SUPPLY CHAIN IN THE BOARDROOM
5 LEVERS TO BOOST A CHEMICAL COMPANY’S BOTTOM LINE

By Kompetenzgruppe Chemielogistik
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In the chemical industry, the consequences of a transport or storage accident — even if it’s the fault of a logistics service provider — are likely to be severe for the chemical company and its public image. When bad news hits, board executives are usually forced to turn their attention to logistics. But short of a major incident, logistics usually remains under the boardroom radar. Businesses tend to view logistics purely as a cost — and potential headache, it is expected to work smoothly and reliably, but is rarely regarded as an opportunity.
NEW OPPORTUNITIES IN CHEMICAL LOGISTICS

This paper argues that logistics – far more than a necessary evil – can, in fact, be a significant contributor to bottom-line results. With a more strategic approach to supply chain management, chemical companies can establish real competitive advantage. By proactively aligning logistics to the special needs of product sectors and customers, they can use logistics services to differentiate themselves in increasingly commoditized markets. Strategic logistics can help optimize costs, increase supply chain liquidity, hedge mission-critical assets, ensure safety and security across increasingly complex and far-flung supply chains and differentiate between chemical product portfolios.

Based on case study analysis, desk research and interviews with chemical industry representatives, this paper examines the challenges of today’s chemical industry landscape and distills 5 levers for chemical company executives – five ways in which strategic supply chain management can turn challenges into opportunities and make a positive bottom-line contribution.

“Logistics and supply chain management is like electricity: it is simply there doing its job. As long as it works, the executive board members do not pay it much attention.”

An D’Haenens, Global Manager Compliance, Sustainability and Logistics Enablement, EMEA Sourcing and Logistics Leader, DuPont Coordination Center

FIGURE 1: THE 5 LEVERS FOR THE CHEMICAL INDUSTRY BOARDROOM
TODAY’S CHALLENGES...

Inherent complexity

The chemical industry is one of the world’s most important economic sectors. In 2013, worldwide chemical sales were valued at over €3 trillion\(^1\), with international trade volumes totaling more than 700 million tons\(^2\). The chemical industry is not only large, but also tremendously diverse with a very wide range of products and corresponding supply chains. The sheer variety of requirements for transport, handling and overall safety make it especially challenging to efficiently manage chemical industry supply chains.

Adding to the complexity is the fact that value chains in the chemical industry are intertwined and interconnected around the world. This cross-linking has to be blueprinted and managed by chemical logistics asset structures, transport hubs and routes.

Add disruption

As if that were not enough, today’s chemical industry is experiencing a period of significant change. This is driven by many factors, including the ongoing globalization of the supplier and customer base, rapid commoditization of products, increasingly complex and rapidly changing customer needs, and the increasingly cyclical nature of demand.

Familiar geographies are also shifting. In recent decades, companies have often located new production capacity in emerging market countries due to significant cost advantages. This well-established situation is currently changing, largely because of shale gas extraction in the USA, which has provided the US chemical industry with a significant stimulus and led to investment in new and expanding US-based manufacturing. In addition to these commodity market shifts, production areas are also shifting to emerging economies such as the BRIC countries. The unsure footing in today’s chemical landscape is forcing companies to pursue mergers, acquisitions, break-ups and carve-outs at a feverish pace, making supply chain planning all the more difficult.

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\(^1\) Cefic: The European Chemical Industry — facts and figures 2014. Sales of pharmaceutical products are not included

\(^2\) UN Comtrade Database (aggregated figures)
Clearly, the complexity, volatility and potential disruption of today’s chemical industry cannot be mastered with an old-school approach. New challenges require new thinking.

Beyond silos

Companies often regard supply chain and logistics activities as an internal matter and tend to divide logistics functions into separate silos. But today’s environment demands that companies think outside these boxes, i.e. more in terms of integrated, collaborative networks. “Companies today need to communicate outside the box with other providers; they need to shift their mindset away from the transactional focus, away from the ‘silo’ focus – and towards a more collaborative approach,” says Michael O’Hara, Global Head of Chemicals, DHL Global Forwarding. “In today’s environment they won’t make it on their own.”

“Logistics and Supply Chain Management is one of the most important strategic levers for the chemical industry in the future.”

Gerhard Blaess, Senior Global Category Manager – Logistics, Axalta Coating Systems Germany GmbH

Beyond costs

Companies also tend to regard logistics as purely a cost factor to be kept to a minimum. But this is a dead-end mentality in today’s environment. First, there is very little margin to be won here, since any cost advantages have already been squeezed out by past efforts to reduce transportation costs. Second, simply minimizing costs can end up damaging the overall value of supply chain. Today’s environment demands that companies understand logistics as more than just a cost of doing business, but as a strategic, value-add element that enhances their business.
**NEXT STEPS**

Chemical companies can improve the value of their product by enhancing supply chain and logistics capability; this represents a new frontier of opportunity. In an increasingly commoditized market, more service-oriented logistics can set a company apart from the competition. And in an increasingly complex and volatile landscape, more strategic, robust logistics can increase a company’s ability to manage and master the complexity.

So how is it done? How can a company enhance the capability and impact of its logistics? How can a company get started with more proactive, strategic supply chain management – especially given that logistics has traditionally struggled to break into the boardroom?

**5 LEVERS FOR THE BOARDROOM**

By matching key boardroom objectives with the current trends in the chemical industry and the special requirements of international chemical logistics, we generated 5 levers for the boardroom – areas where more focus on logistics can uncover and capitalize on significant opportunity.

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**FIGURE 2: THE 5 LEVERS FOR THE CHEMICAL INDUSTRY BOARDROOM**

The 5 levers were generated by combining boardroom priorities with today’s chemical industry trends, challenges and opportunities.
LEVER 1: GREATER LOGISTICS VALUE THROUGH COST OPTIMIZATION

The first step in enhancing logistics value is to understand that logistics is about more than simply moving freight from point A to point B. Optimizing logistics costs is not just a matter of reducing transportation rates.

In fact, a unilateral reduction of transport costs can easily tip the scale towards higher storage and order processing costs. Optimizing logistics costs requires a holistic approach – a consistent end-to-end analysis of all logistics activities that makes clear the interdependencies between the individual elements.

FIGURE 3: TOTAL COST OF OWNERSHIP – A CLOSER LOOK AT LOGISTICS

Total cost of ownership

An effective end-to-end analysis, in turn, requires transparency, i.e. a clear understanding of all elements attributed to logistics. This means not only evaluating logistics performance, but also the full capacity of assets needed to supply these services in peak times, as well as processes beyond transport and storage, such as administrative and planning processes. “Successful cost optimization in chemical logistics should not only focus on transportation costs,” says Dr. Dennis Fanelsa, Vice President, Regional Supply Chain Services Asia Pacific, BASF East Asia Regional Headquarters Ltd., Hong Kong. “A Total Cost of Ownership (TCO) approach, i.e. applying supply chain thinking from end-to-end, enables us to optimize the logistics costs with all their linked elements.”
The right structure

Cost optimization across this array of processes requires the necessary organizational structure – a structure that facilitates cross-functional thinking and integrates logistics into high-level decision making. If logistics is simply housed in the procurement department, for example, the end-to-end perspective will be missing, and optimization is likely to remain a transportation cost-cutting endeavor. One possibility for integrating logistics and supply chain management into decision-making is to establish a dedicated logistics department that manages end-to-end logistics. However, the right structures will vary depending on the type of supply chain, i.e. the type of chemical business. **Ultimately, each company must determine the structure that will best integrate logistics and supply chain management into decision-making.** “It is very important for the board members to integrate logistics into strategic decision making at an early stage,” says Rudi Leonhardt, Senior Vice President, Group Supply Chain & Logistics Services, Clariant International Ltd. “This is because future logistics costs are largely determined by the design of businesses and assets.”
1. Establish clear understanding of all elements attributed to logistics and their costs (TCO). This includes:
   - Logistics performance (e.g. on-time delivery, inventory level)
   - Assets needed to supply these services in peak times
   - Operational logistics processes such as picking, packing and loading
   - Administrative and planning processes

2. Conduct end-to-end analysis of all logistics activities. Review supply chain structures and reorganize processes of planning and monitoring supply chains.

3. Quantify logistics costs vs. logistics value.

4. Establish the structure needed to adequately involve logistics and supply chain management in decision making. A dedicated logistics department is important, but it must also have the clout to influence decision makers.

5. Involve logistics in an early stage of supply chain design, since the majority of future logistics costs are determined in the design phase.

6. Typical logistics end-to-end costs vary from 8-12% of turnover in lean logistics, to 3-7% in service-oriented logistics.
LEVER 2: INCREASED SUPPLY CHAIN LIQUIDITY

While working capital management is a standard boardroom topic, it is rarely considered in relation to logistics. This is a missed opportunity. Logistics has a direct impact on the amount of working capital bound in a chemical company’s balance sheet and influences financial key performance indicators such as Economic Value Added (EVA) or Return on Capital Employed (ROCE).

Logistics a liquidity lever

While working capital is often bound in the value chain, logistics can help free up liquidity by increasing inventory turns and inventory accuracy, through raw material disposition, and with just-in-time solutions. Innovative companies even regard logistics as one of the “must-win battles” of the future.

“As other industries show, logistics can make a significant contribution to reducing the amount of inventory bound in global supply chains. The risk of operational losses due to stock-outs or delivery delay caused by reduction of inventory can be minimized in well configured supply and distribution systems with the help of reliable logistics partners.”

Gerhard Blaess, Senior Global Category Manager – Logistics, Axalta Coating Systems Germany GmbH

FIGURE 4: GRAPHICAL DEPICTION OF WORKING CAPITAL EMPLOYMENT FOR A TYPICAL INTERNATIONAL CHEMICAL SUPPLY CHAIN

1. Map out current supply chain with a focus on material flows.

2. Identify potential levers across the supply chain where working capital can be reduced while service and flexibility is maintained. Consider ways to shorten the logistics chain (e.g. mode shift from ocean to air, faster shipping routes).

3. Quantify potential reductions of working capital and lead-time improvements.

4. Identify levers for longer-term optimization (e.g. relocating warehouses, shifting inventory).

5. In the above example of a typical supply chain in chemical commodities, a reduction of land transport by one day (e.g. by a quicker service provider) helps to save capital employment of €223,000 a year.
LEVER 3: SMART INVESTMENTS IN LOGISTICS ASSETS

Logistics assets are critical; without them entire businesses can grind to a halt. At the same time, companies tend to ‘look the other way’ when it comes to actually investing in logistics assets. Chemical companies prefer to invest in chemical industry assets. The reason for this is clear. While the ROCE for chemical assets can be as high as 20%, the ROCE for logistics assets might only be 2% or less. And for a Logistics Service Provider (LSP), investing in logistics assets only makes sense if it can secure long-term contracts. To be sure, this presents a dilemma for both chemical companies and LSPs, but failure to act can have serious negative consequences.

Strategic dialogue

The way out of this dilemma – and the way to ensure smart investments in logistics assets – is through collaboration. Smart investments are made when industry, suppliers and service providers work together to identify which assets are necessary for running each individual supply chain. This requires a clear understanding of individual customer requirements and the corresponding demands on the supply chain. Once individual value chains have been analyzed in this way, optimal asset structures can be derived for each value chain.

This collaborative process includes chemical companies and LSPs sharing strategic plans (plans to enhance production in a certain area), sharing everyday operational data, and working together to create joint investment plans.

“Collaboration – not only in operations, but also in strategic matters – between industry, service providers, local authorities and universities is the only way to ensure sustainable supply chain solutions in the chemical industry.”

Rudi Leonhardt, Senior Vice President, Group Supply Chain & Logistics Services, Clariant International Ltd
1. Analyze different value chains and understand customer requirements and corresponding demands on the supply chain.

2. Derive optimal asset structures for each value chain.

3. Differentiate between logistics and chemical infrastructure when defining ROCE targets (e.g. different KPIs for logistics vs. chemical investments).

4. Consider the impact of logistics/SCM (Supply Chain Management) on the success of the business. What happens when logistics fails in procurement, production or distribution? What impact does this have on production costs, customer satisfaction or image of the company?

5. Check asset and infrastructure clusters for controllability, usability and efficiency.

6. Identify opportunities for long-term commitments that maximize use of infrastructure.

INITIAL RECOMMENDATIONS/GUIDELINES FOR LONG-TERM INFRASTRUCTURE PLANNING. THIS SHOULD BE CONDUCTED JOINTLY BETWEEN CHEMICAL COMPANY AND LSP:
LEVER 4: STANDARDIZED SAFETY ACROSS THE SUPPLY CHAIN

For any chemical industry executive, ensuring maximum safety when dealing with chemicals is a non-negotiable, number one priority, and most chemical companies manage safety within their own facilities very well. But major challenges arise when leaving the closed production system.

The safety blind spot

Transport between stages of production (including transfer points) is fraught with risk. Moreover, today’s chemical companies are increasingly engaging in international trades, entering new markets and having to work with local logistics companies – all of which adds to the complexity and risk. As if that were not enough, rising cost pressures on producers and service providers tempt companies into sub-optimal monitoring and maintenance. “To be sure, ensuring safety and security along the supply chain is by no means easy, it takes time and investment and the risks are high if you do not get it right – it is a non-negotiable item”, says Michael Young, Global Head of Marketing & Sales, DHL Global Forwarding.

The safety opportunity

For companies involved in any international supply chain, a proactive approach to managing safety is critical to ensuring consistent, minimum safety standards across the entire supply chain. A dedicated Supply Chain Management (SCM) safety strategy is not only essential to the long-term success of the company, but also represents a short-term opportunity. A boardroom that commits to developing and implementing a comprehensive SCM safety strategy can set its company apart from the competition.

“Safety is of the utmost importance for our company. It is part of every decision we make. That’s why Dow is committed to the highest standards of reliability and chemical industry expertise for the transportation of dangerous goods. The service providers we partner with are required to provide proof of their capabilities with the corresponding certificates and a demonstrated record of performance. We work together to ensure the safety and security of the communities in which we operate.”

Carrie Zhang, Global Category Leader, Logistics Purchasing, The Dow Chemical Company
1. As a general rule of thumb, 1-3% of value chain turnover should be invested in safety measures.

2. Communication and cooperation between all involved parties is essential. Negotiated agreements must be documented in the form of certificates, following SQAS (Safety & Quality Assessment System) and CEFIC (European Chemical Industry Council) standards and company specific certificates.

3. As a first step, stakeholders must define and agree on all safety requirements for each process step in the given supply chain (product, country, handling/storage locations, transport, technology, skills). The question to be answered here is: “How can we ensure a 0% accident rate across the logistics chain?”

4. Standards should be defined for each step in the process (e.g. filling, transport) according to various SCM safety categories. For hazardous products such as dimethyl sulfate, hydrogen cyanide or sulphuric acid, these might include:
   - Product stewardship (product knowledge, market/application knowledge, production knowledge)
   - Assets and equipment (production and storage equipment, handling equipment, ISO tank containers, drums, railway tank wagons and fittings)
   - Supply chain organization (supply chain checklist, safety standards, responsible team and skills required, IT configuration and support)
   - Collaboration (responsible user certificates, technical/organizational support, information services)

5. Conduct regular audits of LSPs to ensure that supply chain links remain strong.
LEVER 5: DIFFERENTIATED LOGISTICS SERVICES

Chemical companies have a wide range of different business models depending on different market requirements for the different sub-segments of chemical industry. This results in different basic types of supply chains. Defining these basic supply chain types helps to understand the particular role of logistics.

Two basic supply chain types: Lean vs. Agile

The lean approach to chemical logistics views logistics purely as a cost element. It is expected to work smoothly and reliably, but it does not influence the design of the supply/logistics chain. This is often found upstream close to initial production and feedstock. At the opposite extreme, agile chemical logistics focuses on the service aspect of logistics. Here logistics is considered a means of differentiation and a way to realize strategic competitive advantage. Agile logistics can be found in downstream industries. These businesses are characterized by a variety of different products and product variants, sometimes even customized mixtures.

“Successful companies tailor their logistics service to business units, product lines and customers. There are businesses where logistics is just a cost factor that has to work, while in other businesses logistics is the means of differentiation and competitive advantage.”

Michael O’Hara, Global Head of Chemicals, DHL Global Forwarding

Agile logistics trending

The interviews with chemical companies clearly show that cost is – and will continue to be – a key criterion for logistics decisions. At the same time, almost all experts involved say that “logistics as a service” is playing an ever-increasing role. This is partly due to the commoditization happening across all chemical sub-sectors, which has made it increasingly difficult to establish competitive advantage with differentiated products. “Today the standard molecules are basically the same, whether they come from European, North American or Far Eastern competitors,” says BASF Vice President, Dr. Dennis Fanelsa.

“Differentiation and advantage in the marketplace can be achieved by delivering value-adding industry or customer-specific logistics services.”

Finding the right fit

The right logistics services depend, of course, on which sub-segment of the chemical industry is being served. While no single approach (e.g. agile vs. lean) can be considered right or wrong, it is crucial that a conscious decision is made to fit the logistics strategy to the respective business units and product lines/segments.
1. Expand your view on logistics – it is not only from A to B, but also from now to then, from left to right and from big to small – all elements of logistics tailored to your business needs can contribute to strategic success.

2. Fit your logistics strategy to the respective business units, product lines or segments.
   - Define logistics requirements for different products and businesses.
   - Define adequate scope of logistics services and adequate service levels along the spectrum from lean to agile.

3. Consider how agile logistics can be adapted to specific characteristics and requirements of value creation, in particular the needs of clients and their customers.

4. Especially in the case of agile logistics, clarify who will pay for the logistics services provided.
WHERE THERE’S CHALLENGE, THERE’S OPPORTUNITY

Chemical company boards do not usually regard logistics as a land of opportunity, but in today’s environment it is well worth a look. Why? Smart SCM and logistics strategies can provide a much-needed counterweight to the tremendous complexity, risk, volatility and disruption that characterizes today’s chemical industry. Smart SCM and logistics can be a force for stability and opportunity, and it can create significant value in two important ways:

- Firstly, more strategic, robust logistics can increase a company’s ability to manage and master an increasingly complex and unpredictable landscape.
- Secondly, in an increasingly commoditized market, more service-oriented logistics can set a company apart from the competition. While other industries have already seized this opportunity, its potential remains expandable in the chemical industry.

Heavyweight logistics

Because logistics continues to be a significant cost factor, it’s an important influence when it comes to cost savings or increased supply chain liquidity. And because logistics is so integral to so many aspects of the supply chain, a smarter, more strategic approach can have a large impact on business stability, resilience and success. Customers will notice the improvement. At the same time, lapses in logistics safety can have huge – even catastrophic – consequences. Either way, it is a heavyweight issue very much worthy of boardroom attention.

A start...

The 5 levers presented in this paper provide insight into five areas of opportunity, along with some initial recommendations for chemical industry executives and managers. Owing to the limited scope of this paper, these levers should not be interpreted as exhaustive or applicable to all situations. They are intended as a step in the direction of enhanced logistics capability for better bottom-line results. However, these levers can help to improve logistics from an overall company perspective, and consequently, significantly contribute to overall company success – in the short and long term.
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For 20 years, Carsten has advised chemical companies on the optimization of supply chains, strategic and organizational development and chemical site services. Carsten is a Certified Management Consultant (CMC/BDU), board member of ‘Fachverband Management und Marketing’ (Bundesverband Deutscher Unternehmensberater – BDU) and a certified systemic organizational consultant (RWTH Aachen).

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He finished his studies in Business Administration at the Friedrich-Alexander University of Erlangen-Nuremberg in 2008, with a focus on logistics, business informatics and industrial management. As an author, he is involved in the study of logistics real estate and has led several projects on the analysis and development of logistics regions.

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