OBSTACLES TO COOPERATION IN CLUSTERS AND HOW TO OVERCOME THEM

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In the 1990s, many local and regional initiatives to promote competitiveness and create jobs focused on the cluster. In *The Competitive Advantage of Nations*, a book more about subnational regions than about nations, Michael Porter helped place the concept of clusters on the policy agenda of countries around the world. Porter's argument underlined what other authors had argued before: firms that operate close to related firms and supporting institutions are often more innovative and therefore more successful in raising productivity than firms that operate in isolation. As illustrated in the classic case of the renaissance of the industrial districts of northern Italy in the 1970s, competitive performance results from both competition and cooperation in the cluster.

At the local level, competition is generally not an abstraction. It often involves personal or company rivalries, thus creating more pressure than the anonymous mechanism of the invisible hand of the market. Cooperation does not necessarily mean formal alliances, although even competitors have shown an increasing tendency to enter into arrangements such as strategic technology alliances. Cooperation at the local level often involves informal communication between firms along the value chain, employees who move from one firm to another, and information exchanged over a beer at a local pub.

Many places match the cluster definition of the academic literature, but many (if not most) of them do not display the cooperative culture described in the early literature on Italy. Often, cooperation inside a cluster—between firms, between firms and institutions, and between the private and the public sectors—is weak, particularly when it comes to any initiative that goes beyond common business transactions. Although firms tend to understand the benefits of strengthening vertical links in the value chain—that is, creating forms of forward and backward integration—lateral cooperation with direct competitors is often regarded with suspicion.

In a survey of 160 clusters, Michael Enright found that, on a scale from 0 (no activity) to 5 (very important), the importance of specialized organizations (such as associations of firms, specialized institutions, or specific cluster organizations) in coordinating activities among firms in the cluster ranges mostly between 1 and 2.[1] In a cluster with little tradition in collective action and ineffective organizations, local actors will perceive concepts such as "collective efficiency"—that is, competitiveness based on intense networking between firms—as a strange suggestion because it does not at all mesh with their experience of local rivalry.

Obstacles to Cooperation

Based on the case studies of successful clusters,[2] we can identify three main areas of cooperation:

- Cooperation among firms (relational contracting, interactive learning, information exchange, and collective action);
- Cooperation between firms and supporting institutions (business associations and business support institutions in fields such as training, technology, exports, and finance); and

[1] Enright, M.J. "Survey of the Characterization of Regional Clusters: Initial Results." University of Hong Kong, 2000. The exceptions with means greater than 2 are market research, joint promotion in foreign markets, other education and training, and coordination of public-private investments. The winner, with a score of 3.2, was "lobbying government."

[2] See, for example, the cases documented in the special issue of *World Development* (No. 9, 1999).

- Cooperation between the private and the public sectors.

It is useful to look at each main area of potential cooperation to identify typical obstacles to cooperation.

Cooperation and the Prisoners' Dilemma

For the firm, the choice between cooperating with competitors in a cluster-based competitiveness initiative or "going it alone" involves short-term costs, unknown benefits, and strategic uncertainties about the reaction of competitors. With respect to strategic uncertainties, the firm faces a special type of prisoners' dilemma, the most familiar example of what Oliver Williamson calls the coercive logic of game theory. Two prisoners are joint suspects in a major crime. They are interrogated separately. Both face, say, three years in jail if neither confesses to the major crime. The police offer a deal: if you confess and your partner does not, you'll get a light sentence and your partner gets 15 years. If you both confess, both will get 10 years. If neither knows what the other will do, the police win: the dominant strategy is to confess. Both confess and get to spend seven more years in jail than if they had kept silent.

But things change when the game is repeated because participants learn that opportunistic behavior is detrimental. In fact, empirical research on the prisoners' dilemma has shown that the probability of cooperation is higher than 50 percent in repeated games. The likelihood of a cooperative outcome is further enhanced if direct communication is possible. Even without the opportunity to learn, however, the dominant strategy changes if both prisoners are affiliated with an organization, the local version of the Mafia and with rules (the code of silence), enforcement, and support for those who obey the rules, such as financial assistance to the prisoners' families. In this case, even though the prisoners may not trust each other, they are better off cooperating.

Not so in a cluster. There, cooperation entails risks giving up valuable business secrets to competitors. Firms, especially in emerging markets, are fierce rivals. There is often a long history of rivalry that creates a strong bias toward non-cooperation. Typical events in the evolution of a given cluster will reinforce this bias. For instance, spin-off firms will cater to the same customers and their founders may take trade secrets from their former employer with them.

Moving from non-cooperation to cooperation in clusters is difficult, especially if non-participants benefit from the cooperative efforts of others—a variant of the "free-rider" problem. Isolated attempts of individual actors to cooperate will evoke opportunistic behavior by other actors, thus frustrating the cooperation pioneers and reinforcing a non-cooperative bent. If many firms produce similar products, everyday business behavior will tend to be opportunistic because firms are desperate for sales. Firms are competing for the same customers, so they will tend to underbid one another, which is of course a stimulus for innovation and increased efficiency to lower costs. It is not by chance that in his early publications Porter emphasized the importance of rivalry for cluster dynamics.

Ironically, this disposition may become even stronger in periods of crisis, when cooperation might offer a way out (for instance, through a collective effort to upgrade) but when opportunistic behavior is even more likely as firms scramble for survival. From both a theoretical and an empirical perspective, one thus has to expect the emergence and reinforcement of non-cooperative games in clusters, and any kind of initiative to strengthen clusters has to be based on the assumption that it will be very difficult to move to a cooperative game.

Risks of Formal Cooperation among Firms

In the view of the industrial researcher, stronger linkages in clusters offer real opportunities. The perspective of local business people may well be the opposite. They may or may not appreciate the advantages of strong clusters, such as the easy availability of inputs and skilled workers and easy access to customers. They are certainly aware of the disadvantages, such as the loss of skilled employees and the swift diffusion of information about new technologies, customers, and markets. Regarding formal

networking and cooperation, be it within an association or some other type of collaborative venture, any decision has to be based on an assessment of the benefits on one hand and the costs and risks on the other. Often, the benefits will be long term and hypothetical, whereas costs and risks are obvious and immediate. For a firm, the most obvious risk is the loss of trade secrets, such as technology or knowledge regarding markets and customers. These risks are an important motive for firms not to enter cooperative ventures with direct competitors.

Another risk regards anti-competitive behavior, when cooperation becomes collusion. Many firms basically like the idea of cooperation, in particular if it involves the creation of market power or the elimination of market processes, such as joint purchasing, sales cooperatives, or cartels. Such practices are common in many industries. In countries with strong anti-trust policies, many firms have a clear idea of the costs of such cooperation—namely, the fines they have to pay. In fact, in these cases, firms may find it strange that government agencies promote clustering and cooperation and may prefer to distance themselves from such initiatives as long as the anti-trust implications remain unresolved.

The direct costs of cooperation include first and foremost transaction and opportunity costs. Meetings have to be held, there has to be some follow-up, and discussion papers and minutes have to be prepared. All this puts a strain on the scarce time of decision makers in firms. If firms agree on concrete activities, this will generate further costs (for example, the investment and operational costs of joint development projects). This may lead to the kinds of problems that are well known from research and development and training, where the inability to appropriate returns on the respective investments creates a discrepancy between the individual and the collective benefit, leading to underinvestment. In the field of research and development, governments subsidize firms' activities. Similarly, it may be necessary for government to subsidize cooperative ventures and cover at least part of the transaction and opportunity costs.

Problems of Cooperation between Firms And Supporting Institutions

There are two kinds of problems regarding cooperation between firms and supporting institutions. First, there is often a complicated relationship between firms and business associations, especially between small and medium-sized firms and chambers of industry and commerce. Smaller firms often perceive, correctly or not, that chambers are dominated by large firms, and they feel that the support they receive from their chambers is inadequate. At the same time, the chambers often have to deal with expectations they cannot meet, given their limited resources. Firms also may be skeptical of business associations. They may suspect that certain associations exist largely because of political motives, or they may perceive that their associations are weak or that there are too many of them. A further problem is mandatory membership, which often minimizes the performance pressure on business associations or creates the image that a given association is a paragovernmental organization.

Second, there are the usual problems of cooperation between firms and supporting institutions. For many supporting institutions, the satisfaction of local customers from the private sector is not the only, and often not the most important, performance indicator. This problem is particularly pertinent in the case of training and technology institutions; a priori, it is not necessarily likely that they cooperate with firms. In education and training institutions, especially in higher education, academic merits play an important role. But research and development institutions also have a difficult time balancing the demands of private sector customers and academic criteria, something that is further complicated by profoundly different standards. Researchers want to publish their results quickly and widely and aspire to a profound understanding of problems, whereas firms want quick solutions to problems and want to keep research results secret. Moreover, cooperation is more likely among large firms, which often have elaborate training centers and research and development laboratories, than among small and medium-sized firms.

Problems of Cooperation between the Private And Public Sectors

Local governance structures—how firms and other elements of potential clusters interact—may set limits for cluster initiatives. To begin with, a crisis can put the advantages of cluster cooperation in sharper perspective. However, this outcome is by no means obvious. It is just as likely the opposite may happen. Local actors may perceive a profound crisis as a structural crisis; they may define the dominating branch in the cluster as a sunset industry that does not deserve promotion; or they may direct their promotion activities at diversifying the local economic base, preferably achieving broad diversification to avoid the vulnerability of depending on just one branch. In other words, local actors may perceive a de-clustering strategy as the best option.

Second, another phenomenon has been observed in old clusters—for instance, in the Ruhr Valley. Communication and cooperation between local actors may become so intense that their ability to perceive changes outside the cluster suffers, which leads to collective conservatism. Moreover, old clusters tend to be organized and politically connected. Accordingly, they have the motivation and the means to focus on keeping old industries alive, rather than promoting and shaping structural change.

Third, only with great difficulty will chambers of industry and commerce play a constructive role in cluster initiatives. Chambers cater to firms from many sectors and branches. A cluster initiative, however, will involve only a limited set of branches, and those firms not directly linked to the dominant branches in the cluster will feel frustrated if the chamber puts a lot of effort into the cluster initiative. Especially in those locations where one cluster dominates the local economy, firms from other branches will complain loudly because of their perception that the chamber is focusing too much energy on the cluster-related branches.

Fourth, there is no reason to believe that politically motivated differences can be overcome more easily at the local level than at other levels. It is likely that political differences are intertwined with other factors, such as personally motivated aversions, traditional enmity between families or elites, and economic rivalries, and that a complex set of obstacles emerges that make organizing a coherent initiative complicated.

Finally, in countries with a long history of the heavy hand of government—which includes all of the transition economies and most developing countries—a private initiative to strengthen clusters and systemic competitiveness may be deeply mistrustful of any attempts by government officials to contribute.

Global Governance and Local Initiatives

Global governance patterns create two types of problems for local initiatives. First, cluster initiatives depend on networking between persons rather than between organizations. Such initiatives therefore face serious obstacles whenever important firms are not locally owned and directors change frequently. Moreover, in large companies with a global reach, the director of a local branch plant frequently has limited freedom to make decisions. In this respect, dramatic changes in framework conditions for clustering initiatives can occur if a local firm is taken over by an external investor.

Second, external oversight of local firms also can have a major impact on cluster initiatives in another way. Clusters, especially in developing countries, often are part of global value chains that are ruled by a large firm elsewhere (for example, large distribution chains in industrialized countries). The large firm may of course have an interest in the long-term perspective and performance of the cluster, but usually its short-term considerations will prevail. This frequently means that external buyers are playing cluster firms against one another to get the best price or that they discourage cluster firms to engage in upgrading efforts that might change the power structure in the value chain. This leads us back to the observation that fierce rivalry between local firms is often a major obstacle for local cooperation.

Moreover, it means that even well-meaning government initiatives may bear no fruit.

Promoting Cooperation in Clusters

How is it possible to increase the propensity to cooperate in the three areas outlined above? Regarding inter-firm cooperation, initiatives are most likely to succeed if they meet four criteria:

- They address the immediate problems of firms;
- They do not touch what firms perceive as their core activities;
- They offer little or no latitude for predatory behavior; and
- They present the potential of savings through economies of scale.

These criteria can be explained by outlining typical activities that do not meet them and usually fail. First, there is technological cooperation, such as the joint development of a new production process. In such a case, participating firms fear that other firms learn pieces of information they perceive as essential to their competitiveness. Accordingly, they put pressure on their technicians not to unveil any possibly critical information, thus crippling the cooperation project. Firms also may choose their less competent technicians to take part in the project, thus decreasing the probability of success. Second, when one mentions the option of cooperation, business people in a non-cooperative cluster typically come up with ideas that are anti-competitive, such as forming a purchasing cooperative. However, if firms do not trust one another, a supplier that is the target of the cooperative will easily break it by offering preferential purchasing conditions to one or several of the participating firms.

What then are activities that meet the four criteria? Three types of activities come to mind:

- *Training.* The economies of scale are obvious, as are the benefits. Training can be limited to areas that do not touch upon core activities, and there is little opportunity for predatory behavior.
- *Environment-related activities.* Firms, initially usually sticking to end-of-pipe solutions, perceive environmental protection literally as a peripheral activity. Moreover, a government environmental agency generally serves as an external enemy and creates an incentive for firms to stick together.
- *Basic testing activities.* In the textiles industry, for example, this refers to testing cotton fiber and chemical inputs.

The results of Michael Enright's cluster survey cited above supports the notion that these are areas where specialized organizations are perceived to add value. Success in initiatives focusing on these areas may pave the way for more ambitious cooperation activities. As firms see that cooperation creates advantages, they may develop a certain degree of trust that permits other, more ambitious and riskier cooperation activities, such as an exchange of technological information. However, there is by no means a clear trajectory in this respect. The experience of the tile cluster in Criciúma, Brazil, is sobering. A precipitous decline in market share created a sense of crisis and triggered a massive effort to regain competitiveness. After this response achieved most of its declared goals by the mid-1990s, cooperation virtually collapsed. Whereas six years ago several of the local actors saw their cluster on track to emulate the experience of the Italian industrial districts, today one can sense frustration because maintaining cooperation takes real effort.

The Role of Specialized Organizations

Among specialized organizations, business associations can play a role in facilitating cooperation among firms. However, business associations in developing countries and transition economies tend to be relatively weak, with few employees and a low level of competence, especially when it comes to providing member firms with real services. Organizational development in such associations is a lengthy but unavoidable activity.

In the past, institutions such as training and technology institutes tended to operate in a kind of

vacuum and were highly self-referential. In the import-substitution era, technology institutes found little demand from the private sector, which was under scant pressure to innovate in a not very competitive market. Training institutes existed in an environment marked by massive skills shortages so that whatever training they provided was gladly accepted by the private sector. Even though most vocational training was administrated by the private sector itself, the possibility of firms articulating their specific demands vis-à-vis the training institutes was often limited. In a new, more competitive environment, these institutions face tough challenges.

To gain a better understanding of how to make supporting institutions more responsive to private sector demand, it is useful to use a concept implicit in much of the restructuring that took place in firms in the 1990s. There were four key goals of organizational development: efficiency, quality (in the sense of minimizing the cost of quality management), flexibility (the ability to satisfy a wide scope of differentiated demand), and responsiveness (the ability to respond quickly to demand). In the old days, optimizing these factors involved tradeoffs. Increasing flexibility often went to the detriment of efficiency, responsiveness went to the detriment of quality, and so on. In the management field, the analysis of Japanese organizational methods provided crucial insights in terms of overcoming these tradeoffs. There is no reason this idea should not be applicable to supporting institutions in fields such as education, training, and technology. True, it often will involve a major upheaval in organizations that so far have had a single-minded rationale (for example, academic excellence). But reaching a balance between different rationales is exactly the point of organizational development.

Cooperation between the private and the public sectors puts high demands on both sides. On the side of the private sector, it is, first and foremost, essential to have effective organizations. Large firms can interact with government, especially local government, on an individual basis. Small and medium-sized firms will find this difficult. They will have to unite their voices to be heard.

Options for Government

On the public sector side, the first rule is that the government, especially local government, has to take an active interest in the fate of the private sector. This interest should not be taken for granted. Many private businesses—in particular, small and medium-scale firms—have been growing for decades without support from local government. Moreover, because central and state governments used to set promotion policies, local government has developed a disposition to wait for action rather than acting on its own.

The second rule is akin to the Hippocratic oath—do no harm. Government at all levels tends to erect obstacles for private business and for the collective pursuit of competitiveness. Some of these obstacles are essential and may be necessary to stimulate competitiveness, such as environmental regulation and consumer protection, but many are inefficient or unenlightened. Before becoming actively involved in cluster initiatives, government therefore ought to get its own house in order. Reviewing regulations, removing those obstacles that are not essential, and reorganizing what remains are the most important tasks for government. In practical terms, this means different things at different levels, such as moving from command and control to economic instruments for environmental policy at the national level, streamlining regulations at all levels, and creating one-stop or first-stop agencies at the local level.

Only after addressing the obstacles it has created for the private sector will government have the credibility to get involved in meaningful private sector promotion activities, such as cluster initiatives. Government agencies at the local or the regional level can play two important roles. First, they can act as moderators, mediators, and facilitators and play a crucial role in overcoming mistrust among firms. Second, they may cover part of the transaction costs any cooperative venture incurs. In this respect, the justification is much the same as in terms of government support for activities where the returns on investment are difficult to appropriate, especially in environments with a less than adequate protection of property rights. ◆