BOTTOM-LINE RESULTS THROUGH GLOBAL LOGISTICS STRUCTURES

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ABSTRACT

Even though industry professionals have actively studied logistics since the early 1960s, the demands of the global environment are offering new opportunities. The logistics process is now open for significant improvement and development as the boundaries are extended globally and the need for control of information and material intensifies. This paper suggests an approach to global supply chain management using a new perspective that can lead to bottom line results.

INTRODUCTION

The changes of the last few years have placed new demands on supply chain organisations, especially the distribution and transportation part of the team. Globalisation of demand, global sourcing, global delivery and the war on terrorism are demanding levels of co-ordination that were never envisaged when most of our supply chain organisations were begun. The world of transportation and distribution is being jolted by this increased demand for global integrated supply chains.

Since the transportation and distribution area has been viewed in the past as mature and stable, it is a common misconception to believe that opportunities for bottom line improvement are limited. Even though industry professionals have actively studied logistics since the early 1960s, the demands of this new environment are offering new opportunities. The logistics process is now open for significant improvement and development as the boundaries are extended globally and the need for control of information and material intensifies.

How can manufacturers take advantage of these new opportunities and drive bottom-line benefit in today's global integrated supply chains? Logistics managers and supply chain executives first need to take a new perspective on this portion of the supply chain. They need to look at their transportation and distribution systems from a global and process perspective as well as the country and functional perspective. They also need to put in place leadership mechanisms to drive global improvement in process documentation, measures, training and the

spreading of new best practices that will push towards the next level of increased performance in transportation and distribution management.

The following three topics discussed in this article can help develop this new perspective and are critical for this new environment.

1. The differences between global execution and global co-ordination processes
2. The benefits, costs and enablers of lateral organisations' strategies
3. Your organisation's supply chain management maturity

GLOBAL EXECUTION VS. GLOBAL CO-ORDINATION

Simply stated, global execution is defined by the day-to-day transactional activities required to manage logistics. This involves sending information (documentation, ship notice, receipt notice), handling material and moving cash (sending a bill and paying it). Execution is heavily influenced by local customs, geography, culture and infrastructure. Successful management of these activities must be specifically tuned to these local factors and resists a global approach. Optimisation of these activities has been the focus of most of the improvement activities in the past and little has changed in the last few years. Therefore, in most supply chains the opportunities for improvements within these localised transactions are minimal. The opportunities are between the transactions (across the functional and company boundaries) and in the system as a whole.

Global co-ordination, as opposed to the localised transaction activities, has been impacted dramatically by the new technology and environment. The management of the information, material and financial flow across boundaries defines global co-ordination. This is a new challenge presenting new opportunities for bottom line improvements.

Co-ordination can be described as answering the questions: How can overall goals be subdivided into actions? How can actions be assigned to groups or individual actors? How can resources be allocated among different actors? How can information be shared among different actors to help achieve overall goals? (Malone 1990). It can also be described as the act of managing interdependencies between activities performed to achieve a goal. Co-ordination processes manage interdependencies between activities. These processes are grouped into the categories of

goal selection and decomposition, resource allocation, sequencing and synchronising and managing other interdependencies. The processes underlying co-ordination are group decision-making, communication and perception of common objects (Malone 1991).

Company or business unit strategies and processes drive co-ordination activities. The performance and cost of these co-ordination activities is influenced significantly by organisation structure, culture and information technology. The increased use of information technology makes co-ordination less expensive and new organisational forms that were not possible may now be a reality. Co-operative groupware and teleconferencing, for example, makes physically distributed teams now possible. As communication gets easier and less expensive, global supply chain management in real time becomes a reality.

Global execution and co-ordination processes within the logistics area take on different infrastructure requirements. Each company in the supply chain may have a different approach. The critical aspect is to work on development of the lateral (horizontal, cross company, cross functional) mechanisms to drive solid performance in both execution and co-ordination. Solid performance should be measured in bottom-line improvement. Adjusting mechanisms to meet the changing business environment can lead to a change in both the execution and co-ordination processes and thus yield new improvement opportunities.

LATERAL ORGANISATIONS - COMPONENTS, BENEFITS AND ENABLERS

Lateral organisations are structural, horizontal looking mechanisms created to support global co-ordination processes. As explained in the research paper, "Designing lateral organisations: An analysis of the benefits, costs and enablers of non-hierarchical organisational forms," lateral relations are co-ordinative structural devices that enhance rapid information flow across pre-existing boundaries (Joyce et.al. 1997). The lateral structure creates communication channels that are not available in bureaucratic (functionally oriented) organisations and, at the same time, reduce the need for vertical communication by creating self-contained teams that are focused on a finite task.

This research was conducted in 1997 and involved eight organisations from high tech, pharmaceuticals, chemical, engineering, aerospace, consumer products and financial services industries. Data were gathered through interviews and meetings conducted with 512 top management,

functional management, lateral management (managers that work across functions) and senior strategic planning and HR executives. The researchers identified and prioritised the key benefits of lateral organisations using a scoring system based upon the impacts of greater knowledge sharing and more valuable associates (relative score in parenthesis). The score reflects the relative importance of the benefit.

1. Empowerment (52)
2. Co-operation and decision making (36)
3. Communications (21)
4. Lateral management improvements (13)
5. Boundaryless behaviour (11)

Lateral organisation benefits come with a cost and the major cost components were also identified in this study. These include increased reporting complexity (both to functional and lateral managers), stress, role ambiguity, role conflict and role overload. Cost prioritisation shown below (relative score in parenthesis):

1. Role stressors (44)
2. Organisational stress (34)
3. Organisational impacts (25)
4. Role strain (16)
5. Team processes (16)
6. Dual reporting (12)
7. Power (12)
8. General work attitudes (10)
9. Commitment (10)
10. Careers (10)

Note that the benefits of lateral organisations align with the organisation as a whole while the costs are paid by impacts to the individual.

In this study, enablers of lateral organisations were also identified and prioritised (relative score shown in parenthesis):

1. Team organisation effectiveness (74)
2. Managers' skills (33)
3. Managers' roles and behaviours (28)
4. Performance appraisal (24)
5. Team communication effectiveness (15)

Understanding the benefits, costs and enablers of lateral organisations will help your organisation adjust the formal mechanisms to match the complexity of your supply chain and open the door for new improvement opportunities.

SUPPLY CHAIN MANAGEMENT MATURITY AND LATERAL STRUCTURES

Since processes are now critical assets to be invested in and developed, the concept of process maturity has become more important to the strategy of a company. This concept proposes that a process has a lifecycle that is measured by the extent to which the process is explicitly defined, managed, measured and controlled. Process maturity, like a lifecycle, comes in stages. It also implies growth in process capability, richness and consistency across the entire organisation (Dorfman 1997).

Supply chain management (SCM) process maturity, a concept suggesting an SCM organisation moves through basic growth and performance stages, can be evaluated by assessing the relationship of your organisation against five proposed stages of process maturity and applying the lateral mechanisms best suited for your maturity level. The five stages of maturity show the progression of activities toward effective SCM and process maturity. Each level contains characteristics associated with process maturity such as predictability, capability, control, effectiveness and efficiency. This maturity model was developed through interviews with SCM experts and practitioners and statistical analysis of their answers. It reflects the use of best practices by these practitioners that relate to the different levels of maturity and statistically relate to performance (McCormack 2004).

To better understand this model, a quick background on the five maturity stages and how to assess organisation maturity is necessary. The five maturity stages, shown in Figure 1, describe the progression of activities toward effective supply chain integration. A very brief summary of each level follows:

Ad Hoc. The supply chain and the SCM practices are unstructured and ill defined. Process measures are not in place and the jobs and organisational structures are based upon the traditional functions, not horizontal supply chain processes.

Defined. The basic SCM processes are defined and documented. Jobs and organisational structures include an SCM aspect, but remain basically traditional. Representatives from sales, manufacturing and transportation meet regularly to co-ordinate with each other, but only as representatives of their traditional functions.

Linked. The breakthrough level. Managers employ SCM with strategic intent and results. Broad SCM jobs and structures are put in place outside of traditional functions. One common indicator is the appearance of the title "supply chain manager." Co-operation between intra-company functions, vendors and customers takes the form of teams that share common SCM measures and goals that reach horizontally across the supply chain.

Integrated. The company, its vendors and suppliers, take co-operation to the process level. Organisational structures and jobs are based on SCM procedures. SCM measures and management systems are deeply imbedded in the organisation. Advanced SCM practices take shape.

Extended. Competition is based upon multi-firm supply chains. Collaboration between legal entities is routine to the point where advanced SCM practices that allow transfer of responsibility without legal ownership are in place. Trust and mutual dependency are the glue holding the extended supply chain together. A horizontal, customer-focused, collaborative culture is firmly in place.

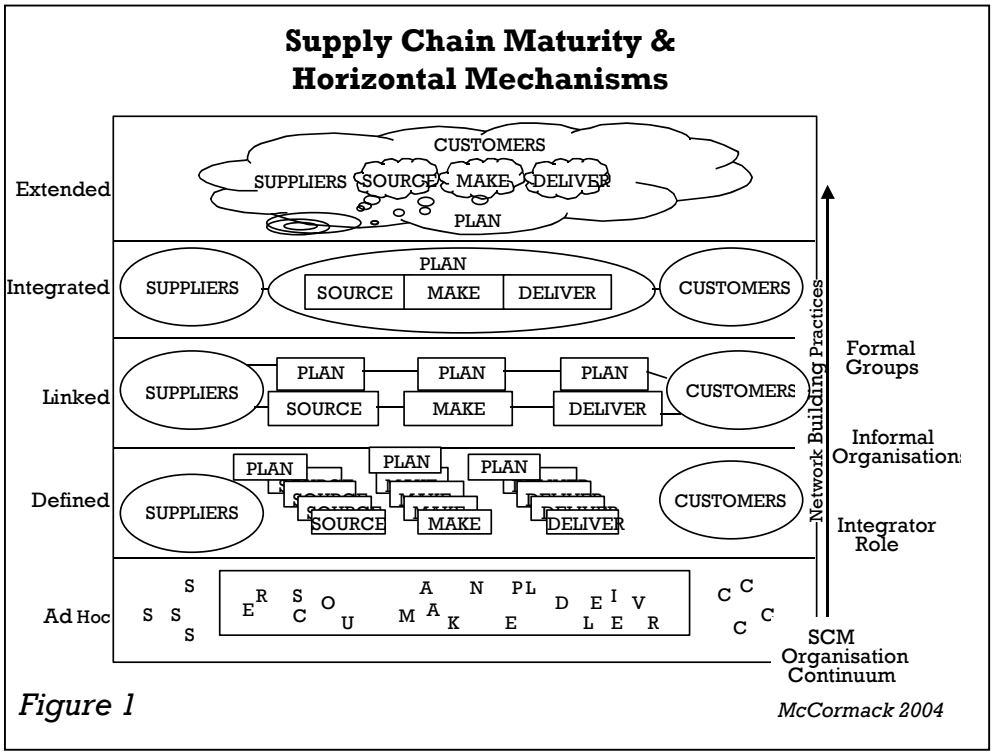

Figure 1

As an SCM organisation progresses through these maturity stages, various lateral organisation mechanisms must be put in place to successfully manage at the different levels of maturity. These SCM specific lateral mechanisms, matched to maturity level, are shown in Figure 1 and explained below.

Integrator Roles. These are the basic building blocks of SCM. Assigning "process" ownership (authority and accountability) for the basic supply chain processes of plan, source, make, deliver and return sets the foundation for the next level on maturity. This occurs at the 'defined' level of maturity. The people that fill these roles generally come from functional departments and are given laterally expanded responsibilities for the supply chain process. This directs them to manage outside of their functional boundaries. Often a senior supply chain process owner is assigned the position of overall responsibility of the supply chain - often the current vice president of operations, procurement or marketing, depending upon the supply chain dynamics.

Informal Organisations. As the process owners are assigned, this defines an informal team with a common overall purpose of improving supply chain performance. This can be done through periodic meetings, co-location and information technology (mail lists, team specific websites, shared schedules). All of these stimulate informal, voluntary co-operation between the process owners. This can be within the supply chain as well as between supply chains of different companies. This often occurs at the 'defined' or early 'linked' level of maturity.

Formal Groups. In order to realise the 'linked' or 'integrated' level of maturity and performance, formalisation of the SCM organisation must occur. The leadership team, lead by the senior process owner, is formed with specific goals, objectives, resources, performance measures and compensation plans. Authority for staffing the process teams is moved from the functions to the SCM team, with the advice and consent of the functions (not veto power). Integrating information technology becomes a critical investment at this stage. Supply chain performance systems, analytical tools and network configuration tools are all key enablers of this group's effectiveness.

Network Building Practices. These practices are employed across all levels of maturity. In the lower stages, the network to be developed is cross functional and mostly internal and as an SCM organisation approaches the upper levels of maturity, they begin to extend outward to customers and suppliers. Building of the network is done through events designed to build relationships and communication channels. Formal arrangements often follow with the appointment of integrator roles (relationships managers or boundary spanners if internal) whose job it is to connect and co-ordinate with each other. From an external perspective, strategic partners are often selected for key product supply areas and deep connections are built on, for example, supplier employees located on a customer's site, shared information technology systems and shared information. As the organisation matures to the 'extended' maturity level, the network becomes the organisation and company boundaries blur and become very porous.

Depending on your organisation's supply chain maturity, you can apply the horizontal mechanism to help facilitate the development of logistics opportunities. Implementing the different lateral mechanisms can help to open up the organisation to new improvement opportunities.

For example, Borden Chemical, has used the knowledge of global co-ordination, lateral organisations and supply chain maturity to help develop infrastructures to drive new bottom-line benefits.

BORDEN CHEMICAL, INC. CASE STUDY

Before Borden Chemical made any adjustments in their logistics organisational structure, they assessed their organisation maturity with the help of industry consultant, Dr. Kevin McCormack of DRK Research. The DRK maturity model uses a qualitative, on-line questionnaire to identify basic and advanced capabilities in process view, structures, jobs, values/beliefs, management/measurement and best practices and aligns the SCM capabilities to organisational maturity level. Borden measured their performance against a general benchmark, an assessment in 1999 and again in 2001 as shown in Figure 2. The y axis references the maturity "score" obtained through the study and the x axis references a subjective supply chain performance rating shown to be highly correlated to maturity.

The 1999 study showed that Borden was pushing into the realm of integrated in certain process areas. At this level, Borden was demonstrating co-operation at the process level. Organisational structures and jobs were based on SCM procedures. Advanced SCM practices had taken shape. However, Borden was experiencing serious gaps in documentation, structure, measures and best practices leaving the overall organisation evaluation bordering on 'linked'.

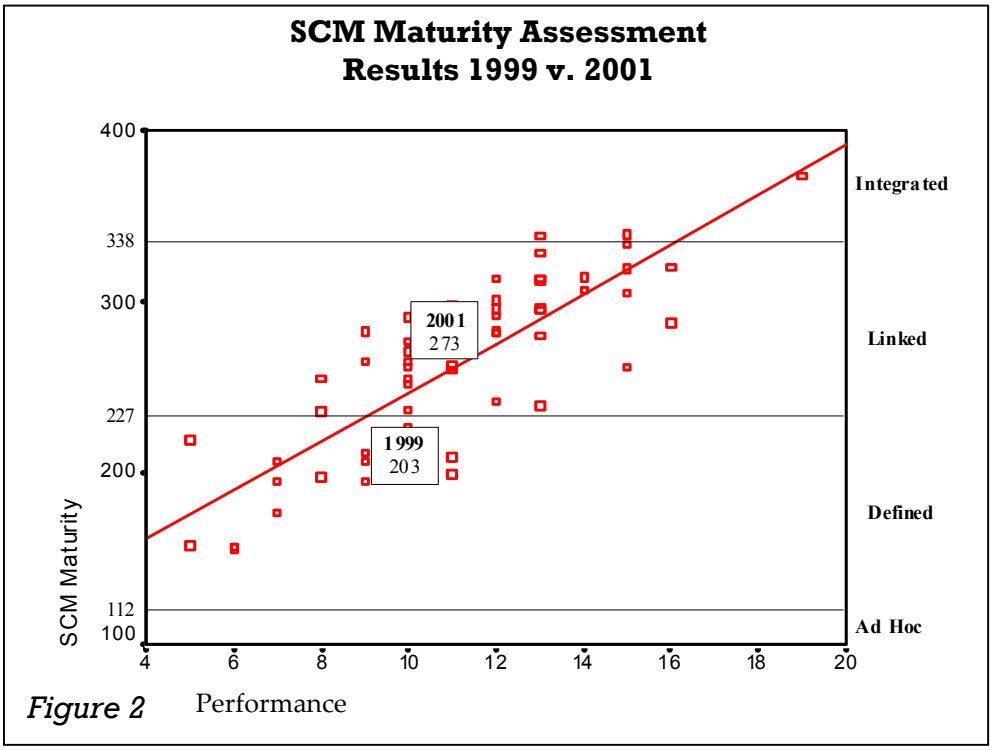

Figure 2

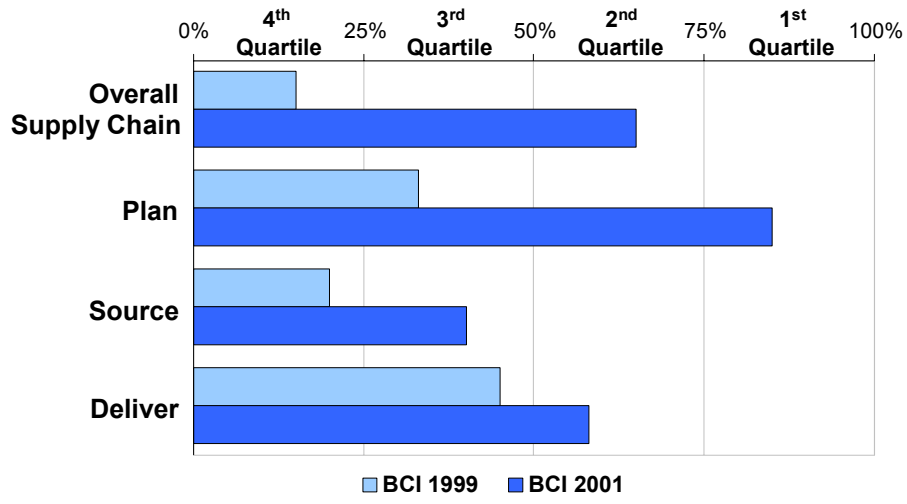

Figure 3

As displayed in Figure 3, Borden's supply chain management focus in the late 90s had pushed development in the 'plan' and 'source' process areas and left 'deliver' (the distribution and transportation processes) with only small incremental progress. It became clear that improved performance in logistics would be dependent on plugging the gaps through establishing the right organisation structure for the growing global need and driving improvements on process documentation, measures, training and sharing of best practices.

Since the completion of the study in 2001, Borden's logistics organisation has evolved and specific activities have been triggered to drive new improvement.

1. Organisation structure- the compromise on execution vs. co-ordination
2. Centrally managed process development
3. Centrally managed systems development

Organisation Structure. At Borden, the business units maintained ownership for logistics execution at the regional level. Borden made a specific decision not to outsource all transportation and distribution execution activity to a third party. Formal groups and increased network building practices were installed to drive and prioritise activity. Lateral mechanisms for communicating on a regular basis were established. Project management skills were increased through training to help facilitate the performance of the lateral SCM organisation.

Global co-ordination of process and systems was elevated to a centrally managed, lateral team including representatives from both corporate and business units. A network of independent consultants and service providers was established to assist in market intelligence and specific freight procurement activities. Again, Borden made a specific decision not to outsource all corporate logistics co-ordination activities. They chose instead to use the network of professionals to obtain leveraged intelligence in the marketplace vs. using a provider to leverage spend on their behalf. Providers such as ChemLogix were brought in to support specific logistics initiatives.

Process Development. A roadmap for significant process improvements was established to help the governing body identify the sequence and priority of activities based on delivering or enabling the delivery of specific bottom-line value. In most cases, global standards were created with the intention of only minimal regional modification. Specific project teams were established through either the Six Sigma or Work Process Improvement programmes to drive the larger process activities to conclusion. The organisation's commitment to Six Sigma was a critical ingredient to establishing a common language and enthusiasm around process improvement. In addition to the using discipline of the Six Sigma methodology to drive process improvement, the new organisational structure is currently developing a company-wide logistics manual to help solidify the use of standards, drive further process definition and identify new process opportunities.

Systems Development. As mentioned standards were established in critical process areas. Tools to enable the efforts to implement standards and drive improvement were either acquired or developed. Quickplace websites were used to help manage the process documentation, measures, training and sharing of best practices. The sites allowed all lateral team members to have easy access to the process maps, metrics instructions and reports, training guides, etc. In 2004, process

documentation and training shifted into an internal Borden Chemical intranet site and central document storage program providing access to all Borden employees.

A data cube was established within SAP's Business Warehouse to facilitate freight data analysis and measure performance. Prior to the cube, lateral team members went to multiple sources of data to combine and analyse specific transportation lane performance. With the cube, the team members can quickly run reports to analyse performance ranging from specific lane metrics to associated performance with a specific carrier. Additional tools are being reviewed and considered to help enable the effort to drive towards standard solutions to support the logistics process improvement activity.

CONCLUSION

In all three areas (organisation, process and systems), Borden improvements were tied to bottom-line value. The lateral organisation was able to prioritise activity by looking at both the process improvement output and the potential project delivered value. The organisational change and focus on providing system enablers to support improvements in process documentation, measures, training and sharing of best practices is just now gaining momentum. Borden has seen substantial improvements in 2004 year over year performance.

Leadership is critical to driving the organisational change and delivering the bottom-line results,. The logistics leader, the senior integrator role, must act like the missionary who carries a religious message to the public. The leader must be the advocate within the organisation to maintain momentum on process improvement efforts. Also, the leader should avoid getting paralysed by data. A former staff member described Harry S. Truman in the following fashion:

> *The man who insists on seeing all sides of it (the issue) often can't make up his mind where to take hold. Without any disparagement, that was never a problem for Mr. Truman. He wanted all the facts he could get before he made up his mind. But if he could get only 80 percent of the facts in the time available, he didn't let the missing 20 percent tie him up in indecision. He believed that even a wrong decision was better than no decision at all. And when he made up his mind that was it. ...*

Data and details are important, but at some point decisions should be made and progress attained. Decisive behaviour and advocacy will help the logistics leader achieve the desired results.

Organisations must look at bottom-line benefit as the true measurable result. In order to get these results with today's global integrated supply chains, it is important for logistics leaders to re-evaluate their organisation structure with a new perspective and refocus on process documentation, measures, training and sharing of best practices to deliver solid bottom-line global benefit. Having the perspective of co-ordination versus execution processes can help to understand what must be a global approach and what must be a local approach. Finally, the implementation of lateral mechanisms, no matter where you are in supply chain management maturity, will improve the overall co-ordination of your global supply chain.

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