

# SILO EFFECT VS. SUPPLY CHAIN EFFECT

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## ABSTRACT

*“Your company’s goal is to make money or it’s not in business” (Goldratt, 2004).*

*The input of this article considers Goldratt’s quote. It is vital for any organization to integrate its departments together and to create a big frame for its business strategy. We become aware about the interdependence relations between silo effect and supply chain effect. Silo mentality exists due to the fact that everyone works in his or her best interest, in order to achieve the best level of performance, regardless of the effect that might have upon others. The silo effect manifests in the supply chain effect through the bullwhip effect, lack of partnership or combined effects of fundamental phenomenas. The main direction to eliminate this effect is to create a matrix coordination system in which each worker knows his hierarchical statute and also the quality requested. The outcome must be the client’s satisfactions by all means.*

**KEYWORDS:** *Silo effect, Supply chain effect, Bullwhip effect*

## 1. Introduction

Life experience has proven for everyone that integration within the environment is vital. If you are a person that can’t adapt to your environment you will become an outlander. By integrating we mean that you must adapt to everyone else, you must be integrated in a social network, and you must do things in order for everybody else to be able to adapt to you and to your work.

The biggest companies are aware that is important to get to know very well your supplier, and also your client. The same thing is valid also for the suppliers. So, in a bigger picture, we must understand that the roles are permanently changing. Those who are now suppliers, at the end will come to be clients. The clients will be suppliers and so one. It’s as easy as the human nature is. Now you are a child and you have parents, but in a few years you will be that parent and you will have children.

The topic of this article is the silo effect versus supply chain effect. In order to assimilate those distinctions, or better said the influence between those two, first you must be aware by what silo means, what supply chain means and just when you think you got it, you will be informed about the real problem of our business life.

## 2. What is the silo effect?

The silo effect is a phrase that is currently popular in the business and organizational communities to describe a lack of communication and common goals between departments in an organization. The silo effect gets its name from the farm storage silo, probably because there could be two silos right next to each other and if people were inside them they could not be able to communicate, since silos are tall, narrow buildings with no windows and are even supposed to be airtight.

Another, slightly more academic, suggestion is that the term silo effect focuses on the gradual draining of the entire silo's grain from a remarkably small opening in the bottom. The homogeneous state of the entire volume of grain makes it highly susceptible to small changes as they occur further and further down. Moreover, the nature of grain makes it an excellent example of a "poorly connected" substance, prone to cascades of extreme collapse when they occur in favor of the systems overriding unified force.

Silo technologies also restrict the capabilities of the applications managing much of the world's structured information. While many applications are very powerful, even the most sophisticated ones are built upon the silo's model.

### **3. But what is the effect of the silo?**

Upon whom do we see it better? It's all about the client.

The priority system is divided on departments. In this way, every department is preoccupied in about doing its own job, and is very rare that by this they understand that the main purpose is that the product must reach the client in the shortest time possible.

What is the influence, positive or negative, of one department upon other one? The accountability is established hierarchically, and almost in all cases this flow is too long. We can see delays and many filters depending on the importance given to a process by a different hierarchical position, and because of this we end up keeping our time occupied and with little information on the client.

What is my problem as an employee of a company? Due to the hierarchical aspect, I'm interested in having a lot of good performance indicators and when it comes to the next person, well...those are HIS problems. In every company, the biggest problem, caused by this silo effect is that dead times are occurring, times in which every worker says that another one had to do some special work. Somebody else and this means certainly not him. We call this "white spaces".

This problem occurs also at the remuneration system. Incentives we usually offer are based on the assumption that the usability of any worker is determined by his own potential. False. There are so many cases in which the worker is more influenced by the others related to his work than he is by his own work. So that, in this case the one who can influence is exactly the one whose mind is set on obtaining the best performance level, regardless of his partners, then, the consequences may be disastrous.

Coordinating and managing distributed entities in a supply chain is a challenging task due, in part, to conflicts that occur in such systems. If not handled effectively, the conflict can degrade the performance of the system as a whole due to the fact that each individual entity may be working towards goals that sub-optimize the integrated system.

### **4. What is supply chain?**

Supply chain's initiatives over the last decade, while frustrating at times, have proved enormously beneficial to businesses. The most successful innovators viewed the supply chain as a strategic tool for changing the rules of the game. As a result, supply chain management and shareholder value are closely linked, and supply chain management will continue to have a major role in corporate success.

Supply chains need to provide an adequate service level (minimizing stock-out costs) while controlling overall costs of holding, ordering, transporting, and purchasing. The continuous relationships found in supply chains often include lower purchasing costs for the core supply chain member, which may pass these savings on to customers (another form of better service). If the vendor (or supplier) has more complete information about demand, they might manage more efficiently their operations.

When we have a well defined supply chain, the problem in the outcome will reflect exactly who is responsible for. We will not be influenced by the negative variation, and we will benefit from the positive ones. In our days, if somebody does something better or faster, this advantage will be lost, due to the process respecting the silo mentality, the second phase of the process is made so it can start at an established moment with an established outcome coming from the previous. So.. the positive effect is lost. If we have some negative effect, this will influence the next step, because he will either not have the right resources or the opportune moment to accomplish its task. So.. the negative effect will add up until it will affect the final outcome.

A number of factors can impede external process integration along the supply chain, causing information to distort, longer cycle time, stock outs, and the bullwhip effect, resulting in the overall costs and reduced customer service capabilities. Managers can identify these obstacles and action to eliminate them, resulting in improved profitability and competitiveness for the supply chain members.

Too often, companies do not consider the impact of their actions on their supply chains, long term competitiveness and profitability. An “I win, you lose”, silo mentality can stand out when using the cheapest (or hungriest) suppliers, paying little attention to the need of customers, and assigning a few resources to new product and service design. Particularly with companies involved in global supply chains, silo mentalities can crop up, stemming from cultural differences.

In 1980's Rover formed a partnership with Japan based Honda to provide products for its new model program. The arrogance of Rover managers and the lack of a learning culture prevented Rover from achieving any benefits from the partnership. Later on, the fighting became even worse. The problems led to dissolution of the partnership. The biggest problem was the silo mentality, and by this we mean failing to see the big picture, and acting only in regard to a single department within the company, or a single company within the supply chain.

In our days one of the greatest problem is that we only want our good health, even if that means that we will put everyone else in hospital. When we choose a supplier, what is the first thing we will focus on? The price! We are able to let go our 20 years old partner if somebody new, with lower list prices approaches us. This is a big mistake. The most important thing in creating a business is the partnership. We must understand that our business works due to the business of somebody else, and also that we will make somebody's business to work, in every way. We don't see the connection. We only have that destroying approach, when we want the best for us and...that's it.

### **5. What are the exact problems?**

Well, the supply chain will not work if we have the silo mentality. So, in this case, we will be confronted with the white spaces, the bullwhip effect, and the lack of partnerships or with the growing effect of fundamental events. In supply chain, exactly the silo effect is the one who gives a negative mark.

Some researches show three typical behavioral patterns which characterize the distortion of demand moving upstream in the chain (retailers/ wholesalers/ distributors/ factory): oscillation, amplification and phase lag. This distortion in demand is known as the bullwhip effect described previous. Yet, industry worldwide still has to cope with bullwhip measured not just in terms of the 2:1 amplification which is frequently quoted, but sometimes it is as high as 20:1 from end-to-end in the supply chain. This can be very costly in terms of capacity on costs and stock-out costs on the upswing and stockholding and obsolescence costs on the downswing.

In order to understand exactly how the silo effect can introduce the bullwhip effect into the supply chain, I quoted Michell T, in his writing “Competitive illusion as a cause of

business cycles”: “Retailers find that there is a shortage of merchandise at their sources of supply. Manufacturers inform them that it is with regret that they are able to fill their orders only to the extent of 80 per cent: there has been an unaccountable shortage of materials that has prevented them from producing to their full capacity. They hope to be able to give full service next season, by which time, no doubt, these unexplainable conditions will have been remedied. However, retailers, having been disappointed in deliveries and lost 20 per cent or more of their possible profits thereby, are not going to be caught that way again. During the season they have tried with little success to obtain supplies from other sources. But next season, if they want 90 units of an article, they order 100, so as to be sure, each, of getting the 90 in the pro rata share delivered. Probably they are disappointed a second time. Hence they increase the margins of their orders over what they desire, in order that their pro rata shares shall be for each the full 100 per cent that he really wants. Furthermore, to make doubly sure, each merchant spreads his orders over more sources of supply.”

## **6. What can be the solutions?**

The main attention must be retained by the fact that the client is satisfied by the process, not by the hierarchy. He doesn't care what is going on in the company; he cares only about the product, about the final outcome.

We already established that the main focus is the client, and what he wants. So, if we will have our organization focused on the product manufacturing, will that work? No, because we won't have specialization therefore we will not be able to coordinate the company policy. We must compare the functional organizations with those focused on the product. Somewhere in the middle is the matrix structure, the structure of the compromise. By matrix we mean that every worker will feel the existence of one boss pressing on and also some expert in their area, somebody who will be focused exactly on what they are doing.

If we are driven by the silo effect in every department, we use the resources at their full capacity. This will destroy for sure the horizontal effect. Because of this we must look for the bottleneck and we must exploit it to the maximum. When we find the bottleneck, we must be aware that this resource is the most important. And because of this we must subordinate it to the worst department. But how is this possible?

A life example proves that, the company X, when confronted with this situation, took the initiative to reward the bottleneck department by what he was working, and so, saving money with those who didn't deserve it. What was the effect? They lost all their clients!

If we had found the bottleneck we must subordinate all activities to that point. Until our product doesn't reach the client, we will not get the money. If we have some tight points, it is useless to add efficient activities, because at that point, nothing more than previous will pass. We must use the bottleneck resource in order to accelerate the flux. For this we use the five steps methodology. The process of optimizing throughput consists in: identifying the system's bottleneck; deciding how to exploit bottlenecks; subordinating everything else to the bottlenecks; elevating the systems bottlenecks; fixing the next bottleneck; and most important is the warning: do not let inertia to cause a system constraint !

Whatever the bottleneck produces in an hour is equivalent to what the organization produces. Every hour lost at a bottleneck is an hour lost of the entire system.

A bottlenecks time is wasted when: its product is sitting idle during a lunch break; it is processing parts that are defective; it is producing parts that are not needed. Every

minute of downtime at a bottleneck translates into thousands of dollars of loss throughput, because without the parts from the bottleneck, you can't sell the product.

Therefore, you cannot generate throughput

*Moment of Zen: Sometimes the first step is the most valuable one to take.*

## **7. Conclusions and further debates**

Decisions are made upon the results from the previous link and not regarding the final outcome. So, we will become stockholders at every stage of the process.

If we can get some very small costs at every stage but we can not complete the process, those will be inefficient. It is useless to have great components if they can not form anything together. This is the point where we can speak about the contradiction between the flux and the local performance. This is the main reason for which we must subordinate everything to some other one. If our main purpose is to use every resource to maximum capacity we will be in bankruptcy. If we get used to employ the resource at its highest capacity, we will do the same even if it is not necessary. Working at full capacity is very different from what fluid working means.

We have always wondered if people understand what is the only way that they can create excess inventory? The answer is simple: this is produced by having excess manpower. What happens if your system has excess capacity? .... You can manufacture the product at the cost of the materials.

You should not balance capacity with demand. Instead, balance flow of product through the company with demand

In the world of product development and specifically requirements management, they talk a lot about building a "central repository of requirements" or a "single system of record". But, why is that important? Or does it solve any problem? What's the real value in creating a central hub of product intelligence? The main purpose is to make money now and in the future, as Goldratt says. In order to make money you must assure yourself that the product reaches the client. The main action is to increase the positive effect of the horizontal part of the process. The horizontal part is the one which assures the client satisfaction.

This article also opens discussion on the way that you must build the attitude of your partners in the business. You must eliminate "Silo" thinking where many members of your team are only focused on their own competences or departments, reframe your top managers' perception so they move from Crisis Management to High Performance Leadership. You also must transform the usual resistance to change, which requires great effort to "push-in" changes, to a highly motivated situation that will "pull-in" changes for improvements. Further more you must enable your team to create "joined up solutions" and eliminate "white spaces" and you must find a mean to measure performance in a way that will focus the whole organization on maximizing Value

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## References

1. Blackhurst Jennifer, Tong (Teresa) Wu, Craighead Christopher W., 2006, "A systematic approach for supply chain conflict detection with a hierarchical Petri Net extension", *OMEGA-The International Journal of Management Science*, pp. 680-695, accessed la 01 Nov 2009, [www.elsevier.com/locate/omega](http://www.elsevier.com/locate/omega)
2. Chopra Sunil, Meindl Peter. *Supply Chain Management – Strategy, Planning, and Operation* - second edition, publisher: Prentice Hall, date published: April 7, 2006
3. Foster S. Thomas. *Managing quality: Integrating the supply chain* – third edition, publisher: Prentice Hall, date published: 2006-05-18
4. Fotache D., Hurbean L. *Soluții informatice integrate pentru gestiunea afacerilor-ERP*, Ed. Economică București, 2004
5. Geary S., Disney S.M., Towill D.R., 2005, "On bullwhip in supply chains—historical review, present practice and expected future impact", *The International Journal of Production Economics* 101 (2006) *Management Science*, pp. 2-18, [www.elsevier.com/locate/ijpe](http://www.elsevier.com/locate/ijpe)
6. Goldratt, Eliyahu M., Cox, Jeff, *The Goal: A Process of Ongoing Improvement* (Paperback), 2004
7. Martin James W. *Lean Six Sigma for Supply Chain Management The 10-step solution Process*, publisher: McGraw-Hill Professional, date published: 1 Nov 2006
8. Mitchell, T., 1923. "Competitive illusion as a cause of business cycles". *Quarterly Journal of Economics* 38, 631–652.
9. Waller Derek L. *Operations management – A Supply Chain Approach* - second edition, publisher: Thomson Learning, date published 6 Feb 2003
10. Wisner Joel D., Keong Leong G., Tan Keah-Choon *Principles of Supply Chain Management - A Balanced Approach*, Publisher: South Western Educational Publishing publishing Date: 2008
11. Wu Desheng, Olson David L., 2008, "Supply chain risk, simulation, and vendor selection", *The International Journal of Production Economics Management Science*, pp. 646-656, accesat la 28 Oct 2009, [www.elsevier.com/locate/ijpe](http://www.elsevier.com/locate/ijpe)
12. \*\*\* *Supply Chain Management Journal*
13. \*\*\* *Journal of Business Logistics*
14. Supply Chain Council - [www.supply-chain.org](http://www.supply-chain.org)