



DETERMINANT FACTORS OF THE PRODUCTION AND PLANNING CONTROL ENVIRONMENT DESIGNED FOR ENTERPRISE NETWORKS: THE RESULTS FOR A BUSINESS UNIT OF BRAZILIAN ENTERPRISE

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The production management is one of the most significant issues related to managing operations, requiring constant study to keep business units in the face of a competitive global market that is changing quickly. In this study presents the results of performance improvement of a Brazilian metallurgy company. So, it was proven that this system is capable of strategic clustering firms inserted in network environments. In it requires is a different view on PPC producing good results in the operating environment.

Keywords: Business networks, production planning and control, management, manufacturing systems.

1. Introduction

Manufacturing strategies are crucial to the success of companies, and one of the oldest and relevant segments linked to operations management, whose models are always being subjected to development efforts both by academics and by productive organizations (PO), are those that deal with the administration of production and new forms of work organization.

Proposals for strategic management of production bring in your bilge principles that seek to streamline processes, reduce production costs, aggregate values to business units (BU), identify problems of material flow and information in addition to seek reduction of response time through cohesive work teams.

The internal crossing time to the PO, lacks an analysis able to embed it on productive chains. The business networks composed of actors and linkages produce information shares permeated by material flows which transcend the physical limits of strategic BU.

Milreu (2011) states that the manufacturing strategy for network companies produce efficient outcomes for all stakeholders associated. In business activities in the global economy, specifically in the area manufacturing, observe a great dependence on factors related to the production. The movement of goods and services must pursue goals aligned with the needs to aggregate values both as economic results sustainable.

Existing models have been exhausted, either as regards the administration of production or as regards ways of organizing work. So browse the best actions to achieve goals and targets set out in a successful Planning and Production Control (PPC) becomes necessary, since the productive and environment must adapt to changes, fast and quirky, of an increasingly demanding market as quality, costs and delivery time.

To improve the opportunities and allow that has success it becomes crucial integrate networks productive, considering the demands of the environment and market that everything, from the understanding of the effects of the new paradigmatic assumptions in the operations, based on new methodologies for planning and management, supported strongly by technology of communication and information.

Kyrillos et al. (2010) show that the need to manage the logistical flow aims to remove obstructions and misalignment that occur in the same, and that these lead to an accumulation of inventory and longer response times. It is necessary to see the term as a whole, that the interfaces between the components should be examined in detail, in addition to studying what activities add costs and which, in fact, they add value.

The research group on corporate networks and supply chains means that beyond the sharing of information and materials, today the time-sharing, between actor intra and cross-organization cooperation is, among others, a decisive factor to be able to meet targets within a PPC designed for corporate networks.

Souza (2012) says a PPC organized in networks of companies, the maintenance function assumes a strategic dimension and not operational.

López-Paredes and Pajares (2009) conduct integration studies among stakeholders in engineering projects involving the need for management procedures.

To Zilbersztajn and Farina (2010) a network of companies has a complex format architected to govern transactions inter-firms organization involving vertical and horizontal coordination. To Granovetter (1985) in the row of economic sociology uses the network concept to argue that economic action is rooted in the socio-cultural structure.

Senovilla et al. (2012) conducted tests at about network diagrams and analysis show, as we have seen, most of the activities that influence the network, and how they affect the project duration and attributes.

Milreu (2010), to conduct a study of success and failure of a market research and its implications on the BU inserted in PPC networking environment, using the figure 1, below, to demonstrate the links that are established between the various stakeholders and BU.

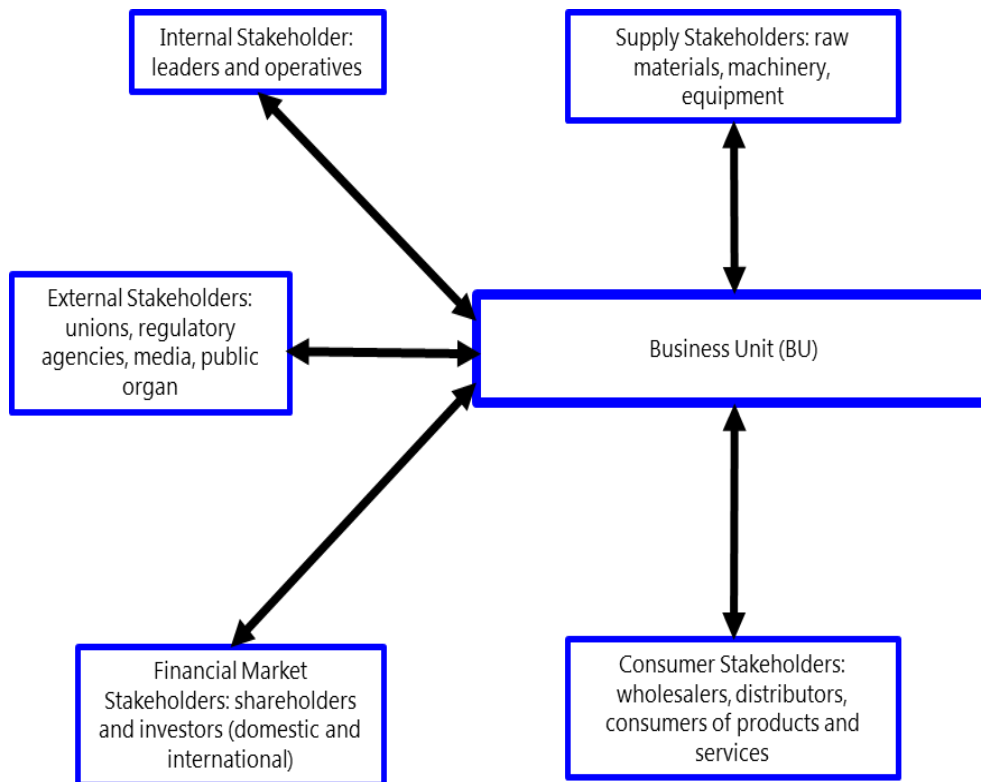


Figura 1 - Business units and their linkages with stakeholders. Source: Milreu (2011) Adapted from Oliveira Neto, et al. (2010).

On the other hand, the drops of barriers of the consumer markets and the political changes are building economic blocks differentiated. globalisation allows to insert more of new actors, the emergence of competitive dimensions differentiated interests and local and global, acirrando competition, developing alliances, partnerships, forming networks of cooperation, in a new formulation dynamic and evolutionary equation this competitive.

Taking the teachings of Porter (1996) states that when operational efficiency is to target the strategy and that the opposite does not apply, it follows that efficiency is tied to accurate and especially at this level, the operating since by through it seek to lower lead-time, the use of less material, applying a lower number of hours worked. The working efficiency means, solves problems. It is diffuse compared to pragmatism effectiveness.

The considerations concerning efficacy and efficiency, leading to a value above stony which should be pursued when it targets the CFP for companies inserted in networking environment, or the environment experienced by the highly competitive global BU are not allow these disconnected from other productive environments even autonomously consider themselves sufficiently efficient and effective.

"Today, for a company to be competitive and successful, not enough to be efficient and effective in their internal operations - its partnerships supply networks (the other nodes upstream and downstream network) should also be internally efficient and effective and links (physical flows, financial, information and relationships between nodes) must also be efficient and effective. This can only be obtained with a proper integrated management (nodes and links) of the supply network." (Corrêa, 2010). Figure 29 endeavors this value stony PPC networks.

The figure 2 below shows the business environment and border in network: actors, flows and connections.

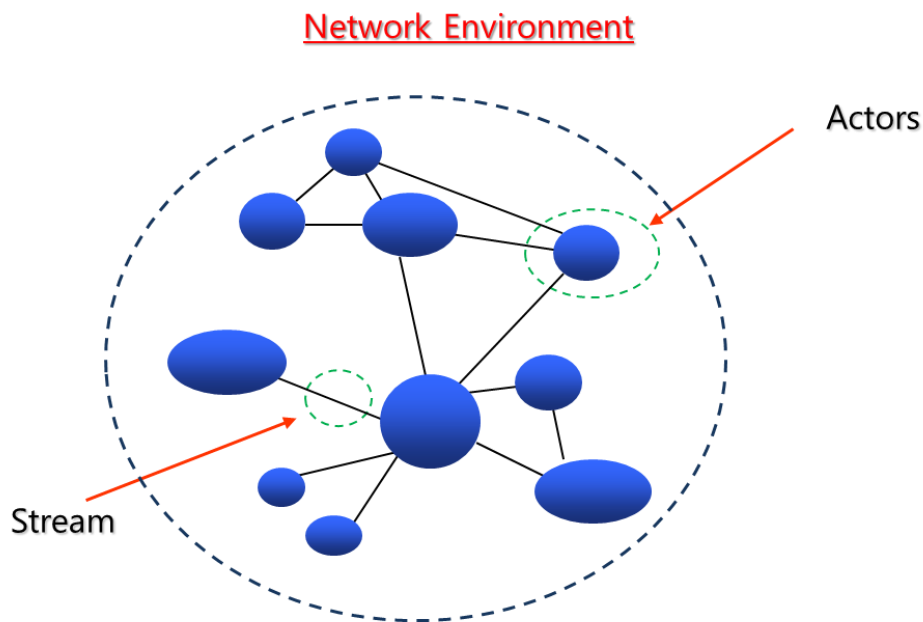


Figure 2: Enterprises inserted into the environment of networks seeking effectiveness and efficiency (Kyrillos, 2011).

This paper seeks to meet the following objectives:

- Investigate and demonstrate the process of production planning and control (PPC) in companies that gradually and steadily, has been organizing into networks.
- Transformations that influence the directions of evolution of administrative thinking change the way business is run; impacting particularly the organization of production and labour. In this sense this article is meant to contribute to the above can effect on your business networks so that all actors have success within the production chain.
- Presenting search results by applying the conceptual model proposed by Kyrillos, Milreu and Sacomano, according to figure 3.

Thus, the argumentation diagram prepared by Milreu (2011), is able to give answers to business strategies and production by means of a PPC for companies organized into networks, as Figure 3.

Given the paradigmatic challenge that companies face networking to consolidate actions of PCP, emerges as key factor compatibility to work and plan together, achieving productivity and developing a set of processes that can be shared by the actors of the networks involving research and innovations in their related areas.

Focus on reduction of production costs, increasing flexibility for product differentiation and a closer relationship with the productive agents, developing quality programs at the levels of the components of the projects, in manufacturing processes, reducing costs and rework, contributing to competitiveness.

These are groupings of suppliers to be strategic in developing this network of companies, meeting the demands quality, production capacity, supply costs and capacity for innovation, exchanging information and updating their processes seeking to innovate in processes and developing new opportunities products and / or services.

Must maintain coordination and control mechanisms to implement rapid changes in product design, in its mix, the rapid introduction of new versions of existing products and / or brand new, offering opportunities to customers as a way to differentiate themselves in the market, favoring innovation.

Also involved in human resources training, joint training and professionalization can add value in the sharing of skills and knowledge of common processes, aiming additionally establish even greater confidence among network partners.

So look with criteria for customer satisfaction served by network companies also deserves attention, focusing on smaller delivery times and service requests for the dates and amounts requested.

Learning and dissemination of techniques used by network participants, combining their skills and utilizing the know-how acquired, can bring competitive advantage for firms in the network, not counting the standardization of combining quality programs together, sharing patterns internal certifications and meeting the international standards.

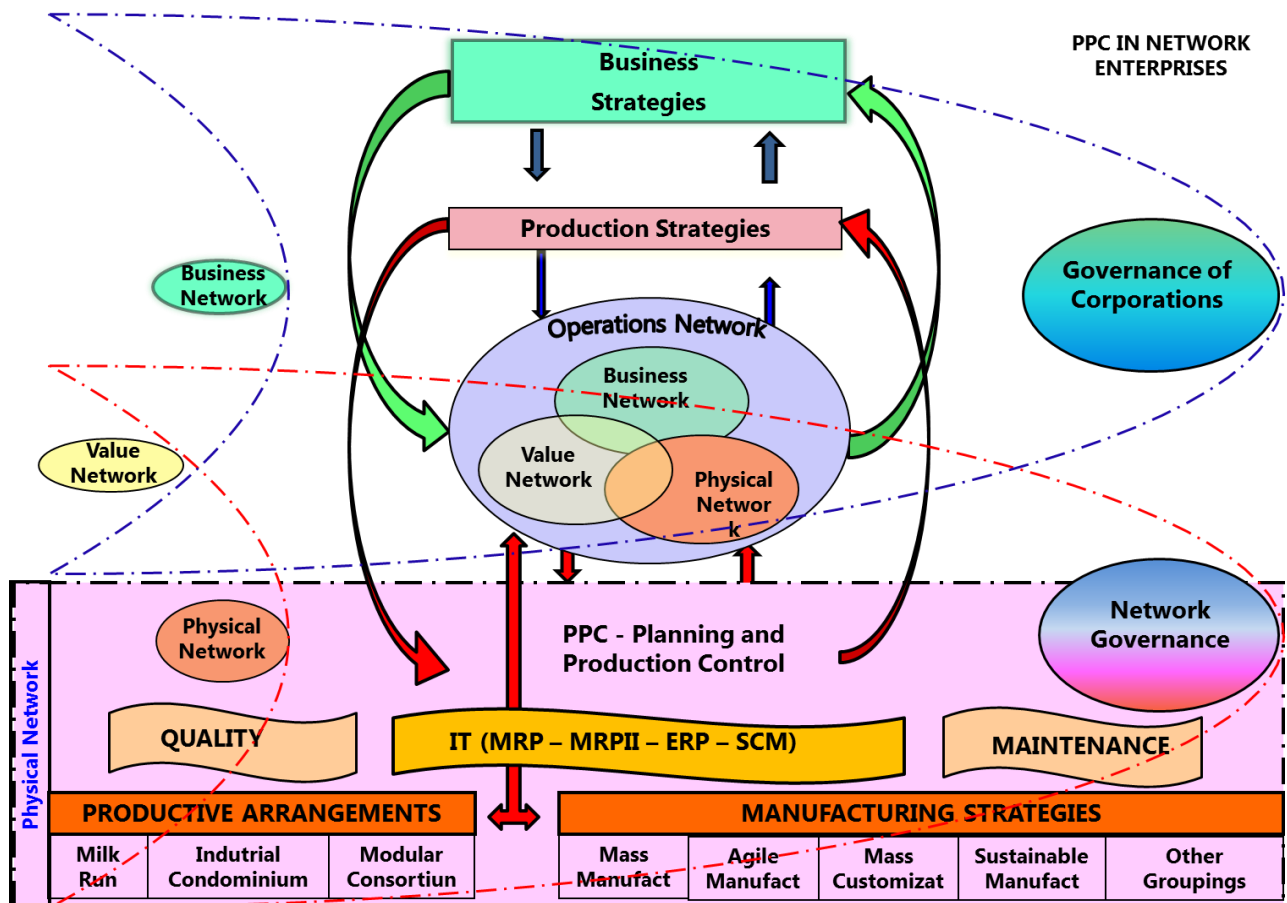


Figura 3: Planning and Production Control in network enterprises. Source: Milreu (2011) – Adapted from Kyrillos, Milreu e Sacomano (2009)

2. Case and Methodology

The focus of the study is a company manufactures cutlery and personal care (as the photos of the figure 4). It's located in Guarulhos, metropolitan region of São Paulo, largest consumer center for Brazil and Latin America.

The company have an strategy to operate on mass manufacturing and mass customized. After effective partnerships in the business network (with suppliers rolled steel and drawn steel) presented significant improvements in effectiveness and efficiency, as the table 2.

For the development of the work has been vital to conduct a thorough review of the literature regarding PPC, networks of enterprises, manufacturing strategies and tools employed to manage operations systems.

In addition, a logical argumentation supported on a set of case studies, has helped to illustrate the problems faced by production engineering; problems that have systemic characteristics with strong interactions between the variables:

- A. Information and material flows,
- B. Economic, financial and human resources,
- C. Technological continuities discontinuities,
- D. Dimensions and contours of the environment.



Figure 4: Manufactured products – tweezers, scissors, spatulas, hair clip

In order to demonstrate and validate the proposed model for the establishment of a PPC in corporate networks from the perspective of physical network governance, took as a reference a metallurgical company entered in the network environment. Thus, more specifically the study with applicative purpose, taking as its starting point a cutlery manufacturing inserted into business networks environment.

It is an empirical character study on the methodology of research-supported action. Below is the summary, according table 1, of methodological activity.

Table 1: Summary Table of methodological activity

Activity	Methodology
Aims of research	Descriptive and exploratory
Nature of work	Current Original Scientific
Object	Field research, with bibliographic support.
Procedure	Study of empirical character, supported on the methodology of action research.
Purpose	Applied research
Approach	Quali-Quantitative Research

Source: Compiled by authors

3. Results and Discussion

The results of the research group have shown that attitudes taken under the PPC of a network actor cause large impacts on the other. Being the same aligned these changes produce benefits; unlike, disarticulation, may cause irreparable damage. Changes to the PPC on OP upstream cause implications as regards the effectiveness and efficiency in a UN made downstream interfering in their productivity and competitiveness.

Table 2: Comparing the results: before and after PPC Network

Factor	Before PPC Network	After PPC Network	Result
Handling and employee personnel. Operation and transfer to machine	5	4	Decrease 25%more efficient use of human resources
Steel processed (Kg/day and Kg/employee)	90,9	136,3	Higher productivity 49,9%
Material in accordance (Kg/day)	444,3	529,8	Increased effectiveness 19.24%
Movement time (Minutes/30 Kg)	8	6	25% Less in lead-time Increase efficiency

Source: Compiled by authors

4. Conclusion

The enterprise studied had better indices of competitiveness and profitability because the productive organizations had utilizing the integration in the form of companies in networks. Is important to state that this is a theme whose theoretical is under construction.

Investigate attitudes capable of promoting competitiveness of business units manufacturing segment becomes current, original and relevant.

It is possible to prove that the PPC networks of companies produce gains in both competitiveness and in profitability.

Both effects comes from a sharing attitude among actors engaged in companies organized in business networks. The physical networks, properly organized scheme, has a positive effect on value networks and business.

This form of organization presents itself and strengthens the economies that have entangled productive. Thus, it may represent a standard and evolution of management thought, since it demonstrates the excellent responses to challenges posed by the increasing market competition.

The research is indicative disciplined BUs seeking to investigate:

- I. Improve their strategies when inserted into networks;
- II. Gain as a function of operational tools used in manufacturing management;
- III. Adapt the profile used in the production to the external environment.

In this study it is possible to shape the PPC, which aims to study the relationships in business networks. The paper shows a way to solve the problem the relationship between business and the particular interests of each one.

The modeling for configuration of PPC in enterprise networks is a means through which to understand the processes by which come through the course of the evolution of management BUs. As presented, it signals that must be addressed so the future of management thought, which modifies the manufacturing systems, the organization of production, labor and requires new attitudes to business execution.

There is an economic gain to the accumulation of capital between the companies involved, because the ties regarding alliances and trust, promotes the strengthening and consolidation of shares among the partners, thereby inhibiting opportunistic actions.

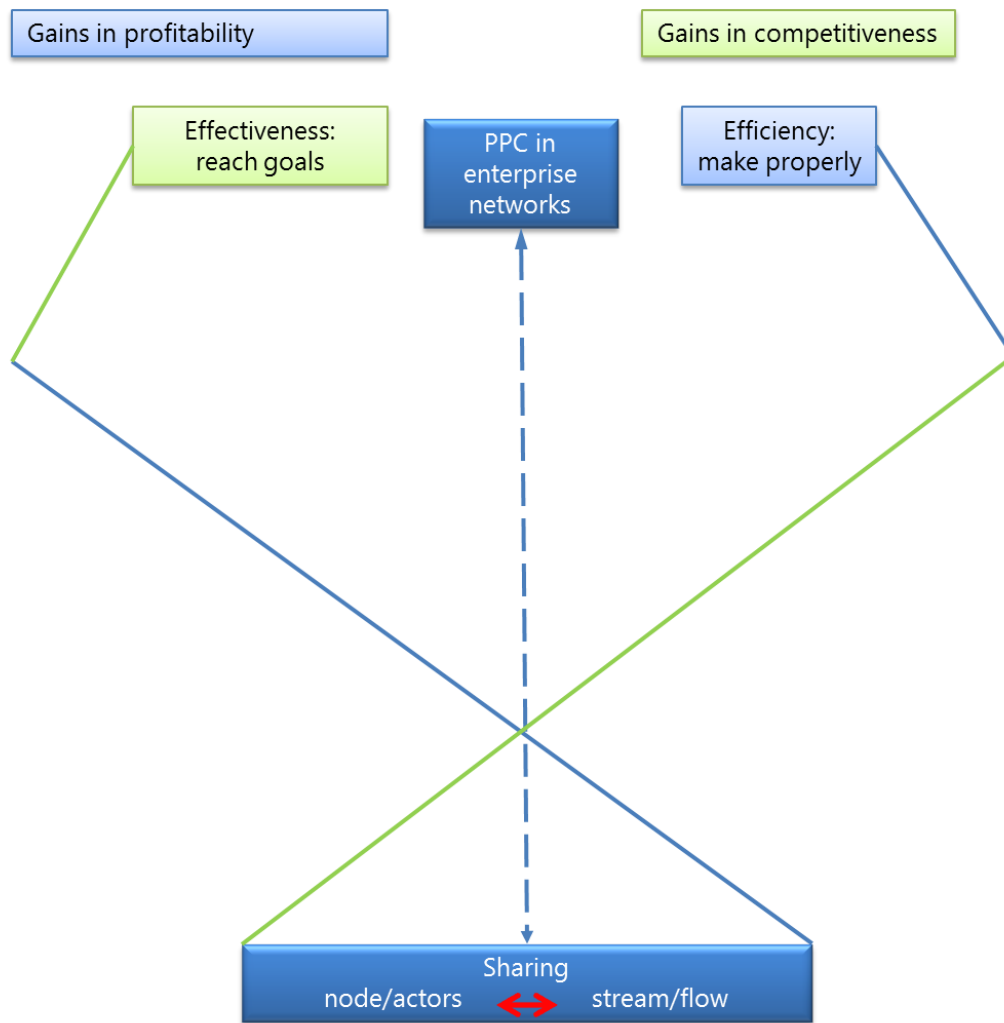


Figure 5: Searching for high efficiency and effectiveness in PPC networks. Source: Kyrillos (2011).

Considering the strategies of differentiation and low cost, a company traditionally has difficulty practicing simultaneously occurring option for either strategy. So companies in this network can promote competitive edge, given that their participation in the network may develop joint production with various focuses of action, given the two strategies.

Finally, several proactive actions can be triggered considering the arguments proposed, showing in each segment proposed competitive priorities for the actions of PPC in Business Networks.

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