

DEVELOPMENT AND IMPLAMENTATION OF A METHODOLOGY TO CREATE A TECHNICAL/COMMERCIAL PARTNERSHIP WITH SUPPLIERS

Jenner Iadroxitz

UFRGS – Universidade Federal do Rio Grande do Sul
Rua Sarmento Leite, 425 – Porto Alegre – RS.
jenner@cemar.com.br

Vilson João Batista

UFRGS – Universidade Federal do Rio Grande do Sul
Rua Sarmento Leite, 425 – Porto Alegre – RS.
vbatista@mecanica.ufrgs.br

Abstract. *This paper describes a methodology to improve the engineering communication between a company and its suppliers with many advantages for both sides. It was developed inside a Brazilian Agricultural Company that is part of a world wide group. This study was also inspired by an internal program developed in the Headquarter of this group in US. It was developed by Supply Management Team to improve mainly the purchasing of the company.*

The methodology shows what need to be done to improve the technical/commercial relationship with suppliers, directing the focus to one spot, the grow of the supply chain' efficiency. The union of the company and suppliers efforts makes the achievement of the goals easier.

The final results are significant improvements on the processes involving the suppliers as, simultaneous engineering, purchasing, quality and communication. In addition, the final client satisfaction and the straightness of the supply chain are taken into suppliers' consideration.

Keywords: *partnership, supplier, supply chain, competitiveness*

1. Introduction

Word has been transformed dramatically on the past few decades on many aspects. Lots of new products and services are offered almost in a daily bases. This huge number of new goods has changed the necessity of the persons and also has changed the world everyday little-by-little. It can be noticed, when you look back five or ten years, and realize how the things changed so fast.

Globalization has now consolidated its theories everywhere. It brought many good things for almost every part of the Earth surface like: increasing the quality of products, offering lots of new products and services, improving the communication through continents and peoples, decreasing the cost of goods, among others. It also brought another good thing, competition.

Recently, Christopher (1997a) said that since the Arthur King's knights went after the Holy Grail, we never saw a chasing as tough as we can see now for the competitive advantage. The competition between companies forces them to improve their products keeping the competitive price. Quality and price usually drive the consumers. So, new techniques, new materials and new processes are often developed to satisfy these clients. Besides developing competitive products, companies that want to survive in this competitive scenario must improve its internal processes too.

Companies always had a good care of manufacturing; Ching (1999a) said that supply chain was forgotten until the fifties. He also said that by that time, production management usually took care of transportation and inventory was by marketing's responsibility. Still according this author, many logistics concepts used today were developed on the second world war.

2. Reason and supplier selection

2.1. Why improve purchasing process?

Lewis (1997a) said that none company, working by itself, could differ its products, the way it could be done with its suppliers help. Beyond it, Figueiredo and Reis (1994) said that there is a huge gap between Brazilian and world wide industry indicators.

Usually when a company decides to become more competitive, because selling dropped or because they want to increase their market share, the high management points its attention to the factory. Many times, the main idea is to "produce more with less". So, to produce faster, workers can improve the setups processes, can change the layout to improve the material flow, and can change some tools to improve the material transformation processes. To reduce the

scrap, quality department can follow all operations, identify the ones with worst level of scrap, analyze the root cause, develop and implement a plan to minimize the problem. To reduce cost with energy, shifts can be changed to avoid working on the periods where electrical energy is more expensive. To reduce man power, the company can buy more automatic machines, or layout can be changed to work in production cells instead of lines, so one worker can take care of more than one machine.

Besides those, many others actions can take place to produce more with less. Even though companies can improve the production processes, they can also look fader and improve other processes outside production that can bring more results, like purchasing. According to Copacino (1997), the North American companies did almost everything that could be done to optimize the intern processes, now is time to look beyond the walls and apply these improvements on the entire supply chain. Christopher (1997b) said that one of the companies' competitiveness strategy founts is the management of the supply chain. Recently, authors have noticed the importance of the suppliers; Silveira (2005) said that to react to the scenario changes is vital that companies could share some of theirs internal activities with suppliers, in order to be more flexible.

Figure 1 shows a schematic monetary flow of a facility, where a certain value gets into the factory as raw material. Besides that another portion of money is speeded to transform this raw material. The final product cost is an addition of the raw material cost and all other facility expenses, called overhead (70% direct and 30% indirect, for the example).

As a way to facilitate the example below, selling price will be 105 monetary units. It is driven by market, and in this example, 100 units are the cost and 5 units are the margin originally.

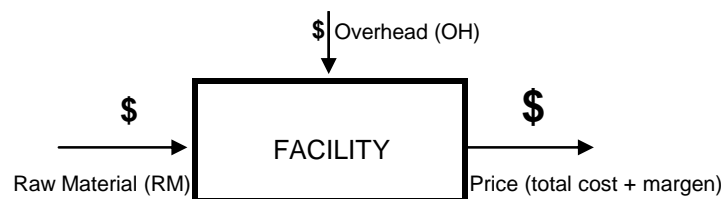


Figure 1. Example of a facility

Selling Price (SP) = 105 units

Total Cost (TC) = Raw Material (RM) + Direct Overhead (DOH) + Indirect Overhead (IOH)

Margin (M) = Selling Price (SP) – Total Cost (TC)

Ex.1 – Raw Material (RM) = 50% of the total cost.

* Reducing 1% on RM

$$TC = RM + (DOH + IOH)$$

$$TC = 49.5 + (35 + 15) = 99.5$$

$$M = SP - TC$$

$$M = 105 - 99.5 = 5.5$$

- Margin increases 10%

* Reducing 1% on DOH

$$TC = 50 + (34.65 + 15) = 99.65$$

$$M = 105 - 99.65 = 5.35$$

- Margin increases 7%

Ex.2 – RM = 60% of the cost

Reducing 1% on RM / Margin increases 12%

Reducing 1% on DOH / Margin increases 5.6%

Ex.3 – RM = 70% of the cost

Reducing 1% on RM / Margin increases 14%

Reducing 1% on DOH / Margin increases 4.2%

This shows how purchasing can influence the margin and give a competitive advantage to the companies. So it is necessary to work closer to the main suppliers and improve the purchasing process with them.

Lewis (1997b) said that supply chain is moving to the direction of integration.

2.2. Choosing suppliers that can provide better results

It is very difficult to develop partnership with all suppliers at the same time due to the time requested to do it. Supply Management must choose a certain number of suppliers according to the number of workers (strategic buyers) and number of projects each one is involved with at the moment. To select the main suppliers for this program it is necessary to list them according to:

1- Annual invoice size.

→Any financial result will be more representative.

2- Perceptual or number of items with high technical importance and high cost. Many companies split theirs items into four categories, A, B, C and D, according to the cost and technical importance of the items. In this case, suppliers with more A and B items must be listed.

→Any technical and financial result will be more representative.

3- Representation of the annual invoice size on suppliers' annual financial results.

→It shows how important the company is for each supplier. It can help to develop the program easily because of the support the supplier might give.

4- Easy access to the high management level of the suppliers.

→Once the high management is convinced on how beneficial this program could be for both sides; themselves will decimate this knowledge through operational levels.

5- Suppliers' location.

→This location could make the time frame to develop the program shorter. The closer the supplier is the easier is to visit it to solve a problem or a doubt the supplier might have.

After defining the main suppliers the program is developed with each one of them individually.

3. Methodology

3.1. Description of the partnership program

The idea of this program is to involve the suppliers in all steps, since the beginning of it. This strategy will improve the results because suppliers will feel more confident and proud of being participating, not just on the implementation but on the definitions too.

This program has three phases, as showed on Fig. 2, and it was developed in a year time frame. Although this pilot took a year, it is a program to last while commercial relationship exists.

Phase 1: Conceptual – Definition of partnership and its benefits

Phase 2: Introduction – Definition of the projects to reach the goals

Phase 3: Practice – Implementation and tracking of the projects

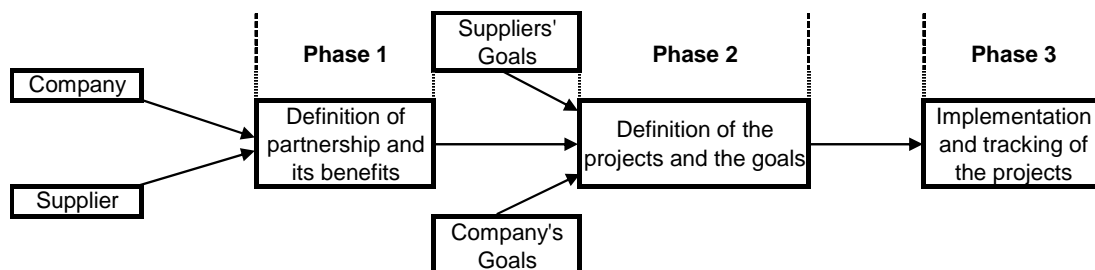


Figure 2. Phases of the program to develop partnership with suppliers

3.2. Definition of partnership and its benefits

The entire program must be developed individually with each supplier. It is because suppliers have different opportunities of improvement on its processes and this program was created to identify and improve as most opportunities as possible.

This is the first contact with suppliers about the subject, so it must start with a brainstorm. The idea is to build up the definitions together with suppliers. It can start with the following questions:

What do you understand by partnership?
 What can I (company) do to help you?
 What can you (supplier) do to help me?
 What can we do together to increase or improve our business?
 What can be done to satisfy the final client?

After the initial discussion, the strategic buyer must lead the conversation to come up with a definition. It must be clear to the supplier that if everyone on the supply chain add the efforts, the results will be greater, as showed on Fig. 3.

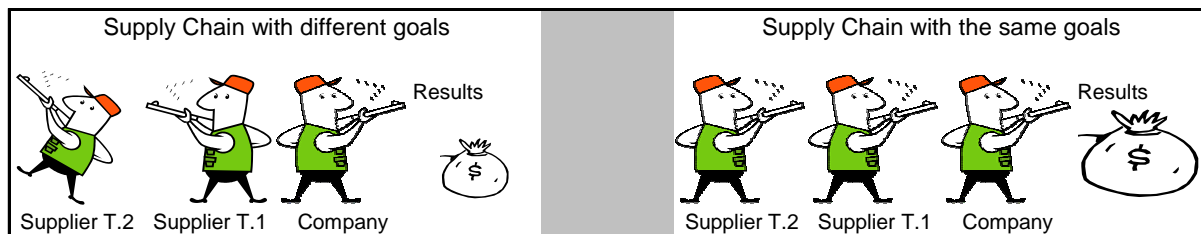


Figure 3. Results on supply chains with same and different focus

The summary of all contributions became that, partnership is the union that improves the synergy among company and suppliers increasing the individual results.

3.3. Definition of the projects and the goals

According to the company's goals the partnership projects could be adjusted. The projects developed on this pilot were related to the following topics:

| | |
|---------------------------|---|
| Cost Reduction | – keep the final product as competitive as possible |
| Purchasing Program | – decrease the inventory level and the costs related to this activity |
| Communication | – shorter the distance between the company and its suppliers |
| Quality | – standardization of quality requirements among company and suppliers |

The strategic buyer develops some project for each of these topics with every chosen supplier. Zairi and Leonard (1995) said that competitiveness is the ability to define rational capacities through strong and weak points. So buyers must find as must improvement opportunities as possible for every one of the topics. Each project was unique for each situation, for example: for cost reduction there were projects to improve the material flow, to minimize the scrap, to change the raw material supplier (Tier 2), to change the production machines for more sophisticate ones, to change the material used to manufacture the parts, to change the production process and even to modify the parts.

The challenge was to manage different projects with different objectives successfully, to reach the company's goals.

3.4. Implementation and tracking of the projects

After the projects were defined, it was necessary to start implementing them.

Besides defining individual projects for many suppliers that together should make sure the company will reach its goal, the strategic buyer must guarantee the success of each project. To make it a little more difficult, market is very dynamic, so it is imperative that strategic buyer track these projects during the entire period.

Cost Reduction

To motivate the suppliers to propose changes on their parts and production processes, each achieved reduction was split with them. Cost reduction started to be seen by suppliers as a way to increase their margin. Many projects were developed exploring the opportunities of each supplier. Raw material and tolerances changes on the parts, layouts, set ups, tooling and machines changes were the main projects developed to chase cost reductions.

Purchasing Program

The goals were to decrease the effort put on this activity as well the programming errors. At the same time inventory level should reduce, so the company could run with less capital. To achieve it, suppliers delivering must occur more often. Figure 4 shows two situations, where supplier A delivers its goods not as often as supplier B, so, in this case, the company carries a larger inventory.

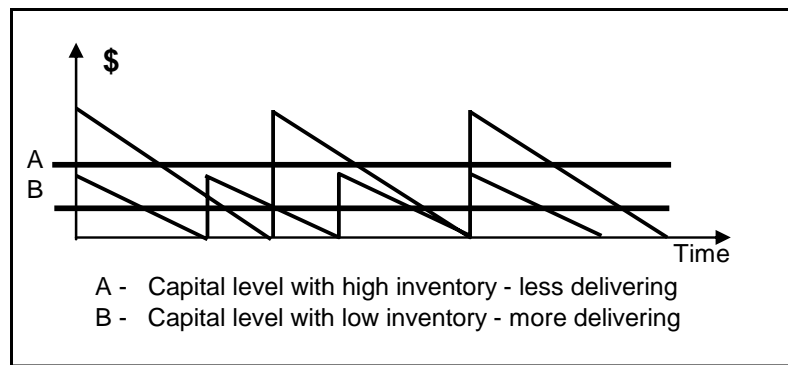


Figure 4. Inventory level according to delivering frequency

Communication

To improve the technical/commercial relationship with suppliers it is necessary to improve communication. The idea is to make suppliers feel like part of the company's group. So, to make the suppliers interact more with the company, it was necessary to open communication channels between the main departments such as, Engineering, Quality, and Manufacturing. Figure 5 represents company and supplier working together, interacting more and working by themselves, without a good interaction.

Supplier and Company working by themselves



Supplier and Company working together as part of the same group



Figure 5. Company and suppliers working as part of the same company's group

Quality

Neither changes nor improvements could be done if the quality of supplied parts dropped. So to increase the efficiency without increasing the effort it is necessary to work closer to suppliers controlling quality the same way in both sides.

4. Results and Discussion

This pilot was developed with a few suppliers and the more expressive results were:

- All suppliers reached the cost reduction goal of 3% and one of them reached 4%;
- Simultaneous engineering was well developed and lots of projects came up through this process;
- Inventory dropped 5 days in average;
- Suppliers delivering on time increased from 74% to 92% in average;
- Communication between company and suppliers improved through new opened channels in different departments like, Quality, Engineering and Manufacturing.

A lot of cost reduction opportunities were explored with the suppliers. Besides increase their margins, these projects made the commercial relationship stronger and the suppliers more confident that they will keep up with the business.

Many cost reduction projects came through the simultaneous engineering. Good communication channels were opened between the suppliers' and company's engineering departments. It made possible to exchange valuable information to better the parts with improvements on the final products, on the assembly processes and on cost. Lots of changes were implemented during the period of this program, and many others were still in test after 12 months. In addition to that, a new procedure called DPAR (design process assembly review) was implemented with all suppliers. So, all new parts must be analyzed by company and supplier together before shipping the samples. This procedure would make sure suppliers understood well the draw of the parts and give them the opportunity to request any change on the part that might be necessary to improve it somehow.

Inventory was measured by the number of days it would last if purchasing department stopped to order parts. Projects to decrease the delivering lots sizes and increase the frequency of these delivers were developed with each supplier. In order to not increase the manpower some other projects started to be discussed with suppliers like kanban. As Schneider (2005) said, the main objective of the kanban system is the autonomous production lines supply, with reduction of manpower, planning and inventory.

Although the number of delivers increased to minimize the inventory level, suppliers delivering on time got better. All this was possible just after the suppliers got aware of the importance of the delivering on time for the company. Some suppliers thought that there should be no problem if they shipped parts before the ship date. Others thought that ship date should be the arriving date at the company. Then the strategic buyers explained to all suppliers about the importance of delivering and that ship date was the invoice date, so it did not matter the transit time of the goods all suppliers were measured by the system.

Almost all projects depended on better communication between company and suppliers. So, strategic buyers led the opening of new communication channels. They also showed to the suppliers' high managers how important was to have the different departments working together, for the business.

Besides the expected results, some others showed up during the development of the program. The majority of suppliers complained about the purchasing program, especially the forecast. Company started to send to suppliers purchasing program and forecasts more often according to their necessities. This action resulted in better suppliers' satisfaction. Other good result was the time, all projects were developed without increasing the manpower, and this showed that when company and suppliers are aligned, the daily activities run faster and more efficiently.

By the end, the company decides to have just two fixed pay days per month for all payments made to suppliers. The suppliers in the program were the first ones to follow the new rule. One of the suppliers implemented the same change with its major supplier.

5. Conclusion

5.1. Last comments

The actual competitiveness and the desire of making things always better and better, have motivate many companies to change the way to do business in order to achieve the excellence. World wide companies have invested to improve the technical/commercial relationship with their suppliers as a way to stronger the supply chain and get over their competitors. According to Lewis (1997c) a company just delivers its maximum if it also receives the maximum too; and he also says that this can just happen in an environment of cooperation.

5.2. Conclusion

The developed methodology worked well, and the main objective – develop partnership with some suppliers – was reached.

It was also noticed after 12 months of work some improvements on fields such as:

- Simultaneous Engineering: the company's and suppliers' engineering departments started to interact more among themselves;
- Purchasing Program: forecasts were sent according to suppliers' necessities. Delivering lots sizes decreased, as well the inventory levels. Payments started to be made in just two fixed days per month;
- Communication: more contacts between company and suppliers were made through the main departments;
- Quality: Company and suppliers started to control and measure quality on the same way;
- Company's Goal: All goals were reached by those suppliers in the pilot project;
- Focus: Company and suppliers lined their focus and increased the synergy.

In general, the results were so good that some suppliers started to develop the same methodology with their suppliers (tier 2).

Although it is a long term program, companies must invest time in developing partnership with suppliers to improve their business. It also makes the supply chain stronger and share knowledge among the integrants.

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7. Responsibility notice

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