

RESULTFOCUSED

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What are the future holding for transportation management?

By Anton Nieuwoudt

Technological advances are transforming transportation so quickly that it's hard to predict where new technologies will lead. But consider the following three examples from Connected World: Transforming Travel, Transportation, and Supply Chains, a new report from the World Economic Forum and the Boston Consulting Group, of innovations that could have the greatest impact on transportation by 2025.

A traffic management system for megacities would integrate and process real-time information from vehicles, infrastructure, individuals, and the environment to manage traffic. Before highway congestion reaches problematic levels, the system would automatically reroute drivers or adjust tolls to encourage alternate routes.

A "smart" visa system would eliminate the long lines at airport

screening points and land border crossings, simultaneously enhancing security. Visa applications would be standardised across multiple countries, and biometric identity checks would speed customs processing.

A real-time tracking system for optimising logistics would solve many problems associated with "last-mile" deliveries. Radio frequency identification (RFID) chips would be incorporated into packaging and used to track the real-time location of items and other factors, such as average shipment temperature.

The report noted that some of these technologies exist today, but a lack of cooperation across industries and public agencies prevents widespread implementation. Other concerns include data ownership, data privacy, and resilience against cyberattacks.

In this edition of **RESULTFOCUSED** we look at how **Mercedes-Benz** turned **research into reality** by applying a concept called "evidence-based supply chain practice" to address problems such as material shortages, excessive inventory, and high transportation costs. We look at the advances in **Transportation Management Systems** and why shippers are increasing their investments in these systems to gain optimisation and visibility, what are the **secrets of effective delegation**, and finally why a company might need a **supply chain re-design**.

If future competition is between global supply chains and we want companies to concentrate on their core skills, then we'll need to work with an ever changing mix of specialist partners - Prof Martin Christopher



How Mercedes-Benz turned research into reality

By Mustafa Bayülgen (Supply Chain Quarterly, Quarter 2, 2012)

As the year 2008 came to a close, the global economy was struggling. Even so, we at the Mercedes-Benz bus plant where I work in Hosdere, near Istanbul, Turkey, were determined that we would not simply weather the economic downturn but would also increase production capacity by 30 percent. We knew it would be a huge challenge because of economic conditions and the increasingly complex nature of supply chains. Nevertheless, we went ahead with the project, which ultimately proved successful.

Thanks to the efforts of a logistics task-force team that Mercedes-Benz Türk A.Ş. (MBT) formed to tackle that challenge, the plant was able to meet its goal. The team achieved success by aligning all logistics operations with production operations through a project called "Hosdere 2010—New Logistics Concept." This project applied a concept that can best be described as "evidence-based supply chain practice" (EBSCP).

Simply put, EBSCP is the incorporation of proven practical or research findings into daily supply chain management practices. It involves taking what has already been discovered—examining best-practice examples and current research—and then implementing it and enhancing it in actual practice. This concept facilitates both everyday operational decisions and long-term strategic plans.

By drawing on established knowledge, EBSCP lets supply chain managers succeed in today's challenging business environment, and it prevents mistakes stemming from inexperience or individual preferences. Critical to its success is employing people with appropriate skills and knowledge.

EBSCP allows supply chain managers to avoid the kind of "crash tests" companies often undergo when implementing new

initiatives in complex, intertwined supply chains. Rather than innovate without guidance, they can take advantage of widely available information. For example, they can learn from journal articles and books published by supply chain researchers around the world who are rigorously working to establish principles and find solutions for problems. They can also learn from practitioners who share their experiences through case studies in journals and business publications, as well as through other means, such as professional associations and professional networking sites on the Internet.

In short, with so many complex challenges facing supply chain practitioners today, it makes sense to learn from and take advantage of already published, tested information and solutions to problems. By doing so, companies will strengthen their supply chains, and that will eventually lead to greater profitability and an improved quality of life around the world as products and services arrive where and when needed.

The logistics team begins its work Mercedes-Benz Türk A.Ş. was founded in 1967 under the name Otomarsan A.Ş. in Istanbul, Turkey, by Daimler-Benz AG and its Turkish partners, Mengerler T. A.Ş. and Has Otomotiv A.Ş. The company's initial production in Hosdere was 0.6 buses per day. By 1970, it was already exporting buses, mostly to the Middle East and North Africa. In 1986, the company added a truck production plant to its portfolio, in Aksaray, Turkey, and changed its name to Mercedes-Benz Türk A.Ş. in 1990.

Over the years, MBT, now a subsidiary of Daimler AG, evolved into a manufacturer of complete buses and trucks. An increase in export activities led MBT in 1995 to add a second bus plant in Hosdere and to convert the first plant to manufacture bus chassis and bodies for the new facility. A few years later, the new plant was expanded to include chassis and body operations, and the original plant was shut down. Today the Hosdere factory produces four basic bus models: Travego, Tourismo, Intouro, and Conecto. It has a production capacity of 14 buses per day, and it exports vehicles to Europe, Asia, and Africa. MBT also markets and sells Mercedes-Benz automobiles and light commercial vehicles in Turkey.

In 2008, in order to boost efficiency and to get the bus plant ready for a potential capacity increase, project "Hosdere 2010" was launched. The first thing the management decided to do was to bring highly qualified and talented individuals together to form a logistics project team. (For more about the human resources considerations involved in EBSCP, see the sidebar "Invest in talent to make EBSCP a

success.")

Despite significant improvements over the last couple of decades, many manufacturing firms consider activities such as in-plant logistics and warehousing as a necessary evil. MBT's logistics task-force team took a contrary point of view and decided to pay closer attention to activities to bring about increased profitability and business success.

The logistics team found that the plant was facing such problems as material shortages, excessive inventory, and high transportation costs. Previous attempts to solve them had not been entirely successful, and sometimes the outcomes of those attempts were not what managers had expected. Clearly more information was needed. Recognising that practitioners and researchers around the world have confronted similar issues, the team decided to adopt an "evidence-based" approach, making use of published research findings to help it address those problems.

Since then, Mercedes-Benz Türk A.Ş. has implemented several supply chain practices that the logistics team developed while consulting research findings, case studies, and other published best practices. (The notes throughout this article refer to the published information sources that provided some of the ideas we incorporated into our solutions.) The following are just two examples of how we applied evidence-based supply chain practices to achieve significant cost and efficiency improvements that we might not have been able to achieve otherwise.

Evidence-based supply chain practice (EBSCP) facilitates both everyday operational decisions and long-term strategic plans.

1. Matching material flow with production

One area where the logistics team applied EBSCP was in adapting the assembly parts warehouse and in-plant material-flow operations to the increased rate of production. As part of that effort, the team set out to devise a new process in the warehouse, since the existing process limited how quickly the warehouse could perform such tasks as picking, sorting,

kitting, staging, and delivery to the assembly line. An associated problem was that the on-time availability of components at the assembly line was 99.38 percent. Although this might seem good at first glance, it's actually on the poor side for an assembly plant and has considerable cost implications.

The team began by brainstorming several ideas, looking for ways to increase not only throughput but also parts availability and overall efficiency. The questions then were, which of the ideas would work, and what would be the best way to implement them? To answer those questions, the members consulted some books, articles, and other documents, and then combined that information with their past experiences and the theoretical knowledge provided by their formal educations. Using all of those resources, the team developed the following solution.

Approximately 20,000 components and raw materials were being stored in the warehouse. But only 0.5 percent of those items were delivered just-in-time to the assembly line after having been picked from a dedicated storage zone. For the rest, a pull system was used, where assembly workers issued internal orders in the MRP (materials resource planning) system in batches (usually in full pallets); warehouse workers picked those materials from their storage locations and then delivered them to the line. This practice resulted in a significant amount of inventory positioned in the assembly area but provided little protection from stock-outs.

The master production schedule was fixed for three days out. The logistics team hypothesised that if the data in the MRP system was 100-percent correct, then it was theoretically possible to pick materials in single pieces from the warehouse, sort them in the right order, place them on trolleys in kits, and deliver them to the corresponding assembly station just-in-time and in perfect synch with the three-day, fixed master production schedule. This would greatly reduce, if not eliminate altogether, the inventory of components located next to the production line. The strategy would also provide more space for production-related activities and reduce the non-value-added time that production workers spent walking back and forth between assembly stations and material storage locations, some of which were not optimally positioned. In addition, since almost all of the inventory would be in the warehouse area at any given time, it would be much easier to anticipate a probable stock-out a few days in advance just by looking at the current stock level in the warehouse and in-transit from the supplier. If there should be a high

Highly qualified and talented individuals were brought together to form a logistics project team who found that the plant was facing such problems as material shortages, excessive inventory, and high transportation costs.

probability of a stock-out for a critical assembly item used in, say, the Conecto bus model, then the scheduled assembly date for Conecto buses could be pushed back a few days before it entered the three-day "frozen" zone, and other bus models for which materials were available could be brought forward.

Taking the above arguments into consideration, the team decided to increase the number of parts picked from the dedicated just-in-time zone in the warehouse. This basically meant that the team would have to balance the trade-off between the cost of adding some more warehouse space and the benefits of improved speed of delivery to the line. Since this proposed system would allow for almost no margin of error in the MRP data, critical parameters entered into the MRP system, such as pallet capacities, batch sizes, and delivery frequencies, were carefully checked and corrected when necessary.

After implementing this plan, the percentage of materials picked from the dedicated zone and delivered just-in-time to the assembly line increased from 0.5 percent to nearly 15 percent. Because we learned from our reading that a reduction in the time to pick and deliver was a direct function of warehouse configuration,⁴ we made some modifications to the configuration of the warehouse that helped to increase picking and delivery speed. Another renovation was the conversion of the small-parts storage area to an automated storage and retrieval (AS/RS) system.

2. Supply base localisation

As we approached the year 2008, MBT became interested in acquiring more parts from local Turkish suppliers. In 2008 we established a group within our logistics department that was assigned to deal with localisation of supplies. One of our aims was to decrease the company's total costs by reducing logistics-related costs. Over the last four years, the division has successfully

localised more than 5 percent of the components that originally had been imported from suppliers located outside Turkey.

Using more local suppliers was also a way to perform risk management by addressing both supply side risks and catastrophic risks, two of the five main risk categories outlined in an article on that subject by Stephan and Bode (2008). We also put forward a hypothesis that we needed to balance both prevention programs and response preparedness in our risk management practices. Proof that this hypothesis was correct came a couple of years later, when many firms that were stronger in prevention programs had difficult times during such disruptions as the massive earthquake and tsunami in Japan and the eruption of the Eyjafjallajökull volcano in Iceland. No manager would have thought to include such unusual, extreme events in a prevention program or to develop contingency plans for them.

Meanwhile, many companies that were stronger in response preparedness continued spending time, effort, and money on response activities due to the disruptions, even though at least some of those efforts could have been avoidable if they had paid more attention to prevention. It should also be noted that the volcano eruption and the earthquake led managers around the world to realise that diversifying their supplier base might be beneficial. However, managers should not have needed those supply chain disruptions to come to that realisation, since the principle that diversifying the supplier base by splitting orders among multiple suppliers could indeed be beneficial (depending on certain factors) was already widely evidenced in literature. As discussed in those articles, the expected reduction in shortage costs could make order-splitting worthwhile for some very critical components.

With those thoughts in mind, we decided to perform cost-benefit analyses for new components. If risks were high, then we would source the components dually, from one foreign and one local supplier. This would diversify the supply base in terms of both alternative suppliers and geographical locations.

Thanks to our decision to implement the dual or multiple sourcing strategy wherever possible, we avoided supply disruptions during such events as the eruption of the Icelandic volcano and the earthquake and tsunami in Japan. We also had some experiences closer to home. For example, in 2011 a very trusted local supplier of ours had a fire that incapacitated its plant for more than a month. Despite that disruption we kept the material flowing in,

with one portion coming from the foreign supplier and the other portion from another local supplier. And in January 2012 we faced another potential disruption when a foreign supplier of a critical assembly part was unable to deliver it because of the extreme winter conditions in Europe. Trucks could not move, railways were covered with ice, ships couldn't leave ports due to extremely high winds, and rivers flooded very near the Turkish border. We were able to manage despite those weather conditions because we had already split the order between a local and a foreign supplier. The local supplier, located just two hours away from our plant, sent its quota of parts just-in-time, and that quantity was enough to keep production going until the shipment from the other supplier arrived. Looking back at those situations, it is clear that the costs we would have incurred if we had experienced disruptions would have far outweighed the costs associated with placing orders with the second, local supplier.

Achievements included increased on-time-delivery service levels, reduced raw material and component inventories and the subsequent reductions in costs.

Proof positive

Thanks to the two implementations above, as well as to many others that are outside of the scope of this article, MBT saw a steep rise in efficiency indicators. The on-time-delivery service level of parts to the assembly line rose from 99.38 percent in 2008 to 99.81 percent in 2011. Although this 0.43-percent increase may seem like a small nuance, it actually represents a significant cost reduction. That's because when parts are available where and when needed, there is less overtime work and no penalties for late deliveries of buses to customers. As of February 2012, the on-time rate had reached 99.85 percent.

The drop in raw material and component inventories is also a strong indicator of how EBSCP has contributed to the cost savings Mercedes Benz Türk A.Ş. has achieved so far. We are aiming to continue the trendline shown in the chart in the coming years.

The abrupt fall in late deliveries of busses from the year 2008 to 2009 was mostly attributable to the impact of the economic crisis. During that time we had more production capacity than demand, which meant we could deliver buses with more ease than in a normal year. As the demand gradually increased in 2010, the backlog also increased as expected in 2010 through 2011. The rate of the backlog increase in 2011 was less than that of 2010 because the effects of the EBSCP implementations had started to kick in. We have recently begun to see the full impact of the implementations, as demonstrated by a backlog of just 0.29 percent as of February 2012—despite a record-high demand and daily production rate.

As a result of the implementations described above and other Hosdere 2010 projects, MBT has achieved a significant drop in costs and has sustained profitability despite the global economic downturn. This success has attracted the attention of upper-level management at Daimler AG. As a result, the bus plant has hosted several visits and received recognition from the parent company's management. In fact, Daimler AG's top-level management meeting was held in Turkey in July 2011, and during the event executives had a chance to see the implementations' results firsthand.

Top management has been so impressed with our accomplishments that it is considering implementing some of our ideas elsewhere in the company. For example, an extension of the just-in-time delivery to the line strategy, better known by the German term *Spezialgutabwicklung* (or the Turkish term *set sevkiyat* among MBT employees), is now being considered for incorporation into an ongoing process-harmonisation initiative for other bus plants in Europe. The lean in-plant logistics system we developed is about to become a companywide benchmark and, with minor local variations, has the potential to be implemented in any of Daimler's bus plants.

We believe it is important to share our knowledge and ideas with others. Accordingly, our plant has hosted visits by many logistics- and manufacturing-related groups and logistics specialists from all over Europe, as well as by faculty and students from local universities.

The MBT logistics team can point to many achievements. Yet even while we work on current projects, the fast-changing nature of business means that already there are new challenges that must be addressed. As we deal with them, the evidence-based supply chain practices concept that has proven so successful in the past will continue to be our guide. - RF



Supply Chain Technology: Transportation Management Systems (TMS) gaining altitude

By Bridget McCrea
(logisticsmgmt.com, January 2013)

Critical factors such as a gradually improved national economy, shippers' increased desire for supply chain optimisation and visibility, and continual innovation on the part of software vendors worked together to drive growth in the transportation management systems (TMS) market in 2012.

According to recent Peerless Research Group (PRG) surveys and feedback from top software analysts, expansion is expected to continue this year as more shippers invest in both on-premise and cloud-based TMS or plan to upgrade their existing technology.

According to Logistics Management's (LM) Annual Software Users Survey conducted by PRG, 37 percent of companies were using TMS in 2012, up from 32 percent the prior year. Twenty-five percent of respondents say they plan to buy or upgrade—steady from 2011's numbers—and a net 50 percent were either using or planning to buy a TMS. From their software investments, shippers were looking for routing and scheduling, routing and rating, shipment consolidation, carrier selection, and load tendering capabilities.

Steve Banker, director of supply chain solutions for analyst firm ARC Advisory Group, says his firm's most recent research (released in 2012 with updated results set for release early this year) correlates with LM's survey results. With more companies attempting to squeeze efficiencies out of their supply chains by optimising the transportation component, Banker says that the TMS market is enjoying double-digit annual growth.

A few of the verticals driving that growth include consumer package goods, food and beverage, electronics, and third-party logistics providers (3PL), says Banker.

“We’re beginning to see TMS adopted across a broader set of verticals.” Credit the fact that optimisation supports more verticals than it used to with helping to drive that expansion, he adds.

“Historically, TMS was good for multi-stop routes and for combining less-than-truckload [LTL] and truckload,” Banker explains. “Now we’re seeing international shippers using TMS to manage multi-route, international shipments on the road, on rail lines, and in ports.”

Banker points to natural resources as one vertical where TMS has taken hold in recent years. “Sawmills are using TMS to manage the transportation of heavy loads of lumber, something we didn’t necessarily see a few years ago,” says Banker, who adds that growth in the Latin American market is also pushing up TMS’ adoption rates. “We’re seeing pretty rapid growth in that enterprise market where companies are willing to pay full price for TMS solutions—vendors don’t even have to discount their products.”

Over the next few pages we’ll dig deeper into the key drivers behind the TMS market, show what vendors are doing to enhance and improve their solutions, and look ahead to 2013 to see how the TMS market will fare in the months ahead.

Fulfilling a need

A mature segment by supply chain software standards, TMS was first introduced in the 1980s as a way to more affordably and easily move freight between trade partners. Fast-forward to 2013 and TMS systems have evolved rapidly in order to keep up with user needs and demands.

Available as a standalone software package, integrated enterprise resource planning (ERP) system, or in the cloud, TMS systems help shippers effectively move freight—from parcels to bulk commodities and everything in between—from origin to destination in the most affordable, streamlined manner possible.

The basic premise behind TMS hasn’t changed much since the solutions were first introduced more than three decades ago, but the way in which the software manages the tasks, oversees activities, and reports back to its users has improved. Banker says that while the traditional architecture solutions remain the richest in terms of functionality, the developers of cloud-based TMS are integrating more modern ideas and connections into their offerings.

“We’re definitely seeing more innovation from them than from traditional TMS vendors,” says Banker. “The [cloud] vendors are leveraging their networks in new ways and moving faster than traditional solutions.”

Also driving the TMS market right now is a large contingency of small- to mid-sized shippers that are waking up to the magic of combining technology with largely manual processes to achieve better results. The industrial distributor that manually manages multiple, daily deliveries to contractor jobsites within a specific geography, for example, can tap into routing and scheduling, routing and rating, and shipment consolidation functions via a cloud-based TMS for little or no upfront investment and no IT infrastructure other than a web browser and Internet access.

“More companies are attempting to squeeze efficiencies out of their supply chains by optimising the transportation component. This is resulting in the double-digit annual growth in the TMS market.”

Steve Banker, Director of supply chain solutions, ARC Advisory Group

“There’s definitely a much bigger potential installed base out there,” says Banker, “within the market of small- to midsized shippers that aren’t using TMS at all right now.”

In some instances, it’s the larger companies that have been holding back on their TMS investments, thinking that the projects will be too unwieldy or expensive to undertake. Companies that rely on age-old, complicated internal processes, for example, may steer clear of such investments. These shippers present significant opportunity for TMS vendors that can break through the objections and present solutions that enhance operations rather than interrupting them.

“Many corporations fear change and know how complicated it can be,” observes Brad Silvers, a manager at consulting firm Capgemini. “As a result, there’s been a lot of focus on the ‘change management’ portion of these TMS projects.”

To assuage that fear many TMS vendors are stepping up to the plate and ensuring that implementations go smoothly and that key shipper processes aren’t interrupted. Vendors are also offering customisations based on the shippers’ own business rules and providing, for example,

EDI-based carrier integrations that are “linked right into the TMS,” says Silvers. “That way the shipper doesn’t have to go out and talk to every single carrier to complete the on-boarding process.”

Another area where TMS continues to expand its footprint is within the fleet management space, where Silvers says the software is making a pretty big impact right now. “More and more companies that own their own fleets want to manage that portion of their business with their TMS,” Silvers says. “Using a TMS they can run that portion of their business just like they would a typical carrier, complete with the cost analysis, optimisation, and other benefits.”

Silvers, who has helped several companies successfully make the connection between TMS and private fleets, says that those implementations have been largely successful. “We’ve been able to build several solid fleet models by using the latest versions of the TMS that are currently on the market,” says Silvers, who sees more potential for market growth within this area. “TMS has become a pretty competitive area and vendors are trying to one-up each other all the time. Right now, fleet is one of the areas that they’re focused on.”

Thinking globally

It’s not quite there yet, but TMS could become a major player in the global software market of the future, where a growing number of importers and exporters rely on robust technology systems to help them manage a fairly complex business environment.

“We see a lot of shippers that are seeking global trade capabilities integrated with their TMS,” says Silvers, who points out that vendors have been moving in that direction over the last few years. “Global trade and TMS tend to work well together, although it does take some effort to get the two groups aligned with each other.”

For now at least, Silvers says that the global trade options that are integrated into TMS lack the robust software features of their full-blown global trade management (GTM) counterparts. Greg Aimi, research director with Gartner, says that the lines are definitely beginning to blur between the two types of software, but points out that a global-enabled TMS is not the same as a GTM solution.

“GTM specifically centers on the regulatory and commercial requirements for cross-border shipments and import/export,” Aimi explains. “Within TMS, the global transportation component plans the freight movement, optimises it, and provides logistics visibility.” Such systems are currently being used for air, road, ocean, and rail shipments across borders, says Aimi, based on carriers that are assigned

across the multi-legged, multi-modal transportation system.

Expect to see more such functionality worked into TMS, says Aimi, who points to the recent merger of RedPrairie and JDA Software as a sign of things to come within the space. And as the national economy continues its slow recovery and technology infrastructure budgets loosen up, the number of companies investing in a new TMS should continue to climb steadily. In fact, when you add rising fuel costs, an oncoming capacity crunch, and other challenges to the mix it's clear that the TMS reign as the mainstay in the supply chain planning will remain solid throughout 2013. - **RF**



The secret of effective delegation

By Victor Lipman
(psychologytoday.com, 19 June 2013)

While most everyone in business would agree that delegation is critical to managerial success, how often are we dissatisfied with the results of what we've delegated? How often is the "product" that is returned to us not exactly what we'd hoped for? While this is sometimes the fault of the person of completing the assignment, it's often the fault of the person giving the assignment. And there's a common root to the problem.

One word, I believe, sums it up: clarity. (Or lack thereof.) While those executing an assignment have the responsibility to deliver a professional product, those making the assignment have the responsibility to ensure that the assignment is, as an old editor of mine used to put it, "clear as a mountain crick."

Let's dissect delegation. Following are four common areas where it can go astray.

Clarity of objective

What exactly is it that needs to be done? Is an assignment as clear as it ought to be? Take an imaginary example: An executive (likely distracted, edgy, harassed by too much to do in too little time) calls

you and says, "I need a quick competitive analysis of Barking Dogs of America. The board's expressed an interest in it and so has Schnauzer (your CEO). High priority. Gotta run to a meeting now, but I want you and Beagle to handle this. I know I can count on you both – trust me, there's a lot of interest in this one!" (FYI, Barking Dogs is a key rival that has been gaining market share at an alarming rate.) How will you respond to this phone call and assignment? Probably a fair amount of the time, taken off-guard yourself and slightly disturbed by the urgency and impatience in your boss's voice, your answer will be something along the lines of a jaunty, "Sure, no problem – you can count on us. Beagle and I are on it!" But what exactly is it you and Beagle are on? Does your boss want a paragraph? A page? Slides? A 20-page report? And analysis of what? Sales? Earnings? Market share? Distribution? Advertising? All of the above? Who knows? All you really know is that the project is important and your boss is anxious.

Clarity of responsibility

I can't tell you how many times in my corporate career I was given assignments for "me and Beagle" to handle. Or worse still, "me and Beagle and Spaniel," three trusted lieutenants. Even if you and Beagle and Spaniel are all very capable, which no doubt you are, whose assignment is it? Who does what to whom? Without a clear project lead, what you've mostly been handed is a recipe for confusion.

Clarity of time

Let's return to our hypothetical canines. The request was for a "quick competitive analysis." Well, how quick is quick? Could it be a day? Maybe. A week? Possibly? Two weeks? Conceivable – a competitive analysis can get pretty meaty. What both you and your boss most want to avoid is a phone call just, say, three hours later with your boss barking, "Where's that competitive analysis? I'm meeting Schnauzer in 10 minutes!" (When you were planning to meet Beagle over coffee first thing tomorrow morning to discuss how you'd approach the project...)

While most everyone in business would agree that delegation is critical to managerial success, how often are we dissatisfied with the results of what we've delegated?

Clarity of communication

So often what is intended to be communicated by one person is not actually what is perceived by the other. So often projects (and relationships, for that matter) founder on the shoals of faulty communication. How to prevent such delegation-related problems from occurring? From management's perspective, a key element is to make sure there's ample time when a substantive assignment is given (no harried phone calls from remote airports, please), and to follow a clear assignment with a message like: "If there's anything at all you don't understand about this Barking Dog project, just let me know. I don't mind at all. I'd much rather you check in with me now if I'm at all unclear... or at any point in the project, preferably earlier than later, if you need more direction. "No question is a bad question – just ask."

There's no guarantee you'll end up precisely with what you want, but you can improve the odds. - **RF**



Seven signs your supply chain needs a re-design

By Simon Bragg, Richard Stone and Julian van Geersdaele
(dcvalocity.com, 23 June 2013)

A supply chain redesign is the type of project that often gets deferred, especially when budgets are tight. Redesigns are complex and time-consuming, and many organisations lack the needed skills and experience. Moreover, a thorough analysis may be expensive, which can be hard to justify in the current economic climate—even though in our experience, such analyses typically identify savings ranging from 12 to 20 percent of total warehousing and transport costs. In addition, it is difficult to determine before embarking on the project what benefits a supply chain redesign project will uncover.

These potential drawbacks deter many companies from initiating a supply chain redesign project. But there are times when a redesign deserves a higher priority. Here are seven signs that it's probably time to rethink

your supply chain network, along with some ideas about alternative network configurations.

1. You have objectives rather than strategies

The first sign that it may be time for a redesign is that you are focused on supply chain objectives but lack a clear strategy.

Often, objectives are derived by taking last year's cost metrics, like cost per case delivered, and reducing them by a few percentage points. What's more important, however, is how your group will achieve these objectives; in other words, what is your strategy? If your answer involves cheerleading speeches about "stretch goals" and hoping your team will execute more efficiently or effectively, then it's clear that you have objectives but no strategy.

Identifying a strategy everyone can agree on is important. That's because focusing the multiple functions on a single, universally agreed-upon strategy is more likely to bring success than having the organisation begin work on multiple,

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possibly conflicting, initiatives in parallel.

You and your group probably will have many ideas about what the strategy should be. But in order to effectively evaluate the various options, you should use supply chain design tools, also known as network modeling software. This software makes it possible for managers to model, simulate, and fine-tune many different supply chain strategies. Senior managers can then assess each one in terms of costs, benefits, and difficulty of execution. Once they have identified the workable strategies, they can prioritise which ones to implement first.

These network modeling tools are especially good for designing multi-echelon supply chains—that is, supply chains that comprise suppliers' warehouses, manufacturing plants, and central, regional, and local warehouses. Skilled users of the software can determine the optimal number

of warehouses in a network—and where they should be located—to minimise total supply chain costs. (Note that you do need skilled users who can accurately estimate the costs of new transport lanes and warehouses in different regions.) In addition, the tools calculate the minimum total inventory investment needed for the new supply chain in light of leadtimes, required service levels, and forecast uncertainties. Good tools also identify the products that should be held only at the primary distribution center (DC) and those that should be stocked at both primary and secondary DCs.

There are many strategies these tools can assess, including those for managing seasonality, manufacturing, and sourcing, to name just a few.

Strategies for managing seasonality are relatively simple to assess. An important consideration is how best to manage the trade-off between building stock in advance of the peak sales season versus paying overtime for manufacturing to meet demand as it develops. Good tools also allow managers to compare the cost of temporary warehousing versus operating throughout much of the year with excess space. Another factor to model is the forecast accuracy for each product. It can be wiser to build inventory of seasonal products for which demand is more certain—that is, stock the products that you know will sell—rather than hold inventory of products that may or may not sell.

Supply chain design software can assess some manufacturing strategies, such as where manufacturing should place the customer-order decoupling point (the point in the manufacturing process where a customer's order rather than a forecast determines an activity). Such an analysis would allow you to compare the costs and delivery performance of late customisation in the warehouse as well as make-to-order, assemble-to-order, or make-to-stock/pick-to-order manufacturing strategies.

Supply chain design tools can also help formulate global sourcing strategies and assess "make versus buy" decisions. Ideally, these decisions should not be left solely to the purchasing function. Instead, the supply chain organisation should first ascertain the impact of sourcing decisions on such factors as leadtimes, inventory, and customer service levels, and then work with purchasing to determine the best decisions, taking all of those factors into account. Often, however, the supply chain and purchasing groups have been handed different objectives, which hinders collaboration. For example, purchasing earns bonuses for reducing the price per unit, while supply chain cares about total costs and delivery performance.

Supply chain design tools are very helpful in such situations. They can quickly

assess the impact of purchasing decisions and produce accurate numbers that will lead to more productive discussions. Even better, the supply chain group can model suppliers' costs and look for ways to reduce them so that purchasing can then negotiate discounts. For example, perhaps your company could utilise existing backhaul opportunities to pick up a supplier's goods; this would reduce the supplier's costs and open the way for lower prices.

Good tools generate "pictures" that help you communicate your chosen supply chain strategy to senior managers and other department heads. When all the decision-makers fully understand how certain choices will affect costs and operations, it becomes easier to align the company's strategy with your chosen supply chain strategy. It's critical, in fact, that those strategies be aligned lest the supply chain organisation and the company end up following different—and therefore, very costly—paths. Failure to align strategies can result in a situation such as the supply chain group's consolidating two divisions' supply networks, only to discover later that the board is selling off one of those divisions.

2. People ask: Why do we do things this way?

The second sign that it may be time for a redesign is that few people in your organisation recall exactly why your company's warehouses are located where they are. It may mean that the current supply chain configuration is no longer fit for today's requirements.

Perhaps a number of years ago, your predecessors designed your company's supply chain to optimise the supply of products for delivery to customers. Since then, both the product mix and the customer base have changed. Moreover, longstanding customers have probably relocated their inbound warehouses. The result: Your current supply chain design is no longer optimal for today's product range and ship-to locations.

Or maybe a senior manager asks, "Why are we shipping from high-labor-cost countries to low-labor-cost countries?" This may have made sense many years ago, when sales into low-labor-cost countries were relatively small. However, these economies have grown rapidly in recent years, and sales volumes may now be significant, with the potential to increase.

Frequently, things that should change stay the same because managers tend to focus on short-term, monthly changes and miss the long-term, year-on-year trends. They also tend to apply established assumptions to new challenges. For instance, traditionally, holding stock was expensive and transportation was cheap. These days, with fuel costs continually rising and the cost of capital and

warehousing declining (at least for the time being), that assumption no longer holds.

It is time to test many long-accepted assumptions. Is it still better to purchase stock when it is required, or to hold stock? Is it appropriate to incur the higher costs of expedited delivery in order to reduce stock-holding costs during a period when interest rates are low? Are the labor, transportation, and distribution costs at your manufacturing sites still the most advantageous for serving your current markets, or would it be more cost-effective to manufacture and/or distribute from neighboring countries?

3. The number of products and customers is growing faster than your budget

The third sign is that your budget is not growing as fast as your product range and customer base.

Budgets often are set as a percentage of company revenue or spend without understanding the effects of changing demand or supply profiles on supply chain costs. Consider this scenario: Every few weeks, the marketing or research and development staff comes trotting along, excitedly describing their latest product that's bound to be a best-seller. Similarly, the sales team is forever in the bar, celebrating winning yet another new customer. Meanwhile, your logistics team is stuck wondering how to handle the extra costs associated with the additional stock-keeping units (SKUs) and new customers, which weren't accounted for in their budget.

How to address this problem? A colleague once resorted to configuring his company's enterprise resource planning (ERP) system to allow only 25,000 products. Although this was a radical and perhaps crude solution, it at least forced the company's marketing department to think about dropping an existing product whenever a new one was launched.

Once again, modeling with supply chain network design software can help you foresee the cost and service impact of change. Managers can simulate how keeping or dropping particular customers and products will affect profits. Be prepared for some pushback when you present those figures, though. Marketing will argue that particular customers give you much of their business because your company supplies them with a low-volume, specialised product, so that product must stay in the catalog. They'll also argue that other customers have potential—perhaps because they are a high-growth business or the sales team has just won a foothold by offering a huge discount—and therefore, the pricing for that customer cannot be changed. Regardless of the response your simulation elicits, remember that supply chain design tools generate accurate numbers that support a rational discussion.

4. Consolidation or collaboration is coming

An impending acquisition, collaboration with another company to share resources, or centralisation of previously decentralised supply chain functions all suggest that a network redesign is probably in order.

Typically, companies form merged, collaborative, or centralised supply chains with objectives such as achieving economies of scale in warehousing, better utilising transport, and increasing freight purchasing power. Using network modeling software to evaluate a proposed supply chain redesign before such a large strategic change will give companies a better sense of just how feasible these objectives are.

In a merger or acquisition, for example, the acquiring company sometimes pays too much because management overestimates the level of supply chain savings and efficiency improvements. Acquirers often justify paying a high acquisition premium because they expect that eliminating redundant supply chain functions will lead to a high level of savings. But in practice, such rationalisation can be difficult, largely because both parties have implemented different processes using different information systems. In such cases, supply chain network design software can develop a realistic estimate of the cost savings from merging the companies' distribution chains.

Collaborative supply chains, in which unrelated and even competing companies share distribution and transportation resources, are generating some interest, particularly in Europe. Although the concept is an attractive one, to date only a handful of supply chain collaborations have been consummated. To succeed, both parties must understand their costs. Supply chain design tools are helpful for modeling collaborations because they enable both parties to understand their current costs, project how collaboration will affect their cost structure, and estimate their partners' costs.

Centralisation of supply chain functions, often driven by a shift from country-based to regional management, is another common trigger for a network redesign. A good example of a regional approach can be seen in North America, where U.S. companies have long regarded that continent as a single market and manage their supply chains on that basis. In Europe, by contrast, it is really only in the last decade that companies began to replace the traditional nationally designed and managed supply chain functions with pan-European ones. That has required major shifts in transportation and distribution patterns. It's common nowadays for a European supply chain design to encompass manufacturing in China, importing via Rotterdam, a primary distribution center in

the Benelux countries, and secondary DCs some distance away, in places like Spain, Northern Italy, or Romania. For a company to do this properly, it must first model its supply chain to determine the optimal location for manufacturing, primary DCs, and secondary DCs as well as transportation routes.

5. You experience a major service failure

An important customer has just called and expressed dissatisfaction concerning a service failure. If this is not the first time that problem has occurred, then you may have a systemic problem, and a redesign could help prevent it from happening again.

A common cause of supply chain service failures is a lack of robustness in supply chain design. Lean supply chains in particular can be fragile, as by definition there is little stock to buffer things going wrong.

Typically, companies form merged, collaborative, or centralised supply chains with objectives such as achieving economies of scale in warehousing, better utilising transport, and increasing freight purchasing power. Using network modeling software to evaluate a proposed supply chain redesign before such a large strategic change will give companies a better sense of just how feasible these objectives are.

This lack of redundancy or buffer stock can make it difficult for companies to manage variability, a situation that can also cause service failures. This is especially true when there is variability in multiple factors, such as demand levels, on-time delivery rates, and manufacturing uptime. You may not worry much when each individual factor's variability is a standard deviation away from the average levels you assumed when designing your supply chain. But if demand is higher than normal, suppliers' deliveries aren't as prompt as usual, and a critical production machine breaks down at the same time, then problems emerge.

Supply chain design tools can help simulate, to an extent, such variability in supply, production, and demand. Although the tool does not provide the solution to

those problems, it enables managers to evaluate variability and assess the performance of their supply chains under real-life, rather than average, conditions.

It's also possible to assess the impact of solutions you could adopt to better manage variability. Examples of these solutions include postponement and late customisation in the DC and other "to-order" strategies. Vendor-managed inventory or supplier-managed inventory can also be effective. Yet another option is to manufacture base products or components that enjoy stable demand and then locally customise, to order, each variant that experiences more variable demand.

6. Fear is in the air

Your company's own practices and processes are in good shape, yet the CEO is nervous. What's worrying him or her? The things the company can't control, like supply chain disruptions that will affect profits and investors' earnings. When that's the case, it's time for an assessment (or a reassessment) of potential risks to your supply chain and perhaps a network revision that will reduce the potential for disruption.

Conducting such an evaluation will require you to identify risk factors and assess each one's probability of occurrence and its likely impact. Having that information will focus management's attention on developing appropriate mitigation plans for the key risks.

Supply chain design tools can help managers to assess the impact of some, but not all, risk factors as well as to model mitigation plans. A simple example would be the impact of rising interest rates on inventory holding costs. If interest rates increase, then inventory holding costs also rise. To mitigate these increased costs, managers typically choose to hold less stock, but that could result in more frequent deliveries, which would drive up transportation costs. Good supply chain design tools will produce a model that optimises both operating and inventory holding costs. From this model, managers can then estimate the total cost increase after they have partially mitigated the impact of rising interest rates.

To an extent, it is even possible to model natural disasters that close transportation lanes or nodes. Predicting the impact of something like the eruption of a volcano (think of Eyjafjallajökull in Iceland, which disrupted European air transport) is relatively easy. This is because alternative transport modes can still operate, although initially they will be constrained by capacity and time issues, and there are relatively few secondary impacts.

Modeling the effects of a wider disaster is much harder because today's multitiered supply chains involve so many "layers" of

No company can afford to establish a supply chain network and simply assume that it will always be the optimal design.

suppliers and subcontractors, some of whom dominate their product niches. Consider the secondary impacts of the March 2011 Japanese earthquake, tsunami, nuclear plant breakdowns, and power shortage. Few people knew, for instance, that the market for the resin that bonds microchips in smartphones is almost a duopoly between Mitsubishi Gas Chemical and Hitachi Chemical, both of whose plants were damaged. That is why the resulting slowdown in smartphone production came as a surprise to many buyers.

Supply chain design tools can evaluate most nodes of a multitiered inbound chain. They can assess, for example, whether it would be better to buy from two different sources of specialised components, even though doing so will raise operating costs. Another option might be to negotiate something akin to an insurance policy, such as paying a premium for a guarantee of preferential treatment in the event that another supplier fails to perform. And if your company is a very important customer for one of your suppliers, you may want to encourage that supplier to open a plant in a completely different geographic location in order to hedge against risk. To properly develop and evaluate these and similar solutions, procurement must understand the risks in the supply chain and the value of any mitigation strategy. Supply chain design tools help calculate both of those factors and communicate the results.

7. It's time to renew a third-party logistics contract

It is difficult to revise your supply chain when your company is tied into long-term contracts with third-party logistics (3PL) partners. Best practice, however, is to review your network design every three to five years, which tends to be in line with the length of third-party logistics contracts. Thus, about a year before a contract is scheduled for renewal is a good time to begin reconsidering your supply chain configuration. This gives you time to obtain support for change within the organisation and to negotiate contracts for new lanes or locations.

A network review is also timely if you are putting a 3PL contract out to bid. In order to submit accurate bids, potential

suppliers need forecasts of freight volumes and lanes, inventory volumes, and desired service levels. Supply chain design tools also consider that same type of information, and when the company's sales forecast is included, they can generate the forecasts that 3PL bidders require.

While your current network might be optimised to suit the 3PL's resources when the previous contract was signed, your incumbent 3PL may be unwilling to change to meet the proposed redesigned supply chain, or it might lack the infrastructure to provide a better solution. Hence, a planned network redesign may show managers that they should put the contract out for bid and seek other, more appropriate logistics service providers.

Time for action

If suppliers always delivered on time, production always adhered to its plan, and customers always ordered what your forecasts said they would order, then supply chain management would be simple. But it is not, because business conditions and circumstances are constantly changing, and therefore, no company can afford to establish a supply chain network and simply assume that it will always be the optimal design.

Fear of the time and cost involved often encourages supply chain managers to postpone an evaluation and redesign. In practice, however, most such projects start with a quick estimate involving perhaps 20 days of work. This initial stage is a time for roughly assessing the potential for alternative designs and for determining that there is indeed a business case for changing your current configuration. The second step typically requires between 50 and 100 days to accurately calculate the cost of change and the potential reduction in supply chain costs.

Supply chain design tools are particularly versatile and are invaluable in performing the necessary assessments. For a wide variety of important issues, these tools provide insight and analysis where once only opinion prevailed. Now, management can make better decisions that have been rigorously assessed and justified. Managers can assess the merits of multiple scenarios, knowing that they are comparing like with like. This is because supply chain design tools deliver an optimum solution for each scenario. This rigorous justification helps win over colleagues across the organisation and thus speeds up implementation of the new supply chain configuration. - **RF**

Note - All credit goes to the particular author and/or publication of the articles shared in this publication

Result focused logistics and supply chain advisory services

By Anton Nieuwoudt / Niels Rudolph

dasResultat is a results focused logistics and supply chain management advisory company with greater than 30 years combined experience in various functional areas of logistics and supply chain management across diverse industries.

Our primary objective is to support our clients to reduce operational costs and increase their service offering to their clients through optimising their supply chain, by offering a wide range of services based on our own practical experience.

dasResultat stands under joint leadership of Anton Nieuwoudt and Niels Rudolph.

Leadership

Anton has more than 12 years experience in logistics- and supply chain management across various industries.

Prior to co-founding dasResultat as a boutique logistics and supply chain advisory company, Anton was at Accenture where he was involved in various projects in the Retail, Mining, FMCG and Energy sectors. Here he was able to expand and apply his fulfillment, supply chain management, supplier management, project management and business consulting expertise.

Anton also worked at DB Schenker where he gained experience in integrated logistics management, spare parts logistics as well as inbound- and outbound logistics solution implementation.

Anton holds a Bachelors degree in Marketing from the Rand Afrikaans University and a Masters degree in Logistics Management at the University of Johannesburg.

Niels has close to 20 years experience in logistics- and supply chain management mainly within the 3PL industry.

Prior to co-founding dasResultat as a boutique logistics and supply chain advisory company Niels founded ORAscM as a specialised logistics consultancy company. He also worked at DB Schenker and PriceWaterhouseCoopers in Germany as a project consultant.

Niels spent the largest part of his career at DB Schenker in various roles in Germany, Singapore, Malaysia and South Africa. During his last role at DB Schenker in South Africa, Niels was responsible for

logistics development, reporting directly to the CEO. Here he applied and expanded his knowledge to develop logistics solutions across the local automotive, high-tech and retail industries.

Niels holds a Diplom Betriebswirt (BA) from Staatliche Berufsakademie, Mannheim (Germany).

Functional experience

Our functional experience include among others warehouse design & management, transportation management, inventory management, demand planning, supply planning, supply chain planning, supplier relationship management and project management.

Industry exposure

We have had exposure to industries such as retail, automotive, consumer goods and services, petrochemical, mining and defense aerospace.

Core offerings

Through our core offerings we can support our clients to achieve strategic, tactical and operational results. These offerings cover areas such as Strategic Supply Chain Planning, Fulfillment, Sourcing & Procurement, and Project Execution.

Credentials

Since founding the company in the fourth quarter of 2012 we've been involved in various projects.

Our primary engagement has been with a leading global third party logistics company. Here we've been tasked to support them in their turn-around of their contract logistics department.

Secondary engagements during our first quarter of operations included a warehouse performance assessment at the Cape Town operations of a global apparel company, supporting a logistics service transition at a German automotive manufacturer and providing warehouse implementation support for an agricultural equipment manufacturer. - **RF**

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dasResultat is a result focused logistics and supply chain management advisory company.

We partner with our clients to identify and unlock practical and sustainable solutions.

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