

**Title:** Privatization, Modernization, Productivity and Networks – An Experience of Efficiency in the Brazilian Steel Industry

**Authors:** D.Sc. Marcelo Amaral (1); Marilia Schocair, B.Sc. (2); Raphael Jonathas da Costa Lima, D.Sc. (2)

(1) Triple Helix Research Group – THERG-Brazil, Fluminense Federal University, Brazil

(2) Group of Studies of Economic Development in the South Fluminense - GEDESF, Fluminense Federal University, Brazil

**Keywords:** National Steel Company, Privatization, Modernization, Productivity

**Theme:** 5. Building management and leadership skills in high growth firms

The paper analyzes the organizational and strategic changes at The National Steel Company (CSN), a company created by the Brazilian state as a symbol of country industrialization process. A recent analysis of CSN trajectory also helps to understand the Brazilian capitalism dynamics, the relations of firms with the state and the efforts to compete on equal terms in the international arena.

The question that guides the research is if the steel business is yet the core business on CSN and what is company position in the global steel market. This is an exploratory research that uses production networks approach to interpret geo-economic relations resulting from globalization. The production networks are extremely complex structures, with varying connections that form multilayered multidimensional lattices. Networks are benefited from advances in logistics systems and information and communication technologies for closer space/time relations and configure global, national, regional and local levels which can act dependently or independently one from each other. With this approach it's possible to understand the transformations in global steel chain by shifting the analysis focus from a simple comparison between models of state enterprises, national and transnational organization to the observation of a global network structured. The paper methodology is based on the analysis of several existing studies, field research through interviews and data collection in the CSN annual reports, with reference to the period 2000-2010.

The construction of the CSN was started in 1945 as a result of an agreement between Brazil and the United States during World War II. The goal was to deploy in Brazil local steel production in order to develop an industry of consumer goods. The industrial plant location was the space that is now the city of Volta Redonda (then a district of Barra Mansa), in the State of Rio de Janeiro. The city is equidistant of the major consuming centers of the country, the cities of Rio de Janeiro, Sao Paulo and Belo Horizonte, a region that has half the country's GDP.

The trajectory of the company and the city, between 1945 and 1994, can be defined as a typical company town, in which the company, as a propellant of city development provides benefits to employees beyond the working relationship and have a decisive influence on the configuration of city, including its geospatial organization, with neighborhoods to the working classes, engineers and management positions.

In this process a series of formal and informal networks was built. The company from part of its suppliers and install them in the city allocating considerable part of its purchases in that space and generating economic and social development. The labor force is being formed locally at all levels. Technical schools are comprised and the undergraduate course of Metallurgical Engineering, which is now part of the Fluminense Federal University (UFF), was created in 1961. The relationship of UFF and CSN is quite atypical, perhaps one of the few recorded cases of the reverse spin-off in which the company leads the university creation.

In the 1970s and 1980s, CSN promoted three expansion programs in order to raise its production capacity. Since its privatization in 1993, the company adopted an intensive program of technological upgrade, which aimed to achieve the milestone of five million tonnes of crude steel produced per year.

The privatization of CSN occurs in 1994. The company was bought by a consortium led by a giant in the textile sector and banks. A comprehensive restructuring process is performed for privatization and other then leading the review of the role of company town and a break from the city. During 8 years, until 2002, there is a broad process of rethinking the company and modernize it from technical and managerial standpoint. In 15 years the employee productivity increases by 538%. The company production record before 1994 was 2.8 Million tonnes of steel per year and now reaches levels close to 5.8 Million.

In this movement there is also a review of labor force which is reduced to 1/3, from 32 500 to 12 500 employees, and purchases that are being made in large cities and from global suppliers. This generates a thud on development in the city in the 90s. However, since the beginning of the new millennium there is a revival of Volta Redonda pulled by specialized service sectors, less dependent on the company, but still an orphan.

From a business perspective new networks are formed. The company, prior public and oriented to the domestic market becomes a global player in the industry. Since 2002, capitalized, CSN throws herself on purchases of companies abroad and business expansion in mining, cement and production of special steels.

Regarding University-Industry- Government linkages, the typical relationship in the company town phase can be classified as configuration 2 of Triple Helix in which the Government, through a public company sets the target of companies, university and shapes society as a whole. In the post-privatization period the relationship becomes distant. Several spaces of confluence of the three helices are disrupted and renegotiated. The local university loses its primacy in the relationships and other institutions are sought. New university-industry bilateral relations are constituted. The local University is undergoing a process of rethinking and creating a new dynamic to remain present in the region.

The study supports the notion that among the founding date and eighties, the company concentrated all its efforts to improve and modernize the steel production plant, located in the city of Volta Redonda, a town situated on the main axis of Brazilian economic development, between Rio de Janeiro and Sao Paulo. Since 2000, with the aim of adapting itself to the model of commercialization of goods and services, it ceases to be strictly domestic and start an international trajectory. The CSN invest heavily in national and international acquisitions, in the modernization production process, in technological upgrading of existing plants and, especially, in new market niches that increase the steel value-added. This led to work on five different fronts (steel, mining, logistics, cement and energy) and to be an internationalized company, which helped to make it one of the largest and most influential Brazilian holdings.

## References

ETZKOWITZ, H. The Triple Helix: Industry, University, and Government in Innovation. Routledge, 164 pages, 2008.

LIMA, R. J.C.; SCHOCAIR, M. M. & AMARAL, M. G. National Steel Company (CSN): From Brazilian Industrialization Symbol to a Global Holding (1945-2012). XXV SASE Conference. Milano. 2013.

LIMA, R. J. C. The Reinvention of an Industrial City: Volta Redonda and the post-privatization of the National Steel Company. Doctor Degree Thesis, Federal University of Rio de Janeiro, 2010 (in Portuguese).