutual state of interdependency leads to a search for maximization of joint-profits, without the need of any explicit or tacit collusion. However, the model of joint-profits maximization lies upon the implicit hypothesis of the sharing of a same objective reality, and of a same attitude towards risk-taking (Henderson, 1954). Bounded-rationality of managers (March & Simon, 1958) implies that players are less predictable to each other that Chamberlin's model suggested. This latter model also implies a behavior of maximizing aspirations, whereas, in real life, managers search for their minimal satisfaction (Cyert & March, 1955; Phillips, 1960), that requires both minimal faith and minimal consistency as to "fly without flying apart" (Hedberg, Nystrom, Starbuck, 1976).

Beside, the suggested stability of such collusive agreements— which is supposed to lead joint-profits maximization — does not take into account information asymmetries in the competitive interaction. Some players are more knowledgeable than others, and may — sooner or later — search to benefit from this asymmetry, whereas they simulate peacefulness: "explicit treatment of the role of communication is frequently omitted from economists' descriptions of the interfirm coordination process" (Williamson, 1965, p. 583).

We propose to investigate Williamson's statement further. We argue in this paper that knowledge, both tacit and explicit, both individual and collective, not information, or communication, is currently omitted in the study of competitive interactions: "in a regime of imperfect knowledge, there will be dispersion of prices even with transaction homogeneity" (Stigler, 1964, p. 45). Thus, "the market price reveals information about demand only, and never leads i's competitors to revise their beliefs about how much i has produced" (Green, Porter, 1984, p. 93). In that particular case, beliefs prevails upon market information.

In other words, what is believed to be known is stronger that what is given to be seen: "The identification of sellers and the discovery of their prices are only one sample of the vast role of the search for information in economic life" (Stigler, 1961, p. 224).

Similar comments were made by Chamberlain (1957) who show that firms can display parallel behaviors without having implemented any collusion explicitly. In such a setting, firms have no primary interest to reduce information asymmetry by sharing information: "if they think that shared information presents just too inviting an environment for cooperative behavior, and they doubt their ability to control cooperation in an environment of homogeneous information, they may seek a safer, second-best equilibrium by simply prohibiting information transfer" (Clarke, 1983, p. 393). Thus, collusive dynamics can be implicit, and might be impeded by attempt to explicate their tacit founding. Stigler (1964) suggests that, in such a case, the collusive equilibrium lies on the scarcity of signals. Making intentions explicit through information sharing impedes members of a given agreement to have secret plans: "It is a well established proposition that if any member of the agreement can secretly violate it, he will gain larger profits than by conforming to it" (Stigler, 1964, p. 46). Therefore, it can be hypothesized that collective strategies lie on dialectics of 'sharing' and 'hiding'.
**Information as a source of coordination and shared vision**

On one hand, "competitors have an incentive to engage in all of the preliminary steps required to coordinate their pricing but to stop just short of 'agreeing' on what price to charge. The most important step is the exchange of information as to what prices each is charging, or charged in recent past, or intends to charge in the future" (Posner, 1976, p. 135). However, Posner's statement seems rather ambiguous. If firms share information as to what prices they "intend to charge in the future", they are very likely to enter an escalation of information disclosure that will hereby prevent them from stopping "just short of 'agreeing' on what prices to charge". Hence, information sharing lies on antithetical processes of openness and secrecy. If firms are too mutually secretive, the coordination might undergo deviance, and an unbearable increasing uncertainty about firms' intentions and respect of taken commitments. Therefore, "no conspiracy can neglect the problem of enforcement. Enforcement consists basically of detecting significant deviations from the agreed-upon prices. Once detected, the deviations will tend to disappear because they are no longer secret and will be matched by fellow conspirators if they are not withdrawn" (Stigler, 1964, p. 46). As Williamson noted, "communication is essential to coordinated response and it is our contention that the amount of communication both affects and is affected by the level of adherence" (Williamson, 1965, p. 583). Members of the strategically interdependent group need a minimal amount of "discipline" — which is defined as "the degree to which the individual firms are willing to act in unison as members of the group" (Lange, 1944, p. 41) — and will therefore be keen to share a minimal amount of information as to reach this discipline. Moreover, "if information is private (nonshared), firms may hold divergent views about market conditions. Lacking of confluence of opinion, firms find it difficult to agree on a cooperative strategy" (Clarke, 1983, p. 384).

**Information as a source of competitive positioning**

On the other hand, "rational action would be impossible if everyone knew what everyone knew" (Hollis, 1987, p. 52). This is particularly true when firms try to deal with their capacity expansion decisions: "a firm that does not adequately consider competitors' reactions may be viewing the capacity expansion situation only as a gain opportunity, while failing also to consider the perspective of losses that could accrue if competitors reacted aggressively to the local firm's capacity expansion" (Zajac and Bazerman, 1991, p. 41). Moreover, "competition makes multiple demands on an organization: the need for quick, well coordinated adaptation to the competitive moves of rivals; for creative and innovative moves to gain an edge over rivals; for efficiency of operations; for protecting an organization from future depredations" (Khandwalla, 1981, p. 409). When dealing with their strategic options, firms rely on the accuracy and superiority of information that prevails upon those elements. Hence, a situation of "perfect information" is a sheer theoretical construct that cannot be met in real-life. "An oligopolistic agreement is not likely to be an effective conspiracy unless the firms have adequate intelligence. An advocate of the so-called efficient-market hypothesis, Stigler (1964) asserted that statistical-forecasting techniques are adequate in performing intelligence functions. Statistical analysis will reveal whether a member of an oligopoly would realize more revenue than would have been expected. It seems, though, that the efficient-market assumption does not hold very well — particularly in the case of oligopolies, since the pricing information as well as other information is often not readily available" (Pennings, 1981, p. 447). Consequently, firms in oligopolistic markets are heavily dependent on (a) the quality of
the knowledge they hold about competitors; and (b) their ability to build and protect superior knowledge than competitors. "Much of what has been labeled environmental turbulence and uncertainty may be more a function of lack of knowledge about the environment than of rapid, complex change itself" (Gottfredson, White, 1981, p. 476).

**Socially-embedded Knowledge**

The notion of "socially-embedded" knowledge was suggested by Spender (1993) as he tried to clarify Polanyi's (1962) distinction between tacit and objective knowledge. In this earlier theoretical framework, it was argued that organizational knowledge is not homogeneous, nor does it all conform to the positivist notion of knowledge. A two by two matrix was introduced, as to make two distinctions. The first distinction was the objective/tacit, familiar from Polanyi's work, and the other was the individual/social, familiar from Durkheimian sociology. These distinctions were unfolding as follows:

<table>
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<tr>
<th></th>
<th>Individual</th>
<th>Social</th>
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<tbody>
<tr>
<td>Explicit</td>
<td>Conscious</td>
<td>Objectified</td>
</tr>
<tr>
<td>Implicit</td>
<td>Automatic</td>
<td>Collective</td>
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*Figure 1: The four types of knowledge (from Spender, 1993:39)*

Nonaka (1994), using a very similar matrix, discussed the continuous dialogue between tacit and explicit knowledge in organizations. Researching the epistemological and ontological dimensions of knowledge, Nonaka (1990) synthesized four kinds of transitions between explicit and tacit dimensions of knowledge (Fig. 2). As Nonaka compiled it from different authors (Piaget, Teece, 1987, etc.), a specific mode of transition exists for each transformation. For instance, tacit knowledge circulates through *socialization*, i.e. we learn tacit behaviors, or rules, by interacting and observing other people. This tacit knowledge (e.g. the baker's tacit know-how in preparing bread) can be *articulated* in more explicit rules (i.e. by using different sets of measures in all various conditions of the process in order to identify the rules that are used tacitly by the baker), and then becomes explicit knowledge. This explicit knowledge can then be *combined* with other elements of explicit knowledge. For example, two softwares can be merged together. The new set of instructions is a combination of formerly separated sets of instructions included in the two software packages. When we face an explicit set of knowledge, we then have to integrate it into our behavior and practice. We achieve this task through transforming into personal practice explicit rules and techniques, formal codes of conduct, etc. We *internalize* these elements of explicit knowledge in our tacit knowledge and make them ours (see Figure 2).
The many forms of socially-embedded knowledge

The continuous transformation of knowledge within and in-between organizations creates a body of socially-embedded knowledge, that is embodied into "canonical rules" of right doing, shared meaning (Smircich, 1983), communities of practice (Lave, Wenger, 1991), etc. This body of socially-embedded knowledge helps organizations to solve problems that they cannot make explicit, e.g. managers cope with disconcerting situations, using collective knowledge as a lever for solutions which would eventually "crystallize" in the course of action (Spender, Baumard, 1995). More generally, managers are dependent on "frames" or "schemas" (Goleman, 1985) whose grounds are often collective. In the Challenger disaster, NASA engineers progressively assimilated the Thiokol rubber joints defaults as "acceptable." Although measures were explicitly showing unreliable performances, it became tacitly accepted that this imperfection was after all "normal" (Starbuck, Milliken, 1988a). As Ruddick (1988) put it, when "self-deception is mutual, and the methods communal (...) No one acting in concert has an interest in speaking, or producing evidence, against the false belief or questionable desire that each person wants to maintain"(Ruddick, 1988, p. 388).

Hence, socially-embedded knowledge is socially constructed. We were born in a "social construction," from which we learned to assimilate and articulate the stimuli around us to formulate our language (Berger, Luckmann, 1966) . In organizations, people belong to "communities of practice" (Lave, Wenger, 1991; Brown, Duguid, 1991) where they share a practical knowledge, fostering a collective expertise, that falls apart when this community of practice is disarticulated. Many trades are thus learned tacitly and collectively. Apprenticeship is a "learning-by-doing" and "by-seeing-others-doing-it" process. Tacit and collective knowledge can also be a guarantee of organizational operational safety. The "collective mind" of flight deck operators (Weick, Roberts, 1993) permits highly complex organizational tasks to be achieved with very few accidents. This "organizational mentality" or "organization mind" (Sandelands, Stablein, 1987) relies upon a tacit understanding that does not necessitate explication. For instance, technical knowledge is often acquired through repetitive tasks, which know-how is difficult to communicate. Such is the know-how of the baker, that Nonaka uses as an example (1994), or of the steel worker who "knows" how to approach the metal to cut it properly. Scribner (1986) explains how tacit knowledge is held collectively by workers in a dairy (the warehouse order packers, delivery drivers, and inventory takers). This tacit and collective know-how is difficult to imitate, and can procure a valuable technological rent, allowing the firm to develop an "appropriability regime" (Teece, 1987). Another form of socially-embedded knowledge is when people express assumptions that seem to be "common sense," while in fact they only express the output of tacit and collective learning (Isaacs, 1950) or things they have learned by traditions whose origins they have totally forgotten, — if only they ever knew (Nyiri, Smith, 1988). Many elements of our knowledge are gathered from others, without our awareness while we socialize (Lewicki, 1986). Hence, socially-embedded knowledge is generated without full awareness of things, frames and schemata being learned. Yet, socially-embedded knowledge, —through the prevalence of the very same schemata on noticing and sensemaking (Goleman, 1985; Starbuck, Milliken, 1988b)— shape the way action is conceived and deployed. As noted earlier, practice shapes the socially-embedded knowledge, that, in return, shapes practice.
The generation of socially-embedded knowledge

Socially-embedded knowledge is knowledge that is embedded in social interactions. Consequently, we may differentiate three levels in which such a knowledge is embodied: the group, the organization and the society. The sociology of groups is quite different from the sociology of organizations and society; though the three are continuously intertwining. Recent theories of situated cognition, enlightening socially-shared cognition in small groups and communities, "challenge the dominant view in cognitive science that assumes a cognitive core can be found that is independent of context and intention. Instead, they argue, every cognitive act must be viewed as a specific response to specific set of circumstances" (Resnick, 1991, p. 4). This refers to "situated learning" (Lave, Wenger, 1991; Lave, 1988). As Lave & Wenger noted, "knowing is inherent in the growth and transformation of identities and it is located in relations among practitioners, their practice, the artifacts of that practice, and the social organization and political economy of communities of practice" (Lave, Wenger, 1991, p. 122).

Many forms of socialization are involved in the generation of socially-embedded knowledge (Nonaka, Takeuchi, 1995). Given people's bounded rationality (March, Simon, 1958), shared interpretations are closer to organic outputs, rather than logical and mechanistic results of all individual cognitions put together: "Organizational members need to account for the scattered pieces of concrete data that are observable and incorporate them into the interpretational portrait. Tidbits of concrete information, like the rise in the stock price before the acquisition and the actions of the soon-to-be-replaced president, hinted but did not conclusively indicate that an event was about to happen. These tidbits appear to encourage speculation and conjecture." (Isabella, 1990, p. 17). Emotions hazardously intertwine with speculation and conjecture. Managers distort stimuli on the ground of their belief (Starbuck, Milliken, 1988b) but also irrationally or unconsciously: "working socially can raise feelings of vulnerability, threat, embarrassment or fear which come to intermingle, or dominate, task activities" (Fineman, 1993, p. 28). As a result, people are heavily dependent on the social context in which they belong. Social-knowledge generation is situated, and socializations might well be so singular that "what makes sense in one context can change or even lose meaning when communicated to people in a different context" (Nonaka, Takeuchi, 1995, p. 15). On one hand, every change in the social environment has more or less dramatic effects on the way people socialize and generate collective knowledge (Spender, 1993). On the other hand, "changes in routines and outputs may require changes in people's conceptions of their activities and in the workings of their activity systems" (Blackler, 1993, p. 880). As March, Sproull and Tamuz noted, "the ambiguities of history make common understandings of organizational experience difficult to sustain. Meaning is not self-evident but must be constructed and shared" (March, Sproull, Tamuz, 1991, p. 6).

Knowledge and Interfirm Organization

Defining and negotiating collective strategies requires many round-tables, meetings and discussions as to reach the sharing of an 'objective reality' among firms (Henderson, 1954). Yet, "people who have been involved in collective comprehension activity need not have uniform representations; they may well have different ways of comprehension" (Hatano and Inagaki, 1991, p. 346). As Weick noted, "sensemaking, in organizations, is not quite as neat
and tidy as the sensemaking recipe suggests. (...)) divergent, antagonistic, imbalanced forces are woven throughout acts of sensemaking" (Weick, 1995, p. 136). Thus, "pragmatic routines, not rules or mission statements, provide the actual basis for co-ordination within an organization's activity system" (Blackler, 1993, p. 880). What is true for any organized social forms, is particularly true when people are heavily dependent on each others. This observation was outlined by Fellner (1949) whose "emphasis on 'quasi-agreements' gives explicit recognition to group decision-making in oligopolistic markets and his treatment of limiting factors indicates possible areas in which the objectives of the individual members of the group are in conflict with the group profit objective" (Phillips, 1960, p. 603). Definitions of what is right and what is wrong is also embodied in collective schemata (Goleman, 1985), so that people in a group are in a permanent conflict between what they believe personally, and beliefs that are held collectively. Hence, "competitive boundaries are fuzzy, and managers must mix market signals with existing mental models to make choice about who to watch and who to ignore. Within this interpretive process, material conditions and mental models become inextricably intertwined. Thus, it is impossible to understand rivalry in such cases without attending to its cognitive foundations" (Porac, Thomas, Baden-Fuller, 1989, p. 412).

**Interfirm knowledge as a source of cooperative and competitive dynamics**

In that perspective, knowledge is both the 'input' and the 'output' of competitive interactions and interfirm organization: "the existence of cognitive oligopolies turns standard economic dogma around completely by suggesting that interfirm monitoring and co-ordination create rather than result from oligopolistic situations" (Porac, Thomas, Baden-Fuller, 1989, p. 413). As to maintain a competitive rank in such oligopolies, firms are more and more dependent on their ability to transfer, capture, retain and preserve knowledge from and to partners and competitors. To achieve this goal, they encourage inter-firm collaborative arrangements as to integrate knowledge, that on the contrary, would escape from their grips, and will benefit to competitors (Grant, Baden-Fuller, 1995). Yet, market structures and conditions have strong influence on the type of knowledge that can be assimilated, and on the approach used to get, to share, to disseminate and to preserve this knowledge: "The more mature the market, the more knowledge becomes tacit. Thus in a mature market, crew members have to interact much more intensively and frequently with the market, since the importance of the more qualitative type of information increases with maturity" (Nonaka, Takeuchi, 1995, p. 231).

Industry knowledge is effectively made of "recipes" that are historically constructed and shared among industry members (Spender, 1983). People in industries have their own 'jargon', their habits, their very own customs and implicit rules of conduct. Strategic knowledge is embodied into this large body of socially-embedded knowledge. To learn what people really think, or really intend to do (e.g. cutting prices, breaking agreements), one has to go deeply into the tacit roots of one's behaviors. Hence, there is "a growing recognition that firms in oligopolistic markets are members of a group (or interfirm organization) which has identity apart from the individuals of which it is comprised" (Phillips, 1960, p. 604), — i.e. firms generate an interorganizational body of communal knowledge, that serve the purpose of a schema of reference, culture, and identity. So, "to understand oligopolistic behavior and performance, the interfirm organization as well as the firms in the group must be studied" (Phillips, *ibid.*). The role of socially-embedded knowledge in groups acting in oligopolistic markets is further described by Phillips: "the parallel action of oligopolists is evidence that they recognize themselves as members of a group" (...)) In small groups, the "development of an unwritten code" whose nature is tacit. Consequently to those tacit codes, there is in
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Unfortunately, making mistakes is a very distinctive skill of human beings; distortions in noticing, sensemaking and causal attributions are numerous among individuals and groups (Starbuck, Milliken, 1988b). These errors primarily come from the fact that an individual "is not a single mental system but (...) possesses a great variety of roles, some of which may conflict" (Boulding, 1990, p. 17). Conflict between social-self and true-self frequently arises (Doi, 1985), and outputs of such conflicts may well be misleading.

Firms can suffer or benefit from misleading interpretations. On one hand, they may suffer because they would eventually overlook the familiar, e.g. "letting some stimuli draw too much attention to themselves, and other stimuli evade attention" (Starbuck, Milliken, 1988b, p. 43). On the other hand, they may benefit from misleading interpretations on the basis of a psychological economy (Jones, 1975). Some truths are not that good to know. Knowing that failure of a program is undoubtedly unavoidable would prevent people to pursue such a program, whereas unexpected opportunities may well change that pessimistic fate. Thus, some misperception may well be "vital lies" (Goleman, 1985) to organizations: "errors may yield benefits as well as costs — as when faulty perceptions lead people to pursue energetically goals that would look much less attainable if assessed in utter objectivity, but the pursuers' enthusiasm, effort, self-confidence bring success" (Starbuck, Milliken, 1988b, p. 42).

Enacting and manipulating collective knowledge in oligopolistic markets
As strategically interdependent firms strategize on a 'commensal' ground, they focus "on the input-output exchange relationships that determine an organization's autonomy vis-à-vis its environment. This approach draws attention on certain facts: that such relationships are manipulable and open to redefinition and that management can actively shape its source of interdependence with the environment" (Astley, Fombrun, 1983, p. 576, italics added). One view is to consider this phenomenon as 'biological', that is to say to apply "biological analogy to social phenomenon by focusing on basic continuities between, on the one hand, the collective response of organisms to their environment in plant and animal communities and, on the other hand, collective relationships and forms of adaptation to environment in human communities (Astley, Fombrun, 1983, p. 577). This view, —borrowed from social ecology — leads to the observation of relationships of "commensalism", which "literally interpreted, means eating at the same table" (Hawley, 1950, p. 39 ; quoted by Astley & Fombrun, 1983, p. 578).

The other view is to focus on the observation that relationships between interdependent firms are "manipulable" and "open to redefinition", as Astley & Fombrun noted ; and to ask: what are those "relationships"? Organizational knowledge theorists (Nonaka, Takeuchi, 1995 ; Spender, Baumard, 1995 ; Nonaka, 1994 ; Spender, 1993, etc.) suggest that relationships are identifiable going-on socialization processes — i.e. communal exchange and generation of shared knowledge. Consistent with sociology and social cognition, these theories acknowledge that a relationship does not have to be systematically explicit. As Astley and Fombrun (1983) suggested, relationships between interdependent firms consist of influence flows, information flows, work flows and personnel flows. Yet, (a) work flows develop into "communities of practice" (Lave, Wenger, 1991) which rest on implicit collective knowledge, — i.e. socially-embedded knowledge ; (b) information flows carry objectified knowledge, as well as implicit suggestions (e.g. through implicit signals, clues) that refer to implicit knowledge that partners share (Schelling, 1960 ; Simmel, 1906) ; (c) personnel flows carry tacit knowledge embedded in personal experience of transferred people, — those people being particularly valuable for this uncodified expertise (Bird, 1994), etc. Consequently, relationships between strategically interdependent firms target knowledge transactions. Some of those transactions are explicit (e.g. explicit collusion) ; others are implicit (e.g. unconscious parallelism). The latter can be illustrated by the concept of "tacit coordination" (Schelling, 1960): "I know that he knows that I know that he knows, etc. etc.". Schelling gives the example of two parachutists who land in two different points on an unknown and hostile territory. They cannot communicate. However, even without any pre-established scenario, they "know" how the other one may react, or choices that he may do. They also "know" that the other one "knows" that there are some options that, each of them respectively, would definitely not take. Mutual expectations and expectations about each other, are tacitly coordinated. Schelling's parachutists might be worth compared to firms in an oligopolistic market. In Schelling's example, tacit coordination is made possible because both parties have a communal imperative: staying alive in an hostile territory. Similarly, strategically interdependent firms' fate rely on other firms' fate. In return, their coordination rely on "common definitions of situations" (Olsen, 1978, p. 108).

As it was previously noted, "enacting is a process of interpretive sense making and controlled change" (Brown, Duguid, 1991, p. 51). We argue in this paper that the body of socially-embedded knowledge that strategically interdependent firms generate and share, can be enacted and manipulated, when firms might have a strategic interest to do so.
And there are primarily interests to do so: being the one that is implicitly recognized as the "reference" (reputation); being the one that dictates standards (technological or behavioral); being credible when making announcements (capacity expansion or threats credibility); being able to deploy retaliation without losing legitimacy (as to pursue dealings with the community). As socially-embedded knowledge holds shared definitions of equity, legitimacy and credibility, it becomes, undoubtedly, of strategic importance for firms to negotiate it in their own favor: "The behavior of member in a high power position is sometimes perceived as representing group standards, and so his acts are spontaneously imitated as group approved or group desired acts" (Lippett, Polansky, Redl & Rosen, 1952; quoted by Phillips, 1960, p. 608; see also Scherer, 1980, p. 176 on "price leadership"). Here, firms face another dilemma: on one hand, if they **increase** interconnectedness, they impede their strategic flexibility to major environmental changes, and foster inertia that may be an open-door for new entrants (Bresser & Harl, 1986, p. 413). On the other hand, if they **decrease** interconnectedness, they will create more turbulence, and will eventually lose the benefit of a collective strategy as a coordination mechanism (*ibid.*, p. 415). Consequently, generating a collective socially-embedded knowledge, — or *enacting and manipulating* it — may well rely on a ground of *mutual trust* between those firms.

**Mutual trust and secrecy in firms' and people's relationships**

In this section, we argue that the above "mutual trust" that is required to be able to influence other firms in an oligopolistic market, contradictory to common sense, lies more in the ability to hide, than to show. Hence, *secrecy* remains the essence of relationships between all social systems, be they firms or persons, and particularly the essence of competition. In cooperation, some things must still remain secret, in order to respect the business partner, in order not to restrict trade liberty. "Which in nature is public, which in its content concerns all, becomes also externally, in its sociological form, more and more public; while that which in its inmost nature refers to the self alone – that is, the centripetal affairs of the individual – must also gain in sociological position a more and more private character, a more decisive possibility of remaining secret" (Simmel, 1906, p. 469). The more cooperative and competitive the firms are, the more they use specific agreements, for managers, suppliers and clients, in order to protect their secrets that must not be divulged to competitors (Pennings, 1981). In that sense, secrecy individualizes the corporations through these nominative agreements that attach individuals to secrecy. Hence, trust, or reliance, is the ability to arouse feelings of intimacy in others while remaining respectful of their mysteries. When human beings know almost everything there is to know about each other, they begin to transform reality in a transparent nightmare (Doi, 1985; Simmel, 1955). On one hand, "trust is often achieved simply by the continuity of the relation between parties and the recognition by each that what he might gain by cheating in a given instance is outweighed by the value of tradition of trust that makes possible a long sequence of future engagement" (Schelling, 1960, pp. 134-135). From this starting point, one might hypothesize that the better people know each other, the better they can enforce the rationality of their mutual trust. Yet, on the other hand, absence of secrecy is paradoxically followed by distrust and suspicion rather than confidence in the relationship. Because reality is loosing – with its secrets – all possible expectations: "The more two people in a relationship come to know about each other, the more their mutual secrets are disclosed, and the more the relationship becomes something cold and insipid" (Doi, 1985, p. 125). When people discover that they deceive themselves about the relationship, their "self-reproaches, far from leading to self-reformation, become by a brilliant *volte-face*" a medium for strongly
validating their schemas (Fingarette, 1969, p. 61). In that sense, trust need to be ungrounded and taken for granted. The founding of mutual trust can be intrinsically 'a-logical', so that "the encapsulated interest view of trust is inherently wrong because assessments of trustworthiness could only be based on instinctive, behavioral learning" (Hardin, 1990, p. 194).

Strategically interdependent organizations rely on mutual trust on very similar grounds; i.e. with a very similar role of secrecy and a very similar social grounding of trust. However, the rationale behind this sheer observation might be slightly more complex than in interpersonal relationships. Similar to the ongoing relationships of family and friends, interdependent organizations have no choice but to be "geographical associates" (Hardin, 1990, p. 201)—that is to say that interdependent firms "will almost inescapably thrown into further dealings" (Hardin, ibid.). Yet, this inescapable interconnectedness may put organizations at "risk of uncontrolled information disclosure when using collective and competitive strategies side by side" (Bresser, 1988, p. 377).

**Knowledge that firms do NOT disclose, — i.e. 'positional knowledge'**

Several authors emphasized the role of discretionary information and secrecy in oligopolies (Pennings, 1981; Bresser, 1988; Stigler, 1964). It may be hypothesized that more than information itself (which is objectified knowledge), a whole body of knowledge is kept secret by firms. While information is a flux of messages that increase knowledge (Machlup, 1983), it cannot be assimilated with knowledge. Managers can be very well informed, and dramatically lacking of knowledge; because knowledge is a construction (including representations, schemata, and implicit sensations that cannot be expressed) derived from information and other stimuli (Dretske, 1981; Ekstedt, 1989). Accordingly, firms can be swamped by "the sea of information that threatens to flood from all sides" (Brown, 1992, p. 3) and still consider their knowledge to be poor. Similarly, organizations were demonstrated to be rather informal and unsystematic in their interpretation of the environment (Fahey, King, 1977) and most companies compete against skilled competitors who pretty much "strategize" having access to the same information (Starbuck, 1992).

Thus, what is called "strategic information" is a singular set of messages that gives sense and context to a previously disorganized or non-existent knowledge. Value of this knowledge is based on the advantages, exclusivities and prediction capabilities that it can give to its holder. Knowledge-value lies in the better position that people can attain by generating or gathering this knowledge. Hirsch proposed to label such a knowledge, a *positional knowledge* (Hirsch, 1977).

In oligopolistic markets, positional knowledge can take many forms. Capacity of detecting secret price reductions permit firms to enforce collective agreements (Stigler, 1964), and therefore, it aids to improve or maintain advantageous positioning. In general, every "chunk" of knowledge that may give insights on competitors' intentions, capacities expansion plans, is positional knowledge. Yet, "if everyone stands on tiptoe, no one sees better" (Hirsch, 1977, p. 5). Consequently, positional knowledge can be only defined comparatively to the knowledge that other firms hold. On one hand, "information disclosure tends to render competitive strategic intentions ineffective. On the other hand uncontrolled information disclosure tends to aggravate problems of strategic inflexibility" (Bresser, 1988, p. 377). Sources of positional knowledge have been clearly identified by Bresser in the same article (pp. 377-379): regulative legislation, contracting, mergers, joint-ventures, interlocking directorates, trade associations, collusion and industry leadership. However, Bresser's table of processes
impairing secrecy note that there is a low risk of uncontrolled information disclosure when the concerned type of collective strategy is collusion and industry leadership: "Since collective strategies mediated by collusive agreements are based on informal communication and, in the case of industry leadership, on imitation, the risk of uncontrolled disclosure is low" (p. 379). We would argue in this paper that two reasons might be invoked for such a low risk: (a) informal communication and tacit leadership are the best sources of positional knowledge, so that firms have no primary interest for uncontrolled disclosure; (b) the only way to comparatively assess that one has superior positional knowledge than others is through socialization. 

Therefore, positional knowledge continuously intertwines with socially-embedded knowledge. As Nonaka suggested (1990 ; 1994, p. 19 ; see matrix), socially-embedded knowledge is internalized by individuals; so is positional knowledge. Consequently, the three forms of knowledge we address in this paper are critical to firms competing in oligopolistic markets (Figure 2). There is a permanent movement, and a mutual enrichment, between objectified knowledge (e.g. trade statistics), socially-embedded knowledge (e.g. shared definitions) and positional knowledge (e.g. organizational intelligence (Wilensky, 1967). 

![Figure 2: Linking critical knowledge](Image)

**SOCIALLY-EMBEDDED KNOWLEDGE AND OLIGOPOLIES: A SYNTHESIS**

As to clarify the pattern we followed, we may synthesize our literature review as follows:

(a) When competing and cooperating in oligopolistic markets, not sharing information impedes cooperation (Posner, 1976). Hence, firms need to coordinate on an explicit ground, — i.e. objectified knowledge.

(b) However, when competing and cooperating in oligopolistic markets, firms belong to groups in which they socially-share interpretations and assumptions about economic and interpretational constituents. Hence, the basis for reasoning of those firms is embedded in local knowledge. This "socially-embedded" knowledge plays a central role in coordinating, sharing and competing within the community of firms that generate it.

(c) Yet, when competing and cooperating in oligopolistic markets, firms have no fundamental interests to share information, and to reduce asymmetry (Clarke, 1983), while, in the same time, they have great interest to detect competitors or partners deviant behaviors (Pennings, 1981), e.g. to detect secret pricing reductions (Stigler, 1964). Hence, firms need to generate knowledge that will provide a better position than competitors in competitive bidding, — i.e. a positional knowledge. (see Figure 3).
A paradox arises when firms struggle with the contradictory desire to participate in the generation of the **socially-embedded knowledge** and the **objectified knowledge**, while trying to generate, on their own, an efficient **positional knowledge**. However, we argue in this paper that this paradox can turn in their very own advantage, if firms, — fully aware of the interplay between collective assumptions (socially-embedded knowledge), formalized shared data on performances and market shares (objectified knowledge) and discretionary knowledge (positional knowledge). In order to investigate (a) if such an awareness exist, and (b) to discover its effects on the ability of firms to successfully conduct transitions from more collective to more competitive strategies (Bresser & Harl, 1986), we conducted a longitudinal investigation of an oligopoly.

**CASE METHODOLOGY**

A "rationale for a single case is where the case represents an **extreme or unique case**" (...) or when "the single case study is the **revelatory case**. This situation exists when an investigator has an opportunity to observe and analyze a phenomenon previously inaccessible to scientific investigation" (Yin, 1984, p. 48). Such opportunities were offered to us as we searched for exemplary cases to investigate. We started the selection of our population on a theoretical ground, as qualitative research "relies on theoretical sampling (i.e., cases are chosen for theoretical, not statistical, reasons, Glaser & Strauss, 1967) ; (...) given the limited number of cases, it makes sense to choose cases such as extreme situations and polar types in which the process of interest is 'transparently observable' " (Eisenhardt, 1989, p. 537). As we intended to study an oligopolistic market, we retained criteria of Hay and Kelley (1974) for the selection of the population. On one hand, Hay & Kelly identify factors which foster formal or explicit agreement among firms: (a) fewness of the number of firms, (b) concentration, (c) product
homogeneity, (d) demand inelasticity, (e) sealed bidding and (f) industry social structure. On the other hand, Hay & Kelly identify two factors which increase the risk of conflict if a collusive agreement is not attained, i.e (a') high fixed costs and (b') lumpiness and infrequency of orders. The rationale was to select case(s) on criteria that literature identifies as those encouraging explicit or tacit agreement, collusion or conscious parallelism. Firms that compete for public bidding, such as those in the electrical industry, are very likely to offer such settings. Yet, players in those industries are reluctant to open their files to genuine researchers, and commonly regard every kind of even sheer investigations as serious inquisitive threats. An industry segment of goods & equipment producers who compete for public bidding accepted to give full access to its files, managers, executives and secondary data, on the sole condition that we do not disclose those names and file contents in our final research output.

We used a combination of different methods to gather and analyze data as to reach a "triangulation" (Jick, 1983; Webb, Campbell, Schwartz & Sechrest, 1966). A non-participant observation was chosen as to avoid contamination of interviewees and players in their ongoing interactions. The subject of our study being very sensitive, we systematically sought managers' agreements before taking notes or taping interviews. Direct observation was sometimes impeded by managers' fear to disclose confidential information. We avoid such an obstacle by guaranteeing confidentiality of companies' names in our final output. We chose to name the five companies as follows: Lokrum, Pomet, Boninovo, Sponza and Beccadili.

Data were collected from 1993 to 1995 on different sites. Direct observation in sites was intensively used. The purpose was to confront respondents' declarations about their interactions with direct observation of their socializations. Direct observations were made throughout the field visit, “including those occasions during which other evidence, such as that of interviews, is being collected” (Yin, 1984, p. 91). In-depth interviews were used to ask key-respondents “for the facts of a matter as well as for the respondents’ opinions about the events” (Yin, 1984, p. 89). Interviews were of open-end nature, with several recurrences and feed-backs with respondents. Respondents’ population was composed of all people involved in the on-going interactions, as to track, step by step, the deployment of these interactions (informal meetings, phone calls, round-tables, extra-professional clubs and professional associations, etc.) and to understand the articulation of explicit interactions with more implicit or tacit exchanges. More than 40 interviews were conducted, including CEOs, general managers, plants managers and front-line managers; including additional key-informants (Kumar, Stern, Anderson, 1993).

To attain trustworthiness, we followed Lincoln & Guba's recommendations (1985, pp. 289-331). Reliability of theory construction relies on a “process that must be designed to highlight relationships, connections, and interdependencies in the phenomenon of interest” because “researchers cannot make deductions from concepts alone” (Weick, 1989, p. 517). Unlike positivistic research, inductive research “lacks of generally accepted model for its central creative process” (Eisenhardt and Bourgeois, 1988). To cope with such difficulties, field notes and interviews were coded as we followed Miles & Hubermann's guidelines and recommendations (1984). However, "if the analyst wishes only to generate theoretical ideas — new categories and their properties, hypotheses and interrelated hypotheses — he cannot be confined to the practice of coding first and then analyzing the data since, in generating theory, he is constantly redesigning and reintegrating his theoretical notions as he reviews his material" (Glaser & Strauss, 1967, p. 101). We therefore adopted a "constant
The comparative method" (ibid., p. 105) by "(1) comparing incidents applicable to each category, (2) integrating categories, (3) delimiting the theory, and (4) writing the theory" (ibid.). We used a coding methodology that proved efficient in previous research to study organizational knowledge, both objectified and collective.

We decided to present findings and propositions under the form of diagrams, because "diagrams in selective coding show the density and complexity of the theory. Often, because of this, it is difficult to translate the theory from words into a concise and precise graphic form" (Strauss, Corbin, 1990, p. 219). Yet, graphic version of a complex conceptualization helps readers to make their own judgment by clarifying relations between core categories. As we pursued an exploratory goal, we left the extent to which the findings are applicable to other settings with the reader (Campbell, 1975). Still, we conclude our research with several key propositions which attempt to describe and explain the relations between socially-embedded knowledge, and successful transitions from collective to competitive strategies, and vice-versa.

**Observations**

The firms that we studied represent altogether 100% of production capacities in the geographical region where they operate. Thus, all studied firms are "geographical associates" in a local market. They operate within a perimeter of 25 miles. The goods being produced are perishable goods, so that firms cannot sell them outside this limited area. Their activity consist of providing 'public goods'. Though, we made a written deed not to disclose the exact nature of those goods, we can say that there is one major bidder: the public administration. We will refer to this bidder as "the client" in the following study. The client plays an important role on this market, by establishing technological and financial norms and quality standards. This is quite impeding return on investments, because administrative norms are not negotiable.

**Consistency with Hay & Kelley criteria**

This local industry is therefore consistent with Hay and Kelley (1974) six factors which foster formal or explicit agreement among firms. The industry in which these firms operate is highly concentrated (Hay & Kelley's factor b). In our particular case, the five firms (factor a, fewness of numbers), in the fifth year of available data, hence share 100% production capacities of the local industry. Products are fairly homogenous. Sponza's general manager comments: "Our production is quite homogenous. Time to time, there are attempts to differentiate slightly our outputs to avoid frontal competition. But it is very ephemeral. As soon as we do a small adjustment, we are imitated by competitors, so that it is very difficult to have even a middle-term advantage through differentiation". Moreover, administrative regulations forbid national suppliers to agree on exclusive agreements with specific firms. The consequence is that every firm can access exactly the same raw material to produce their outputs. This is consistent with Hay and Kelley's observation: "If product characteristics remain stable through time then agreement is inherently easier to reach and maintain" (1974, p. 15, factor c).

There are no substitutes to the products that the studied firms sell. Administrative norms and quality standards define very specific characteristics that firms learned to develop over years. These characteristics are protected by patents, so that no new entrants can appear on the market without a license from the major players. The firms, yet, are not willing to see any new entrants on their market. The result is that no substitutes can disturb the industry. As Posner noted: "In short, the ability of a group of sellers to collude is limited by the existence of
sellers of products that are good substitutes either in consumption or in production (Posner, 1976, p. 126). In our case, the absence of substitutes makes it work exactly the other away around. The demand is therefore very inelastic. This is consistent with Hay and Kelley's fourth factor: "The more inelastic is industry demand, the greater are the potential rewards to the price fixers. Concomitantly the smaller will be the sacrifice in terms of capacity utilization" (Hay & Kelley, 1974, p. 15, factor d).

The client's procurement practices follow administrative precepts concerning public bidding. Thus, all studied firms must enter sealed bid competitions. As the procurement administrator confirmed when we asked: "Firms provide their bids by providing confidential quotation of the price they propose". (Hay & Kelley's factor e).

As for the fixed costs, as Lokrum plant manager says: "For a product that we sell $80, we have $50 of raw material and overall production costs". The chief-administrator of the procurement department confirms: "It is certain that when Pomet sells us the product for $52, they lose money. Margins are incredibly thin, and fixed costs incredibly high in this industry". (Hay & Kelley's factor b': high fixed costs). Besides, Sponza's CEO adds: "Raw material participates for 15% to 20% of total costs. You can see the weight that raw material suppliers have in our industry!". As Hay & Kelley noted: "Price wars are a phenomenon associated with high fixed costs. When demand falls (during a recession for example) inutilized capacity develops. It is tempting in these circumstances for a firm to reduce its price, expand output and sales and thus generate revenue to offset the burden of its high fixed costs" (Hay & Kelley, 1974, p. 17).

In addition to high fixed costs, public procurements are quite irregular. As Beccadili's general manager notes: "This market has become a market of replacement. We answer to the administration needs as they arise, but new projects are scarce, and public bids are not regular" (Hay & Kelley's factor a').

As for the industry social structure, there is a long history of interdependence shared by the five studied firms. Lokrum was founded in the nineteenth century. Beccadili and Pomet were founded just before the World War II. Sponza and Boninovo were founded in the early 1930s. Firms are transmitted from fathers to sons, and capital ownership is still distributed among descendants of founders today, even though large financial institutions entered the board of the largest firms (e.g. Pomet). Thus, CEOs of the studied firms have in general strong personalities. Social ties are very strong among industry members. While being consistent with Hay & Kelley's factor f, this strong socialization in this industry was of particular interest for our study, as we intended to investigate socially-embedded knowledge. The industry was therefore a real opportunity. Privileged access to files, confidential trade statistics and company information, in addition with strong consistency with Hay & Kelley's criteria, permitted us to conduct an exemplar case, which follows.

<table>
<thead>
<tr>
<th>Hay &amp; Kelley's factors</th>
<th>DATA (year 5)</th>
<th>INTERVIEWS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(a) fewness of number 5 firms "There were never more than 5 of us" – Pomet
(b) concentration Largest 4 = 89.1% "There were never more than 5 of us" – Pomet
(c) product homogeneity strong - regulated "attempts to differentiate are ephemeral" - Sponza
(d) demand inelasticity strong - no substitutes "There are no substitutes to our products" - Sponza
(e) sealed bidding public bidding "Firms provide their bids by providing confidential quotation" (procurement chief-administrator)
(f) industry social structure — One century of industry history
(a') infrequency of orders irregular "we answer needs as they arise" (Beccadili)
(b') high fixed costs very high "fixed costs are incredibly high in this industry" (procurement chief-administrator)

<table>
<thead>
<tr>
<th>Firms</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lokrum</td>
<td>38.5%</td>
<td>35.5%</td>
<td>34%</td>
<td>37.2%</td>
<td>30.9%</td>
</tr>
<tr>
<td>Pomet</td>
<td>15.1%</td>
<td>16%</td>
<td>18.5%</td>
<td>23.9%</td>
<td>26.7%</td>
</tr>
<tr>
<td>Sponza</td>
<td>13.4%</td>
<td>14.4%</td>
<td>13.6%</td>
<td>15%</td>
<td>15.7%</td>
</tr>
<tr>
<td>Beccadili</td>
<td>15.1%</td>
<td>16%</td>
<td>18.5%</td>
<td>15.9%</td>
<td>16.6%</td>
</tr>
<tr>
<td>Boninovo</td>
<td>9%</td>
<td>9%</td>
<td>7.7%</td>
<td>8%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Total:</td>
<td>91%</td>
<td>91%</td>
<td>92.3%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Others</td>
<td>9%</td>
<td>9%</td>
<td>7.7%</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Total activity</td>
<td>Base: 100</td>
<td>99.4</td>
<td>107.1</td>
<td>111.9</td>
<td>117.9</td>
</tr>
</tbody>
</table>

Table 1: Consistency of case characteristics with Hay & Kelley (1974) factors encouraging collusive behaviors

The oligopolistic market and the firms
Among the five players we studied, two firms — Pomet and Beccadili — are branches of national companies. Pomet's mother company is the national leader, but not in the local market that we studied, where Lokrum is the historical and unchallenged leader (see table 1). Lokrum is a local player. The history of Lokrum and of the studied region is intensively intertwined. The firm was founded in the nineteenth century, and participated, far or close, in every major historical events of the region. The present CEO has 30 years experience as a CEO of the company. Lokrum's managers belong to many cultural and local associations. It is quite almost inescapable to "dine downtown without meeting Lokrum's people", a local witness commented. Boninovo is also a local player, but with a smaller size.

We compiled from trade statistics and company information the production capacities of all five studied firms over five years. Outputs of firms in every shared-plant are exactly proportional with firms' capital share. Results of data compilation permits to follow competitive positions of all the studied firms, and to compare firms over the five years.

Table 2: Production capacities in percentage of total market production
Trade statistics and compilation of private company information confirm interviews. Lokrum is the unchallenged leader on this local market over the five years (see table 2). Yet, its 'market share' decreases steadily from 38.5% in year 1, to 30.9% in year 5. Nevertheless, Lokrum is 'the' local player, and maintained strong social ties during all this period. Market shares are relatively stable for Sponza (line c), Beccadili (line d) and Boninovo (line e). Output volumes are steadily increasing for Pomet (line b). However, these figures alone are insufficient to understand collective and competitive strategies, and transitions that might have occurred during this period. The most intriguing figure was the tremendous increase of Pomet's volumes in years 4 and 5. In year 4, Pomet acquired through a LBO a competitor as we can see on table 3.

<table>
<thead>
<tr>
<th>Shared Plants</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Lokrum</td>
<td>25.1%</td>
<td>21%</td>
<td>20.4%</td>
<td>22.2%</td>
<td>15.2%</td>
</tr>
<tr>
<td>(2) Pomet (50%)-Beccadili (50%)</td>
<td>30.1%</td>
<td>32.1%</td>
<td>37.1%</td>
<td>31.8%</td>
<td>33.2%</td>
</tr>
<tr>
<td>(3) Sponza (50%)-Lokrum (50%)</td>
<td>26.9%</td>
<td>28.9%</td>
<td>27.2%</td>
<td>30%</td>
<td>31.3%</td>
</tr>
<tr>
<td>(4) Boninovo-(50%)-Pomet (50%)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>16%</td>
<td>20.3%</td>
</tr>
<tr>
<td>(4') Boninovo (50%)-Others (50%)</td>
<td>17.9%</td>
<td>18%</td>
<td>15.3%</td>
<td>LBOs</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total: (a-c)</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 3: Shared production capacities in percentages of total market production

To understand relationships between firms, we thus looked at production volumes of shared-plants on one hand, and we interviewed top managers, on the other hand. Lokrum's leadership during years 1-4 is explained by interviewees as a "price leadership". As we look for a critical transition from a collective strategy to a more competitive strategy, we notice that Pomet, through its acquisition of other players (see table 3, lines 4 and 4') gained a tremendous market share. Firms are quite used to Pomet's aggressive strategies. On a contiguous market, Pomet created a small company in year 2 that only produced 15.000 units of goods. In year 3, Pomet expanded the capacity of this small firm to 170.000 units. Pomet being a branch of a national company, they used financial resources that are not available to its competitors. The small community was strongly destabilized by the event. Assumptions about Pomet's offensive style begun to circulate among community members. This incongruous behavior puzzled every single witness. It was obvious that Pomet was going to encounter overcapacities. And it did. In year 4, the volume of the created plant drop from 170.000 units to 70.000 units.

**MOVE #1: Pomet's strategic transition from collective to competitive strategy (years 4-5)**

From year 3 to year 5, Pomet's total share went from 18.5% to 26.7% (see table 2, line b). The story unfolds as follows: (a) Pomet buys the share of other firms in the plant number 4 (see table 3). This share is 8% of the plant total capacity; (b) This plant then increases its market share by 4.3% in year 5. Concomitantly, its new partner, Boninovo, benefits from the half of this increase, i.e. + 2.15% (line 4 - line 4' table 3); As a result, total market share of Pomet increases of 8+2.15=10.15%; (c) The Pomet-Beccadili shared-plant reduces its market share by 5.3% in year 4 and increases it by 1.4 % in year 5. As a result, Pomet loses 3.9% market
The result is a gain of 8.2% market share for Pomet (from 18.5% to 26.7%, see table 2).

The implicit — and formalized, but not public — rule of these deals is always a 50%-50% deal (in capacities expansion, and in sharing new market shares). Interviews corroborate this observation. Thus, Pomet's strategy can be described as follows: (A) Pomet enacts a collective strategy with Boninovo (shared-capacity expansion) in year 5; Boninovo's reward for accepting the deal is 2.15%; (B) Pomet enacts another collective strategy with Beccadili in year 5; Beccadili’s reward for accepting the deal is 0.7%. (C) Pomet do not deploy any offensive strategy against Sponza's interests; Sponza is gaining 0.7% market share from year 4 to year 5. Thus, Sponza is neutralized (D) Three firms out of five (Sponza, Boninovo, and Beccadili) are increasing their market share in year 5; (E) Pomet has now a strategic window to develop a competitive strategy against Lokrum's interests; in year 5, Lokrum is loosing 6.3% market share.

Until then, Pomet always coordinated its moves with Lokrum. Hence, Pomet was successful in shifting from a collective strategy to a competitive strategy against Lokrum. This shift was made acceptable to the community: (1) by rewarding co-strategists (Boninovo and Beccadili); (2) By remaining neutral towards the third player, Sponza.

**Consequences on interfirm knowledge**

To achieve its goals, Pomet had an intensive use of positional knowledge. Negotiations were secret, and insights were obtained through shared capacities. Yet, this hostile move was not quite appreciated by the industry leader, Lokrum, which was until then, the "price leader" in this market. Lokrum's CEO has a strong influence on the whole society in this region. Lokrum is the oldest firm in this population, and its identity is embedded into the region's identity. Industry members, but also key-observers, found Pomet's strategy very incongruous. The industry, until then, was peacefully coordinated. The industry leader top managers were these "dominant individuals" who "will often overcome the inertia and take the lead" (Hay and Kelley, 1974, p. 16).

Yet, rewards given to Boninovo and Beccadili by Pomet were too low (respectively 2.15% and 0.7%). Given the high fixed costs of this market, and "the very thin margins" (interviews), a very small market expansion provides a quasi-invisible benefit. Firms begun to compare their respective gains with Pomet's gain. Compared to the 8.2% market expansion that Pomet was gaining in two years, assumptions could hence be made that the sole benefactor of this subtle shift from collective to competitive strategy was Pomet.

This was the turning point. Boninovo and Beccadili were disappointed. Sponza was sharing a plant with Lokrum. As the Boninovo's Regional Manager comments: "A very important change in behaviors occurred. Everybody shifted from rationality to passion. Especially Lokrum". Boninovo's Regional Manager was not pleased with this emerging passion. He always sought neutrality and explicitness of his positions. He was moreover quite uncomfortable because he had gained 2.15% in the deal. He was perceived as an equitable partner until then, and this collective strategy with Pomet may impede this perception. He seemed preoccupied that this behavior may be interpreted as a betrayal towards the community. Similarly, Beccadili seemed to be embarrassed by the story. Beccadili's General Manager try to avoid tests and conflicts. The specter of a forthcoming conflict between Lokrum and Pomet was hence not reassuring. As for Pomet, he feigns to ignore Beccadili and Boninovo's disappointments. When Pomet's General Manager participates to industry meetings, he declares that he is following the "mandate" that his hierarchy has defined.
Hence, Pomet's General Manager, when publicly confronted with the community, plays with his ignorance of the socially-embedded knowledge (i.e. the community of practice, and its tacit codes of conduct). This is helping him, in turn, to legitimate a stubborn positioning concerning pricing or competitive strategies. He acts as the agent of a superior hierarchy. His behavior is totally different when engaged in bilateral and discretionary dealings. The stubborn attitude of Pomet is an additional source of legitimacy for Lokrum's retaliation. Hence, Lokrum's General Manager use every one's implicit aspiration to legitimate a retaliation that all firms would implicitly accept (see figure 4).

**Figure 4: Firms' behaviors after Pomet's shift from collective to competitive strategy**

**MOVE #2: Pomet shifts back from competitive to more collective strategy**

Lokrum had the strategic advantage of being the more socialized, and the more respected as the firm establishing, for one hundred years, tacit rules of socialization. A long history of "price leadership" corroborates this observation. Thus, Lokrum plays a key-role in generating the socially-embedded knowledge, as Lokrum animates most of the industry socialization opportunities (as a chair of conferences, annual industry meetings, and many networks). So, Lokrum decided to suddenly cut its price, as a retaliation towards Pomet.

Financial loss for Pomet was heavy. As Pomet did before in the contiguous market, their capacity expansion in order to jump from 18.5% to 26.7% market share was dramatically important. As the cost structure is very tight, a price war is very quickly painful. Other firms (Sponza, Boninovo, Beccadili) remained neutral, as Lokrum had expected. Thus, this
observation confirms that enactment of socially-embedded knowledge can provide a real strategic advantage to firms. Lokrum has enacted the socially-embedded knowledge in its own favor; exactly as Pomet previously did in order to shift from collective to competitive strategy.

Pomet was facing increasing financial loss. He had to shift back to a more collective strategy. Its discordant strategy was now fully uncovered. The next run of public bids was forthcoming. Pomet considered it an excellent opportunity. As soon as the bid was made public in the end of year 5, Pomet offered Lokrum to start a partnership on new products development. Hence, by shifting back to a more collective strategy, Pomet enacted the socially-embedded knowledge by making acceptable its former hostile strategy. Interviews confirm that this partnership was welcome by industry members. The oligopolist's discordance was finally made acceptable. Collective assumptions turn back in favor of Pomet. Everyone implicitly recognized the fairness of the proposed deal. Pomet had "paid back" its former betrayal of collective schemata and collective "canonical maps of right doing". Pomet implicitly enforced its legitimacy for pursuing further dealings with the community. As for Lokrum, its industry status was saved. By proposing a partnership, Pomet implicitly recognized that Lokrum's retaliation was legitimate.

Hence, **socially-embedded knowledge can be a lever to achieve successfully both transitions, from collective to competitive strategy ; and, *vice versa*, from competitive to collective strategy.**

**Epilogue**

In the beginning of year 6, Lokrum came back to more peaceful relationships with Pomet. Yet, this "peace" was enforced by dramatic market conditions, and by the will of regulatory instances as to perpetuate the local industry. Lokrum had to undergo heavy financial losses too because of the price war. Moreover, Lokrum was a local player with less financial power than Pomet. Lokrum filed for bankruptcy. Three national players heard about the opportunity to acquire Lokrum; and, consequently, Lokrum was acquired by a national player very soon afterwards. There was, at last, a new entrant in the industry!

**Discussions & Future Research**

Observations corroborate previous findings suggesting that "what is relevant is the ability to react to instabilities by switching from more collective forms of strategizing to more competitive wars, and vice-versa" (Bresser, Harl, 1986, p. 425). Yet, some firms are more efficient in realizing successful transitions from collective to competitive strategies. Pomet is an exemplar.

Pomet prepares its transition by putting co-strategists' awareness of its final intentions asleep. As noted by its General Manager, "What is written can be ambiguous. You let people interpret, and they might find something that they will later hold against you. On the other hand, we need to have many things written", i.e *objectified knowledge*. Hence, our observations show that young managers fancy objectified knowledge, whereas the "old boys", — i.e. managers with a longer industry history behind us — prefer to rely on trust. This finding corroborate Nonaka and Takeuchi (1995) observation that the more mature a market is, the more tacit knowledge must be acquired through socialization to understand this market. Hence, tacit knowledge is held collectively in traditions, in mutual expectations, that involve a learning curve. Experienced managers' commented the Lokrum-Pomet history as a typical case of conflict between two conceptions of industry leadership. On one hand, Lokrum, the
old firm, rely mainly on trust and implicit collective knowledge. On the other hand, Pomet has a more manipulative view on implicit collective knowledge. Pomet deliberately enacts and manipulates socially-embedded knowledge as to reach its ends.

Yet, as Campbell (1975) noted, extents to which findings of exploratory research are applicable to other settings can only be left with the reader. Therefore, future research is certainly needed as to confront external validity of our findings to larger settings. In particular, findings should be challenged in a larger industry. As Nonaka (1994), Spender (1993), Brown & Duguid (1991), and Lave & Wenger (1991) suggested, confine contexts, — e.g. communities of practice — ease socialization. Hence, we studied a local industry where cognitive oligopolies (Thomas, Baden-Fuller, 1989) are easier to generate (e.g. the Scottish knitwear industry). Therefore, in a larger industry, socially-embedded knowledge may be more difficult to enact. In addition, fewness of numbers in the studied industry facilitate social knowledge manipulation. For instance, in our case, manipulating the social knowledge of three firms (Boninovo, Beccadili, Sponza) was a sufficient condition to manipulate the overall social knowledge of the community.

**CONCLUSION**

Empirical research on collective strategies, as Bresser & Harl suggested can be very enlightening. Investigations of "dialectical relationship between collective and competitive strategizing" (Bresser & Harl, 1986, p. 426) could certainly be pursued further by exploring collective strategies that are enacted intentionally, on grounds of collective implicit knowledge. Furthermore, findings support Selznick's (1957) notion of "institutional leadership," whereby, as Astley & Fombrun noted: "the executive becomes a 'statesman' helping to create and maintain the institutional bonds and values shared by the collectivity to which one belongs" (1983, p. 586). This assertion may be well taken a step further by investigating the definite role of enactment of shared values, shared beliefs, and implicit bonds; and its role in shifting and discontinuing collective and competitive strategies.
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