

Diagnosis of Synergy Versus SCM Improvement

Olfa jellouli

ISTL

Street Hey riadh

4023

Sousse

Tunisia

Olfajelloulijmoins3@gmail.com

Abstract— Faced with globalization and competition, leaders are looking for new concepts allowing them to keep the improvement of part of the market. Synergy is a way for his last in the case of multi- sites. It has now become a key factor of competitiveness. The question is then how to diagnose a plan of action in order to achieve excellence in industrial management. This is the subject of the following article. It's a contribution for précising typology of synergy.

Keywords— Synergy, tip, SCM, sharing information

1. Introduction

The word synergy means " sun " (with) and " ergon " meaning work "association of several organs for the performance of a function" The Anglo- Saxons call synergy or synergism in the 18th century which means cooperation. Synergy can be identified with the association and cooperation of elementary actions with economy towards a specific goal. You can use this term to mean the result of efficient actions and cooperated to achieve a mission or a combination of several functions of several factors that infer a single action to an overall effect. In fact, many have proved that sharing information can improve the company efficiency ([1], [3], [4], [5], [6], [7], [8], [9], [12]). Note that the synergy effect is to take a fruit from an interconnected group : total competitiveness. In this paper, we are based on this definition : Synergy is the comparison with or without fusion process site or resource based on global optimization or strategies based on a virtual company . We think in our case the multi-site group.

2. Typology of the Synergy

The work related to synergy must be done by a SC manager orchestra who will give orders to many SC managers for having information about the different processes related to the company

2.1 Synergy at the Level of Design

We must collect the wishes of customers for new products from different production sites. We must make interdisciplinary brainstorming meetings for the integrated design. We can develop a functional analysis before each conception.

2.2 Synergy at the Level of Process Management

You have to compare the processes and use the best. For example if a company uses (s,q) instead of (S,T) for stock management and have better results. We must standardize the first method for a better satisfaction demand rate.

It's also to use the result of fusion of best practices identified in each company. As an example, i develop the best practices in maintenance in section 4.

2.3. Synergy at the Level of Production and Maintenance Processes

After description of processes, we choose the best for standardization in a continuous manner. We note that this work requires high level of technical skills. Thus, the scmanager orchestra must be an engineer.

3.4. Synergy at the level of SI Tools

We must have functional analysis tools based on business needs for using the best tools or developing a specification for a new tool. For example, if a GMAO is satisfying in some functions, and, another in another site is satisfying in other functions; we mustn't choose one of them but make

a specification of a new tool who will be efficient as if we had a fusion of the tools.

2.5. Synergy at the level of Skills

We should invite more experts for visits to all sites. This is very known in literature. In fact one subcontractor was to make failure and succeed to make improvement in a company thanks to an expert of the company.

2.6. Synergy at the level of know-how

We must have a functional analysis of know-how, note the workers and engineers according to their competence and make the best trainer. This is may be can be done by human resource agent buy giving orders to directors to complete forms. This work can be very well done by an engineer.

2.7. Synergy at the level of supply

We must group purchases and purchases must be made through a cross-docking. I note that cross-docking is a repository for group buying. For our point of you, if the company can make it without credits, we must use CCRP_MS (Cumulative collaborative Replenishment Management for multi-sites group. It consists of regrouping the demand of raw materials of the three months, buy them and put them in the cross-docking. This later method can implicate a reduction of the cost of the product since we will be able to ask sales. Moreover, it reduces the earth pollution; in fact, less transportation tool will be implicated in few quantities to be transported.

2.9. Synergy at the Level of Tip

It is to compare the effect of tip and try to use those that have allowed the company to improve its efficiency. We must also make a fusion of data.

For example, in case of poka Yoke, we must use the results of all the TIP made in all the sites to improve productivity. In case of Brainstorming, we must have a table which will include the problem and the solution for all companies by category. We can improve with synergy the time of the resolution of the problem. In case of monitoring maintenance, for machines of the same type and the same degradation rate, we must make the fusion of data after, we must make the mean value. With this later method transforming corrective maintenance and preventive maintenance can be more efficient. It's the same think in case of logistics audit.

2.10. Synergy at the level of strategies

It consists of a comparison of the different strategies. Then a chief manager (scmanager) choose the best strategy to adopt. This is can be useful in case of having few families of products and all the companies produce the same one. We emphasizes that the directors must make a meeting to

know how to use data of the company and the customers to succeed in making strategies

2.11. Synergy at the level of resources

It is to implement strategies in manufacturing (eg each site handles a family product) It is also consists of training to improve the level of human resources

2.12. Synergy at the level of sales

It is to organize for example a comparison of methods for obtaining customers.

2.13. Synergy at the level of experiences

We must share information about failure experiences and successful experiences. For example, if a company had had problems to implement for example TPM, the director must inform the problems to all the others directors of the other websites.

3. TECHNIQUES FOR IMPROVING PRODUCTIVITY

This section develops the (TIP) techniques to improve productivity described in the book [2] . Indeed, a good logistician must know them to be implemented in the company.

3.1. TIP 1: AUDIT PERFORMANCE MACHINE

We must specify in a table stops, their durations and their natures. Also, check the production rate and product quality.

We must indicate whether it is :

- a failure
- a lack of raw materials
- defective raw materials
- defective tools
- lack of tools
- non-performing human resource

3.2 TIP 2: Field Performance Audit

For each step (generation, transmission, control or hold), we must calculate the losses of the company. We must

also specify the origin of the problem and how to solve the problem as quick as possible.

3.3 TIP 3: Performance Audit Labor

We must specify in a table causes of losses, their duration and observations about the loss.

3.4 TIP 4: Flow Performance Audit

We must identify the percentage losses in manufacturing operations, transportation, control or wait for each process. We must indicate also the origin of losses and how to resolve problems linked to them very quickly.

3.5. TIP 5: Poka Yoke

We must specify the rules of operation of the machines and the company in general by displays.

3.6. TIP 6: Monitoring the Maintenance

For each component, it must be statistics on failures and their frequencies.

3.7. TIP 7: Animation Objectives

A successful company must set goals based on performance indicators. During its lifetime, the indicators are calculated and also the deviations from targets.

3.8. TIP 8: Art of Instruction

At the end of each year, training needs are identified and training is carried out.

3.9. TIP 9: Self- Control

This is to achieve the quality control records. It consists of analyzing the statistics with the standard method of considering "the mean value of data follows the normal law". This is will be discussed in future works since the random variables differs for their nature and maybe the statistics methods of analyzing variables introduced in [1] will be discussed in future works about quality.

3.10. TIP 10: Autonomous Maintenance

It consists of the operation of maintenance done by the production agent; indeed, production workers are more familiar with the machines and can better identify anomalies.

- The first step is the initial cleaning.
- The second step is to eliminate sources of contamination.
- The third step is the lubrication and tightening of fasteners.

- The fourth step is to prepare the inspection by sight, smell, touch and hearing.
- The fifth step is to list the self-maintenance operations.
- The sixth stage role is to exploit the self-maintenance in finding solutions for faults and standardizing tasks.

3.11 TIP 11: Brainstorming

It consists of achieving a meeting for discussion and exchange of ideas. The group consists of 8 to 12 people. They must have a minimum of skills to deal with the problem. The fresh eye can be useful. Regarding the animation, you must raise your hand to be recognized, producing many ideas in a short time, unleash the imagination and critique is prohibited. The facilitator should rephrase unclear ideas, respect the rules, raise responsiveness, listen and decide the end of the session. For its operations, he must classify ideas and communicate. He must adapt ideas based on their originality, realism and profitability.

4. Best Practices in Maintenance

We introduce in the following the summary of the ref. [11]

4.1 General Organization

First, the organization of the maintenance shall be defined in writing. Second, areas of responsibility and initiative of everyone in the organization should be clearly defined. Third, the monitoring and supervision of staff as internal execution subcontractor must be defined, the energy management and new construction must be managed by the maintenance department, Forth, Relations with the production, procurement, management control, human, legal services and resources studying new facility should be well described.

4.2 Orientation Maintenance

First, the objectives of the maintenance function must be described, known and displayed and approach to eliminate the judgments and other dysfunction should be clarified. Second, failures must be accounted. Third, reliability must be improved. Forth, Approaches to decrease maintenance costs must be described according to a goal and maintenance must be carried out so as to be at the service of production, the safety of people and property, Fifth, everything must be done to control expertise maintenance and the maintenance department should not be based on a few people

4.3 Relation to Production

First, we must organize Regular meetings periodicity close to evoke and resolve problems with user facilities. Second, we must make periodically report to the

production or maintenance department customers. Third, we must specify the tasks supported by the manufacture. Forth, we must make requests for work by production and it should also specify the level of involvement of operators. Fifth, dialogue between production and maintenance should be easy and solving common problems should be performed.

4.4 Management System

First, we must make a budgetary control generating fast results at the end of each month. Second, we must master the big interview and we must think in full cost. Third, we must know the cost at a "block of manufacture". Forth, we must control the activity following the type of maintenance curative, preventive or improvement in hours and cost. Fifth, we must follow the hours individually, You must use a dashboard with indicators relevant edge and make a monthly report of activity

4.5 Treatment Failures

First of all, we must know the ability of stakeholders to resolve outages (Must be specified by the technical office). Second, we must make, rational diagnostics and reporting systematically. Third, we must know the operators involved in the diagnosis, Forth, we must establish a systematic account or troubleshooting report .Fifth, we must follow the frequency and severity of failures and we should always save any failure and whatever their importance and gravity. We must also know the number of incidents and their causes and take the time to analyze the malfunction occurred. There must be duly thoughts improvements. We must act on the use of equipment and how to use them

4.6 Preventive Maintenance

First, the maintenance plan must be established for each device. Second, we must build how the maintenance plan is built and we must establish its update. Third, You must use a formal method of analysis and organization of preventive maintenance. Forth, We must plan for scheduled maintenance and we must establish preventive maintenance per card. Planning must be precise. The report must be made .We must know the competence of stakeholders and we must know the records. They must be specified indicator. Fifth, we must know the manner in which occurs the overall progress of prevention, Preventive maintenance should be made up during the weekend and holidays.

4.7. Portfolio Management Work

First, you must use a document work order for any intervention maintenance, small or medium or large. Second, we must register each application; we must plan and prepare interventions. Third, we must establish the manner in which interventions are prepared. Forth, we must have procedures for repetitive or complex

procedures, specify the scheduling system interventions, workload followed.

4.8 Monitoring of External Service

First, We must identify areas outsourced and formalize specifications; Second, we must specify the appropriate method of procurement, Third, We must specify the job starts, permits, authorizations Day Job, Forth, We shall specify the manner in which we Work with outside companies, spending controlled packages .Fifth, we must specify the control job done. We must specify the receipt of interventions.

4.9 Technical Monitoring Equipment

First, we must establish procedures for project management. Second, we must consider the service specifications, Third, we must have a complete and current inventory of equipment to maintain. Forth, we must give the carvings and appropriate identifications and all records must be accessible. Fifth, we must have information on the history of preventive and changes made and parts consumed and Technical issues must be carefully stored, sorted and updated.

5. Case Study

We applied a diagnosis identifying whether synergies above exist in leoni (Tunisia) and we led to this result:

-a successful synergy at the level of designs, at the level of process management, tools, skills, know-how supply, resources, experiences. A lack of synergy at the level of TIP, strategies, production and maintenance processes is identified.

6. Conclusion

We succeed in identifying the synergies. We consider that the company LEONI must invite a consultant for more efforts about synergies. In fact, it's not so successful business. And may be, the company should recruit another supply chain manager orchestra. We are thinking about works about level of performances of synergy or risk liked to synergies. We think about introducing MADS or MOSAR or HAZOP adopted to the management of risks of the synergies described in this paper.

REFERENCES

- [1] Campbell, D. E., 2006, Incentives: motivation and the economics of information (2nd edition, New York, Cambridge University press.
- [2]Chapeaucou Robert, 2003, " Techniques d'amélioration de la productivité", Dunod, l'usine nouvelle.

-
- [3] Clark, R. N., 1983, Collusion and the incentives for information sharing, *The rand Journal of Economics*, 14(2), 383
 - [4] Corbett, C. J., DeCroix, G.A, Ha, A. Y., 2005, Optimal shared-savings contracts in supply chains: linear contracts and double moral hazard, *European Journal of Operational Research*, 163(3), 653-667
 - [5] Edward G. Anderson, Douglas, J; Morrice, 2009, A simulation game for teaxhing service orientad supply chain management: does information sharing help managers with service capacity decisions, *POM*, vol9, issue 1,40-55
 - [6] Fiala, P, 2005, Information sharing in supply chain, *Omega*, 33(5), 419-423
 - [7]Hartmann-Wendels, T., 1993, Optimal incentives and asymmetric distribution of information, *European Journal of Operational Research*, 69(2), 143
 - [8] Ronchi, S. Luzzini, D, Spina,G, 2007, Supply chain coordination the problem of risk and benedit sharing. *Supply chain Forum*, an international journal, 8(2).
 - [9] Edward G. Anderson, Douglas, J; Morrice, 2009, A simulation game for teaxhing service orientad supply chain management: does information sharing help managers with service capacity decisions, *POM*, vol9, issue 1,40-55
 - [10] Olfa jellouli, advice for scm improvement, *IJSCM*, dec 2013
 - [11] Yves Lavina , Amélioration continue en maintenance, the new plant, Dunod, Paris 2005
 - [12] Zhenxin, Yu, Hong Yan, T.C, Edwin, Cheng, 2001, Beneficts of information sharing with supply chain partnerships, *industrial management and data systems*, vol 101, is 3, 114-121.