

Productive cooperation network as a competitive advantage for small and medium size firms in the State of São Paulo (Brazil)

João Amato Neto
Escola Politécnica
University of São Paulo

amato@usp.br

Abstract

The purpose of this article is to discuss the opportunities and barriers relating to the creation and development of *productive cooperation network*, under the industrial restructuring context and analyse some particular aspects of the Brazilian context, specially in the state of São Paulo (one of the most industrialized state of Brazil). Beside this, the intention is to point out some possible ways to improve the organization performance supported by this new kind of inter-firm arrangement, through the concept of *regional clusters* and, finally, to propose some public politics.

1. Introduction

The process of globalization and the intense changes in the modern capitalism world, specifically the emergence of new technologies relating to the microelectronics and the infoways, have imposed deep changes in the organizational structure of the enterprises in order to get more competitive advantages. Under this context, the advent of the “*lean production paradigm*”(WOOMACK, 1990), or “*agile production*”(GOLDMAN, 1994) , or even “*flexible specialization paradigm*” (PIORE & SABEL, 1984; SCHMITZ, 1989), has provoking, in particular terms, new kinds of inter-firms relationships, towards the increasing of the company competitive power, in general.

The new business opportunities arose from this new kind of inter-firm relationships or enterprise networks seem not to have comparison with the world economic history. In the present paper we discuss this phenomenon referring to the creation of inter-firm networks and its contribution to the technological and managing modernization, as its implications to the increase of the quality and productivity levels of the small and medium enterprises (SME’s) in Brazil. We will focus mainly the most industrialized state of Brazil, , the State of São Paulo.

Inter-firm networks have been created and got more and more importance not just in the developed countries as Italy, Japan, and Germany, but also in the newly industrialized countries as Mexico, Chile, Argentina and Brazil.

The main argument in this article is that the emergence of new types of industrial organization, specifically those relating to stimulate more inter-firm cooperation, offers new elements to public policies that can support the SME’s development plans. Policies which consider this dynamic aspect of cooperation among companies operating within the same production chain (and not in an isolated form), that can create synergy of positive impacts, called “*collective efficiency*”, in order to improve an inter-firm network as a whole.

Considering the high potential of the SME’s in terms of its contribution to social improvement (job creation) and economic growth (increase of efficiency and productivity

in the same productive chain), it is important to point out the necessity to offer support towards the modernization of SME's.

The intensification of the telecommunication utilization through the modern *infoways (Internet, specially)*, is already creating new business opportunities in the different human activities. Ideas, as virtual office, library or bookstore, virtual bank and virtual enterprise, are in fact realities around the world. All of those examples could be expressed by the concept of *virtual organization* and considered as a specific case of inter-firm network.

2. The Barzilian experience

Due to its great economic potential, the possibilities of "*inter-firm dynamic cooperation*" among the Brazilian companies seem to be multiple. Those opportunities involve from the large companies or mega-corporations to the SME's, belonging to the industrial, financial, commercial or service sector in general.

As an emergent economy with a potential consumer market composed by 150 million inhabitants and with a US\$ 700 billion Gross Internal Product, the expectations of new direct foreign investments in Brazil, besides the restructuring of the state with the following new public investments (mainly in the infrastructure sectors as telecommunication and transportation ones) should create an optimistic economical scenery.

Based on recent data, more than 1.000 foreign companies intend to accomplish direct investments until the year 2.000, mainly focused in increasing of the production capacity or in modernizing the existent structures. Specifically talking, only the auto-makers intend to invest US\$ 15 billion in Brazil during the next 2 or 3 years.

One of the most interesting successful case of inter-firm networks in Brazil is the shoe industry in "Vale dos Sinos" region, placed in the Rio Grande do Sul state (south of Brazil). In that case, the geographical proximity and the operating the same market provoke a greater interdependence degree among the partners. The social-cultural similarities help the relationship based on trust among the companies and minimize the risk inherent in the own network.

3. The case of the state of São Paulo

The industrial income in São Paulo State corresponds to 41% of all the Brazilian industrial income and the total economical income is US\$ 290 billion equivalent to 36% of Gross National Income.

Besides losing many new direct investment projects (mainly in the industrial sectors) to other states, the perspectives are already optimistic for São Paulo. It was announced US\$ 26.5 billion of new investments in São Paulo state only in 1998. Those new direct investments are being applied to new industrial plants installation, building of new malls and to modernization of the existent ones (data from Science, Technology and Economic Development Secretary of the State of São Paulo). All of those new investments should stimulate the modernization of São Paulo economy in a special moment of economic recession (by the way, this fact is not only specific to São Paulo State, but is affecting the Brazilian economy as a whole), when some traditional segments are losing power. For example, there were almost 2.800 textile companies in São Paulo State until 1990. Nowadays, unfortunately, there are only 1.900. A lot of textile plants were closed during that period and the companies changed their strategies, looking for other regions

where they offer fiscal and cost attractiveness, mainly those relating to a low wage regions (northeast region of Brazil, specially).

Replacing that kind of industry, new plants of computers and telecommunication parts and equipment are being founded in São Paulo State. New auto-maker and auto-part factories are also being installed in São Paulo (Honda, Volkswagen's truck and engine plants), despite a lot of ancient plants have been reducing their operation and, in case of auto-part companies, many of them have been closed.

The regional distribution of those new investments prioritizes the Vale do Paraíba region with 32% of total capital invested. In second place, the region of Campinas city appears with 26%, followed by the "A .B. C. and Great São Paulo" region (involving Santo André, São Bernardo do Campo and São Caetano cities) with 13% of the total investments. The 29% remaining should be distributed among the other regions of the state.

In short, one could say that the present moment marked by the globalization process seems to contribute with São Paulo State, that traditionally has the most important industrial park, besides the fact of concentrating the greater number of skilled professional and technical workers of Brazil, in general (this fact can be understood by the presence of the most important universities, research centers and technical school in State of São Paulo).

The most part of the future investments should come mainly from the transnational companies, as well as from Brazilian companies. There are many Brazilian groups and consortia preparing themselves to participate in privatization processes of the old state companies, those traditionally belonged to the monopolized markets (as mining, telecommunication sector, besides others).

Besides those US\$ 26.5 billion in private investments, there are also public projects involving US\$ 50 billion, relating to transportation and telecommunication system modernization, which should create 400.000 direct and indirect new jobs in São Paulo State (data from "Exame" magazine, Ed. No. 658, 1998).

In terms of *regional clusters* it is possible to identify some industrial regions relating to some economical sectors. First of all there are three regions, which are specialized in shoe industry. The most important of them is the shoe industry of **Franca**, a medium size city sited in the north of the State of São Paulo. This region is specialized in *men's leather shoes*. In that region it is possible to observe the predominance of SME's working together with some large companies as Samello, Sandalo and Vulcabrás, traditionally exporting companies (Garcia, 1996 apud IPT, 1998).

There are a strong predominance of SME's in this region (Franca). Among 390 shoe maker companies, 365 are micro or small ones (94% of all). Other 15 (3.8%) are medium size and only 10 (2.5%) are large companies. Among all of those companies, only 3 of them have the ISO 9.000 quality assurance certification, being 2 large companies and 1 medium size company.

In average terms, the companies work with 30 days of lead-time. The most part of the companies has low degree technology, using old equipment in general, and in some special cases of automation, they are rigid type, that is, not flexible production systems are used.

In terms of Internet utilization it was observed that only 10% of all the companies utilize this kind of resource, in spite of the existence of 3 Internet providers in that region.

Finally, referring to the relationship between the SME's and the large ones, one may say that relationship is not so relevant, existing only some joint actions in cases of

exporting programs, participating in fairs of the sector (shoe industry) or in new products to introduced in the market.

The other region is **Birigui**, a small town sited in the center of the State of São Paulo, specialized in children's shoe production made of synthetic material.

The third region is the city of **Jaú**, which produces women's leather shoes. In both cases (Birigui and Jaú) a greater presence of SME's can be observed. This fact could represent a great potential to the inter-firm cooperation relationship among those companies.

The other predominant regional cluster in São Paulo State is the **textile and clothing** in **Americana**, a medium size city (sited 100 km north from São Paulo city). In this region one can feel the intense impact of the commercial liberalization for the imported articles, mainly those coming from the Asiatic southeast (China, specially). In consequence of that fact, the local production fell 60% from 1992 to 1995. The same occurred with the employment level. It fell from 23,895 to 17,743 job places. Meanwhile, Brazil as a whole imported 113.344 ton/year (in 1993) of textile articles, in general.

Nowadays it remains only those companies which can compete in price and quality aspects. The surviving companies decided to invest in their modernization process. Between 1996 and 1998 it occurred a production retaking because it was invested US\$ 300 million in new equipment and production process modernization. Consequently, an increasing number of companies operating in that sector (from 621 in 1996 to 634 in 1997) could be observed, for the first time after 10 years. The number of employees also increased during that period: from 13,418 (in 1996) to 14,014(in 1997). (data from SINDITEC, 1998).

Besides those two cases previously discussed - the shoe and the textile industries - it is possible to point out some other cases of developing regional clusters in São Paulo State, and there are only few studies about them until now.

One of the cases is the **High Technology and Science Park, in São Carlos**, a medium size city, 230 km north from São Paulo, where there are the most concentrated number of researchers per inhabitant in Brazil. This occurs due to the existence of two important public universities and some of the most important research centers of the country in that city. Since 1985 (date of the foundation of that Science Park), more than 50 small "*high-tech companies*" were created, most of them specialized in new material production to the industry, industrial equipment, computing, automation of process and equipment to telecommunication systems.

In **Limeira**, a medium size city sited in the center of the state (almost 120 km north from São Paulo city), a great number of **jewel and costume jewel small factories** have been increasing the, for the last two decades. Due to the random development process of that sector during that period, the local mayor house decided to implement an "**industrial district**" and an "**incubator of companies**" to take shelter for those factories (mainly in terms of the treatment of the waste water and the remaining material used in the production process), as well as to stimulate the local economy and create new investments opportunities.

There are a lot of other cases that could be studied as cases of “*regional clusters*”. But just to illustrate that tendency, some of them one could be mentioned:

REGION	ECONOMIC ACTIVITY(predominant sector)
Ribeirão Preto	Graphics
Porto Ferreira	White ceramics
Ibitinga	Embroidery (articles)
Itatiba	Furniture
Votuporanga	Wood furniture
Jardinópolis and Itu	Red ceramics

Source: SEBRAE, 1996.

4. Conclusions

Despite of all of that optimistic scenery, referring to the expectation of new direct investments and to the Brazilian state restructuring process, there are a lot of restrictions and barriers facing the Brazilian economy modernization challenge as a whole, as well as to the possibilities of inter-firm cooperation network development.

Besides the institutional-political barriers, which inhibit a great policy decision making by the Brazilian state in order to implement the various of reforms (fiscal, administrative, social-security, etc.), there are still other kinds of specific problems (as a consequence of the prior items), as for example the precariousness and obsolescence related to the telecommunication infra-structure in Brazil. Only to exemplify, one can say that while there are 68 telephone lines per 100 people in United State, there are only 8 lines per 100 inhabitants in Brazil.

In terms of Internet utilization, the limitations refer to the lack of new investments in the new telecommunication infoways, which imply more intensive utilization of optical fiber and digital systems replacing the real analogous ones. In that way, the Brazilian public authorities are already announcing investments around US\$ 90 billion in the telecommunication system until the year 2.002 in order to implement a suitable infra-structure to support the enterprise competitive power under the context of a global economy.

5. References

AMATO NETO, J. , **Globalsourcing e padrões de fornecimento no complexo automobilístico brasileiro**, ENEGEP, Piracicaba, out/1996.

_____, **“Cultural requirements for development of Global Virtual Enterprises”**, 2nd. COSME MEETING, Aachen Alemanha, feb./1998.

_____, **“Redes de empresas/organizações virtuais na economia global”**. Third International Congress of Industrial Engineering, Gramado-RS, outubro/1997.

_____, **Resenha: A grande importância da pequena e média empresa**. In Steven Solomon. Revista de Economia Política, Ed. Nobel-São Paulo, Vol.12, No.3(47)-Julho-setembro/1992.

AZEVEDO, M.C., **Pequena e médias empresas no atual processo de transformação industrial em nível internacional**, UNICAMP, 1990.

BELUSSI, F. et ali, **Innovazione tecnologica ed economie locali-II caso del Veneto**, Franco Angeli Libri, Milano, Italy, 1988.

BEST, M.H. **Institutions of industrial restructuring**. U.K., Polity Press, 1990.

BREMER, C.F., **Uma Análise da Aplicação do Modelo de Empresas Virtuais na Indústria Brasileira**, WZL, Univ.de Aachen, Alemanha, 1996(a).

_____, **Partner Search and Exposure in Virtual Enterprises Using the World Wide Web**, WZL, Univ. Aachen Alemanha, 1996(b).

BREMER, C.F.; AMATO NETO, J; MOLINA, A ; **“Development of Virtual Enterprises: Latin American Perspective - Opportunities and Barriers**, Congress of Virtual Enterprise and Agil Manufacturing, Amesterdam, oct./1997,

ENRIGHT, M.J., **Regional Clusters and Firm Strategy**, Paper for the Prince Dynamic Firm: The role of Regions, Technology and Organization, Stockholm, Sweden, June 12-15, 1994.

FENSTERSEILER, J., TIBERGHIEM, R., DROUVIT H., ULHARUZO, C., **O papel das redes de cooperação na política tecnológica das pequenas e médias empresas**. Anais do 21^o Encontro da ANPAD, Rio das Pedras, Rio de Janeiro, 1995.

GOLDMAN,S., NAGEL, R., PREISS, K., **Agile Competitors - Concorrência e Organizações Virtuais**, Ed. Érica, São Paulo, 1995.

GRANDORI E SODA, **Inter-firm Network: Antecedents, Mechanisms ans Forms**. Organization Studies, 1995

INTERNET, “**The G-7 Information Society Pilot Project - A Global Marketplace for SME’s**”, Home Page/ Internet, 23/09/96

IPT – Instituto de Pesquisas Tecnológicas, **Estrutura produtiva e de mercado da Indústria de Calçados**, Relatório de Pesquisa, São Paulo, 1998.

_____, **Estrutura produtiva e de mercado da Indústria Têxtil**, Relatório de Pesquisa, São Paulo, 1998.

LEON, M.E., **Uma análise de redes de cooperação das pequenas e médias empresas do setor das telecomunicações**, São Paulo, 1993. Dissertação (Mestrado) - Escola Politécnica, Universidade de São Paulo.

PIORE, M.; SABEL, C., **The second industrial divide: possibilities for prosperity**. New York, Basic Book, 1984.

PIKMAN, M.; AMATO NETO, J.; RUSSO, N., **Identificação e formação de redes de cooperação produtiva: Um estudo de caso**. Anais do Encontro Nacional de Engenharia de Produção, Niterói-RJ, out/1998.

PYKE, F.; SENGENDERGER, W. ed. **Industrial districts and local economic regeneration**. Geneva, International Institute for Labour Studies, 1992.

SANTOS, S.A. , PEREIRA, H. J., ABRAHÃO FRANÇA, S.E., **Cooperação entre as micro e pequenas empresas**. SEBRAE/SP, 1994.

SEBRAE, **Indicadores de Competitividade para Micro e Pequenas Empresas Industriais no Brasil**. Brasília, Editora SEBRAE, 1993.

SEBRAE, **Pequena Empresa e Unanimidade Nacional**, S-1, Editora SEBRAE, S.D., 1996

SCHIMTZ, H., **Small Firms and Flexible Specialization**, IDS, Univ. of Sussex, U.K.,1989.

_____: **Industrial Districts: Model and reality in Baden-Württemberg, Germany** ,in Pyke and Sengenberger,: **Industrial Districts and local economic regeneration**. International Institute for Labour Studies, Geneva, 1991.

_____: **On the Clustering of Small Firms**, IDS Bulletin, vol.23 ,No. 3, England, 1992.

SINDITEC- Sindicato das Indústrias de Tecelagens, Tinturarias, Estamparias, Engomagens,...- **Informativo-Resumo**, out/1997.

WILLIAMSON, O. E. **The economic institutions of capitalism - firms, markets, relational contracting**. New York, The Free Press, 1985.

WOMACK,J.P. et alli , "**The Machine that Changed the World**", International Motor Vehicle Program,M.I.T.I, Program,M.I.T.,1991.

About the author

Prof. Phd. João Amato Neto

Escola Politécnica/Universidade de São Paulo

Av. Prof. Almeida Prado, 128-trav.2-

05508-900 – São Paulo-SP-Brazil

F: 5500 11 818.5363 – R.409

Fax.: 5500 11 818.5399

e-mail: amato@usp.br