Eindhoven, Link Summer/Autumn 2012

The Supply Chain Link

European Supply Chain Forum

Message from a Board Member

Innovation in SCM: finding the Interface

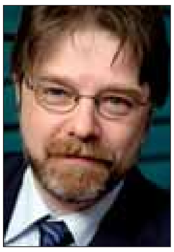
For me, the recent past was a bit of a conference season – and I was lucky enough to have the opportunity to visit conferences of various tastes, shapes and colors, with elements varying from the fairly academic to the fairly industrial, all with contents that are or can be easily related to SCM. At these conferences, the idea is that new insights and developments are brought to the attention of the audience. In other words: these conferences are about new things, about innovation. Wandering about these conferences, one is easily struck with a major observation: there are different kinds of innovation.

Attending the conference elements at the more academic end of the innovation spectrum, one can observe that many researchers here interpret innovation as the 'theoretization' of rather established developments – or of small increments with respect to these developments. They prefer an established basis, as this provides the groundwork for existing examples, case studies, performance reports and convincing evidence for the importance of the topic. Consequence of this, however, is that innovation here often is not so interesting to industrial practice: things have already been established and often adopted. In other words: industrial relevance has been sacrificed for academic rigor – and real innovation is left in the shade.

Visiting the more industrial end of the innovation spectrum, one can find that many practitioners here interpret innovation as the 'implementation' of minor new developments – often governed by industrial domain standards or new versions of technologies. They prefer minor developments, as these are rather safe with respect to what one may find soon after their adoption. These developments are often applied in a bottom-up fashion, as the top-down models for their proper placement are lacking – they take too much time to be constructed. Consequence of this is, obviously, that innovation only makes small steps and hence not so often provides a strategic advantage in a market. In other words: long-term vision has been sacrificed for short-term wins – and again real innovation is left in the shade.

So, at both end of the academy-industry spectrum, one can have his (or her) doubts about the effectiveness of innovation. Given this stalemate situation at both ends, one may also wonder whether the so-often promoted concept of the Triple Helix of industry, research and government will indeed spiral into true innovation. If the mindsets of many main players in the innovation game are anchored in their own short-term objectives, no Helix of any kind will be the appropriate answer.

The answer is the fundamental change of the mindsets: the academic researchers opening up their towers of rigor to allow a breeze of real new ideas for practice to blow in, and the industrial practitioners unlocking their silos of current operations to allow some light of long-term new concepts to shine in. If that can happen, we can find the Interface (yes, with a capital I) where academy and industry can join forces towards Innovation (and yes, again with a capital I) in SCM. You are all invited.



Author:
Prof. Paul Grefen

IN THIS ISSUE

Newsletter

Team Update

Geert-Jan van Houtum

Two master thesis prizes for OM&L graduates

Two recent graduates of the master program Operations Management & Logistics (OM&L) won master thesis prizes. Rik Kusters received the SLF Master Thesis Award (and a cheque of 1000 Euro) for the best master thesis in the area of service logistics. Seyma Cakir earned the same amount with the DI-WCM Innovation Research Award for her master thesis work on a failure prediction model.

Kusters did his master thesis work in collaboration with NedTrain. The committee praised the applicability and scientific content of his work, that constitutes a impressive extension of the existing spare parts literature. The committee was also impressed by the clear presentation of the results. ?akir wrote a catchy thesis, according to the committee of her award. She made a prediction model for upcoming failures of critical components of machines produced and maintained by ASML. Her model was based on data mining techniques and performed significantly better than the existing physical model.

EW Jaarcongres

Jan Fransoo

Jan Fransoo initiated a project on horizontal collaboration in the chemical industry "4c4chem", which was granted with substantial funding by the Dutch Institute for Advanced Logistics. In the project, various initiatives are conducted and researched to better forecast demand, combine inventories and bundle transportation. eSCF members SABIC and Dow Chemical, along with a number of other companies, participate in the project.

The project "Ultimate", that studies the design and operations of hinterland container networks, went into its second year. The Eindhoven team in the project developed a new set of algorithms to be used by inland terminals to allocate containers between barges and trucks, to minimize cost and emissions, while taking into account the due dates of the containers. The algorithm is currently being piloted at the Inland Terminal in Veghel (Netherlands). Further, as part of the project, a study was conducted on Carbon-efficient inventory management at a major electronics company. The objective of the study is to show that shippers in the end have the major impact on the carbon efficiency in transportation: if inventory management is properly conducted, inventory levels can be reduced, service levels increased, transport cost reduced and emissions reduced. eSCF companies that have an interest in conducting such studies are most welcome, as we are trying to link the transportation and inventory decisions more explicitly.

Tom Kuster, an Eindhoven Master student, completed his Master Thesis at Bayer Healthcare, developing a methodology for carbon footprinting their distribution supply chain under conditions of limited data availability (for instance on shipments within emerging markets). The method has now been adopted by Bayer as the standard to report emissions. Interestingly, Bayer was listed as the most transparant company in carbon emission reporting by the CDP earlier this year. Kuster also conducted an analysis to reduce the emission from airfreight, proposing a model where air emissions could be reduced drastically.

continued on page 3 >

UPCOMING EVENTS OF THE EUROPEAN SUPPLY CHAIN FORUM

*** February 20, 2013**

Location: Eindhoven
Workshop Managing Scarcity Risks in Supply Chains

In the new project on emerging market megacity retail distributiion, that eSCF research director Jan Fransoo is leading together with Edgar Blanco of MIT's Megacities Logistics Lab, a workshop was conducted in Mexico City in which various eSCF members took part. The workshop was accompanied by a number of field trips by the lead researchers into the alleys of Mexico City to study first-hand the last mile of this challenging supply chain.

Further, Jan Fransoo participated in a number of academic conferences and gave invited seminars at a number of universities, including the Technical University of Munich and the Tsinghua University in Beijing.

European Supply Chain Forum

Supply Chain Agility: Obtaining Dynamism through the Use of Real-Time Information

October 2, 2012 - Eindhoven, The Netherlands

Nowadays, markets have increasingly become dynamic requiring (near) real-time decision making to guarantee optimal business performance. On the other hand, development in information and communication technology enables global access to information at any time. Therefore, the way to interpret the feedback loop, which describes the loop between decisions, business processes, process monitoring and information collecting, is changing fundamentally. The workshop "Supply Chain Agility: Obtaining Dynamism through the use of Real-Time Information" has approached this theme in a dual way. Firstly, there is the perspective of information and decision aspects, in which we deal with collecting real-time process information and optimal decision-making. Secondly, there is the perspective of the execution and monitoring aspects, in which we deal with the effective execution of real-time decisions and the measuring of the behavior of processes in the 'real world'. Representatives from different kinds of business domains shared their perspective on this topic, followed by a break-out session applying the obtained knowledge to scenarios from the companies of several participants.

The high-tech asset domain: dynamizing maintenance
Gert Streutker of ASML shared his experience from the high-tech asset domain. At ASML, lithography machines are developed. Over the years, machines have increased in complexity, configurations are continuously changed and there are more machines to maintain. It led to the "Be-warned" project, the main idea of which is to transform the maintenance in a breakdown situation into a situation where there is proactive maintenance.
This proactive maintenance would be beneficial for both customer and ASML. ASML would know what to expect and could prepare future maintenance. Eventually, it will lead to decreasing the down time of machines, delay time in spare parts delivery, the frequency of emergency transshipments, and will enable ASML to meet requirements by lower stock investments.

Gert Streutker

To be able to implement the transition suggested in the project, an appropriate and reliable model is needed. However, at first, the decision should be made about what this model should deliver. Also, trade-offs have to be made between different usage of models, like the degradation models, the life cycle models and the early warning models.
Next to that, there is also the trade-off between a model built by an expert and a 'black-box' model (data mining). Even if a 'black-box' model provides more accurate results, it is impossible to explain why and how these results were obtained, while an expert can provide the explanation of his/her conclusions which can be more convincing for a client.

In addition, there are multiple challenges that have an influence on the project implementation. First, there is the impact on the operational, the managerial and the technical sides of the organization. Processes and resources require adjustments, responsibilities have to be changed and hardware and software have to be able to support the new situation. Moreover, ASML should decide either to create the model by itself or to hire/buy it. Eventually, a pilot will need to deliver proof of the benefits of this project for ASML and to acquire the confidence needed in the project to make the transition to more proactive maintenance.

HubWays: the floricultural Platform for an Agile sector
Edwin Wenink of FloraHolland started his presentation with an introduction to the Dutch horticulture cluster and a description of his company. FloraHolland is a cooperative organization of and for growers of horticulture clusters, which counts almost 5,000 members. The main goal of the company is to achieve the maximum business profitability for all its members with the lowest possible total cost of ownership. With the increase of transportation volumes, the floricultural market requires

continued on page 4 >

virtualization of its activities in order to digitize transportation orders, to efficiently use the information, to increase transparency in the supply chain and to optimize transportation.

The speaker therefore presented HubWays, which is a joint initiative of the floriculture sector for digitization and coordination in floriculture transportation and is able to serve sustainable services and to realize supply chain efficiency. The main objective of the HubWays initiative is to develop a neutral logistical platform which will bring together traders, logistic service providers, and growers and will establish the coordination between them. However, it can be only realized by cooperating with multiple parties between the Greenports of Holland.

Starting the project, first the scope has been defined. According to it, HubWays focuses only on inbound transportation, such as transportation from grower to the market place, and inter-location transport, e.g. between the market places. To ensure the need for such a platform in the market, a number of interviews were performed and the main problems and requirements were defined. As a result of the research, the vision of HubWays was designed. The platform should provide the core activities such as HubWays registration, Transport Order Management, Communication, Report, and Customer service. Then, four possible concepts were developed. Concept A is a digital market place where all transportation orders are digitized. Concept B is a platform for logistic service providers which allows them working together and share their orders between each other. Concept C allows coordination by logistic service providers. FloraHolland in this case is also part of the process and sets certain rules and controls performance. Concept D provides coordination of all activities by HubWays.

In addition to these concepts, there are extra services that emerge from the market needs and which FloraHoland aims to realize. Concluding the presentation, Edwin Wenink mentioned that the platform should be operational in the mid of 2013.

Edwin Wenink

The transport domain: dynamic synchromodality for green transportation

Marten van der Velde of Portbase started the presentation with the words “A world without traffic jams”. He explained that this is the issue which has to be thought about especially if we are talking about logistics and transportation of cargo. According to the speaker, increasing scarcity of people, means and infrastructure leads to necessity of cooperation and sharing information. To do that, Portbase has developed a platform which is called Port Community System. It is a neutral reliable hub for all logistics information in the port of Rotterdam and port of Amsterdam. This non-profit platform enables simple and efficient reuse and exchange of the information between both companies and between public and private sectors.

In addition, Portbase aims to improve their services. First of all, they want to extend the availability of the information about a cargo transportation not only within the port of Rotterdam but also from the moment the cargo left the origin point, arrived at the port and then was delivered to the final destination. Furthermore, the platform intents to be an open infrastructure where other IT service suppliers can add their services and share information.

After the description of the main goals and ambitions of Portbase, the presentation was taken over by Remco Dijkman of TU/e. He described the European project which had just been started by TU/e together with Portbase and a number of other companies and is called “Green European Transportation Service”. Its main goal is to develop a system which, using the real-time information, will perform real-time planning and control. To be able to do that, the visibility of the supply chain and the insight of the entire end-to-end transportation is required.

The target tool should enable to determine the status of resources and infrastructure, detect and predict delays and plan end-to-end transport routes accordingly. Moreover, it should react to the deviation of the initial transportation plan and automatically change end-to-end transport routes.

However, there is a number of challenges within this project. One of the main issues is the technical problem. Since this tool aims to operate with real-time data, it will lead to an enormous increase of the number of messages received per second. Thus, this data should be aggregated in some way and customers should be provided only with data they need and on the level of detail which is sufficient and meaningful for them.

The second challenge concerns handling the continuously changing information. It should be possible to build an optimal plan in any moment of time, taking into account that information is continuously updated. Beyond that, the ambition of the project is to perform predictive planning as well.

The next challenge is to make a control component as easy as possible for user. First, the customers should be provided with the appropriate information. Then, they should be able to perform changes in the transportation plan easily where all accompanied activities are performed by the tool.

Decision making in complex ERP environments

The last speaker who shared his experience during the workshop was Twan van Dijk of Dimensys. Dimensys is an international business and IT consultancy company, specialized in improving the business value of project and service based businesses. Dimensys acknowledges that the decision-making becomes more complex due to changing realities. This forces companies to make decisions regarding customer intimacy, operational excellence and product leadership. Where economic slowdowns force you to become more customer-focused, global competition makes you

focus on improved product profitability and global sourcing puts pressure on on-time delivery of customized products.
The reality in decision-making indicates two types of problems: fuzzy problems and discrete models. Moreover, for fuzzy problems to be solved, sufficient data and reliable models are required.
Next, the speaker introduced two cases. At first, he shared the case of Heijmans, which aimed at improving their road inspection process by use of a mobile application. It led to faster decision-making and therefore faster process. IT solutions also improved the quality of the data and increased the efficiency. However, it still remains challenging to take decisions based on all this information, since it is difficult to define when damage to a road disrupts traffic safety.
Secondly, Twan van Dijk shared the case of ProRail. Here, the real-time data combined with decision-making models will evolve asset maintenance into condition-based maintenance based on the real-time data. By gathering data from the railways, the conditions of the tracks can be made visible. However, this requests a large amount of information to be analyzed. An issue is to find the appropriate model that could structure all this data. Furthermore, the availability on mobile devices of this information and the ability to manipulate this information is of importance.
It is significant to acknowledge from these cases that the implementation and usage of ERP need a clear decision making model in order to be successful.
Furthermore, through the rise of new technologies, companies will need to continuously adapt to a new IT reality, like for instance cloud computing and the increasing mobility in IT.

Break-out session

The break-out session was started by Paul Grefen. First, he introduced a decision making model for agile supply chains. According to it, there are the real world where all events happen and the model world which aggregates information from the real world and structures it according to some models. The real world is represented by the environment where external events occur and the transformation system where business events happen. The model world is described by two systems. First, there is the information system that observes behavior of the real world, extracts data internally from the transformation system and also from the environment. Second, there is the control system, which takes decisions based on the collected data in the information system.
In this model, several feedback loops can be distinguished. The internal feedback loop starts with observing and collecting the internal data from the transformation system and then based on it the decisions are made and realized in the transformation system. In the external feedback loop, the data are collected from the environment; the control system uses this data to take a decision and applies this to the transformation system. Furthermore, the speaker showed that any supply chain can be represented as a sequence of this decision making model.
After the presentation, the participants were divided into five groups. Each group was asked to describe one particular business model from one of the group members' company based on the discussed decision making model and to position their situation in this model. Moreover, they were asked to define the most important feedback loop within the particular business model, estimate how much time it takes to receive the feedback information and to discuss how it is possible to decrease the time of the feedback loop.
Three groups presented their results. The first group discussed the business model of the production of medicines for animals. The second group showed the model of the producing products for crops and finally the third group discussed chemical production. Furthermore, for each case some recommendations how to speed up the feedback loops were provided.

Author:
Anna Lyubchenko
LMS trainee

Break-out session

Improving supply chain agility and responsiveness through use of real-time information[1]

Abstract

Increasing market turbulence, and unpredictability of markets and customer demands, forces companies to build more agile and responsive supply chains. Using real-time market and customer information may help companies to build such agile and responsive supply chains. As some case examples from different types of industries will show, responsive supply chains will not only allow to operate at lower operations cost and meet customer demands better. However, it also enables companies to develop and build different and more profitable business models. Changing from traditional supply-chain management to quick response supply chain management requires a dramatic change in how companies serve their markets and customers. It also calls for differentiation between efficient and responsive supply chain designs, superior information and data management structures, and tailored sourcing strategies.

Introduction

MSD is a global market leader in pharmaceutical products. It operates plants all over the world. The plant at Oss, the Netherlands, is specialized in pharmaceutical products for animals. Over 400 products are produced for a wide range of animals. A distinction is made between animals that are grown for professional purposes (e.g. cattle, pigs, chickens) and pets, i.e animals held for private pleasure (horses, cats, dogs). Meeting market demands gets increasingly complex. MSD Oss is confronted with increased market uncertainty, and turbulence. This is particularly true for its professional markets. Disease outbreaks represent a big opportunity in terms of extra sales. However, these outbreaks are hard to predict. Sales volumes are hard to forecast. Given the long production leadtimes MSD needs to take care of large stocks,located close to its markets. These stocks consume a large part of the company's working capital. At the same time MSD needs to satisfy its global customers. The challenge for MSD is how to capture market opportunities, while at the same time preserving an efficient materials flow throughout its value chain against lowest possible capital cost. How should MSD do that? How to increase its supply chain agility?

Other companies face similar challenges. One of those companies is Dutch-based ASML, the global leader in high-tech equipment for microchips production. Its wafer steppers, which come at a price of a couple of millions Euro's per machine, are known worldwide for their advanced technology. ASML is subjected to Moore's law which states that the performance of a microchip doubles every 18 months. At the same time its production cost halves. Due to this law the speed of innovation in this industry is stunning. ASML has been able during the past 20 years to turn out a new generation of wafer steppers every 18 months. Quite an achievement for its R&D and production staff; quite a challenge for its customer support and service staff, who need to maintain an installed base of over 3500 machines in the global market: each machine being different in composition and technology. Each machine, unpredictable in terms of spare parts needs and maintenance. Machine performance is hard to predict. When a machine breaks down, ASML's service staff needs to act immediately. A major challenge for ASML is how to organize for efficient services and where to locate spare parts stock location points and at what level. Again the question here is; how to increase its supply chain agility? What logistics and value chain strategies would be appropriate to deal with these challenges? How to design for a responsive and agile supply chain? In answering these questions, we will address three topics . First, we will address three trends that enable companies to build more agile supply chains. Next, when building agile supply chains, companies need to address their supply chain planning activities at three levels in parallel , i.e. at the strategic, tactical, and operational level. Finally, they need to consider how to reduce time to market and supply lead times through their entire value chain. Here, four ideas may help companies to improve the adaptive capability of their supply chain activities.

Trends and developments in supply chain technology

The IT revolution has made new solutions possible for the design of quick response, agile supply chains. The use of real-time market and customer data is a common feature across these designs. Using real-time information, allows companies to:

- build more responsive systems. Today , supply chain data are more accurate and faster thanks to faster updating of data in ERP systems. GPS data provided by satellites, allows producers of herbicides to get a clear view on weather conditions and crop conditions in the field. As a result , crop protection programs and harvest programs can be better planned. Actual and accurate weather information helps producers of herbicides to plan effectively for future, short-term market demands.
- better connection between systems of companies that belong to the same supply chain. Better connections allow for a full tracing and tracking of orders and goods at different stages of the supply chain. Web shops like Amazon.com, and bol.com allow customers to follow their order from the moment of purchase up to the moment of delivery. In the business-to-business markets, third-party logistics providers such as UPS and DHL offer their customers similar functionality. Flora Holland, one of the largest flower auctions of the world, has built a digital platform (i.e. Hubways) which allows all parties in the horticultural and flower industry, national and foreign, to facilitate transactions and payments and to track their transactions and goods flows, independent of whatever IT platform.
- create better communications networks. Sensor technology allows monitoring of production and transportation equipment from a distance for maintenance purposes. Examples are: DAF and Volvo trucks that warn the driver and fleet owner in advance of technical maintenance needed and spare parts to

[1] *This article is for a part based upon input obtained at the European Supply Chain Forum Workshop on Supply Chain Agility, 2nd October 2012 .*

be replaced. Or Samsung and HP printers that warn about ink levels and the general technical status of the equipment, allowing the user to order the required parts directly from the manufacturer.

The implications of using real-time information to manage materials and goods flows is threefold : 1) It creates more efficient supply chains and materials flows that operate at lower cost, 2) It creates more responsive and agile supply chains that respond more effectively to fluctuating customer demand, 3) It helps to build new and more service-oriented business models and create more captive customer relationships. Hence, using real time information turns supply chain management from a cost factor to a driver of competitive advantage and customer value. However, doing so requires complex, multilevel planning activities.

A three-level framework for assessing supply chain planning activities

Companies need to plan for supply chain activities in order to be able to anticipate and respond to changes in their environment. Next ,they need to gather management information for daily decisionmaking. Finally, they need feedback systems in order to check the effectiveness of their planning activities, decisions and actions. They need to do so at three levels of planning:

- strategic level: this includes design of the supply network structure , where to use efficient or responsive supply chains[2], where to put distribution and stock points, what types of inventory to use, etc.
- tactical level: this includes forecasting of demand per market segment, decisions on base stock levels, what customer service levels to achieve, etc.
- operational level: location of products and parts to local warehouses, warehouse design, order routines and order picking procedures and routines, transport routines, etc.

These levels need to be addressed, regardless of type of company or industry. Planning activities at these three levels are relevant for a company like MSD, who delivers pharmaceutical products to farmers and consumers. These are also relevant for a company like a ASML, who needs to service a highly varied installed base of machines of a different age across the globe. Moving from a reactive maintenance philosophy to a more proactive, preventive maintenance philosophy is far from easy, since it affects all three planning levels. First of all, it requires a vision where, rather than selling machines, selling machine reliability and operations performance at customer site is central. Next, machine designs should be changed so that they can be easier maintained. Third, performance and operations data (such as machine eventing log files, machine status files, machine parity or files, test reports) need to be collected per machine to be able to forecast potential machine breakdowns, and to forecast spare part consumption. Based upon this information, spare parts stock points can be allocated close to international customer networks. Finally, the service staff needs to be trained in auditing and inspecting machine for maintenance and repairs, in preventive maintenance and superior customer support in order to improve unplanned downtime of the equipment. This example illustrates how the different planning levels in supply operations interrelate. Planning for these different activities, requires of course, detailed monitoring to learn where processes can be improved or should be improved. Hence effective feedback loops between planning and execution need to be put in place.

Prior to moving to a proactive, preventive maintenance approach, ASML decided to conduct a pilot test. This pilot test included 52 different machines which were maintained through preventive maintenance (rather than corrective maintenance as usual). Results were: 35% unplanned downtime reduction at the customer site, which resulted in considerable benefits to the customer (each hour unplanned downtime will cost a customer, on average € 60,000).

This example illustrates that creating more responsive and agile supply chains that are able to much better respond to customer requirements, requires: 1) multilevel planning activities, 2) accurate and reliable data gathering on actual customer demands and usage rates (or in the case of ASML: reliable performance data per machine), 3) adequate data management structures and 4) effective information models to capture management information out of complex database structures for more effective decision making.

How to make supply-chains more responsive and agile?

This question is increasingly important in road construction: car drivers do not want to be interfered too much through traffic jams caused by construction works. In fact, in many countries penalties need to be paid by contractors when excessive traffic jams result from their activities. In the Netherlands, RijksWaterStaat (hereafter: RWS, i.e the governmental institution responsible for road and civil construction works) thought about how to reduce total project lead time, ranging from specification to completion of the roadworks. Total project lead time, on average, takes several years from first idea ie. problem to delivery of the work by the contractor, even for simple construction works. The solution was found through a web enabled tool, that is downloaded on a PDA-camera device, that inspectors and auditors can use during daily road inspections. Going down the track, cracks and other damages can be pictured, stored and uploaded to a IT-platform. This platform is accessible for prospective contractors. Per geographic area, inspectors through their PDA-camera can identify all repairs to be made. Through the pictures contractors can get a idea of the work involved for a specific geographic area. Through this tool data-gathering time needed for specifying and planning for road construction works was dramatically reduced. The platform information is used by contractors for preparing their offers and submitting these through the platform directly to RWS. Having obtained the contract, repair work can be reported daily through the same platform. Implementing the tool has not only resulted in better decision-making but also in much more efficient construction works and considerably lower contracting prices.

This is just one example on how supply chain lead times can be reduced. Using real-time information, allows for speedier supply chain actions, and higher supply-chain efficiencies.

This idea is also useful for MSD in increasing its responsiveness to disease outbreaks. Given the long lead times related to obtaining input materials from suppliers (nine months) and the company's own production lead time (including testing: 12 months), and distributing and selling the products through distributors (three months), the company would benefit from creating a shortcut between veterinarians and MSD (a feedback loop, that doesn't exist today). A web enabled device could help veterinarians to inform MSD at short notice about upcoming disease outbreaks. Thereby, reducing MSD's reaction time, considerably. Next, MSD would benefit from differentiating

[2] *See Fisher, M. (1997), What is the right supply chain for your company?, Harvard Business Review, March-April*

continued on page 8 >

between different types of supply chains: one efficient supply-chain, aimed at manufacturing products for routine markets and customers in a cost efficient way. And a second, responsive supply chain aimed at producing products responding quickly to disease outbreaks. The supply chains would have different configurations due to the different demand pattern of the market segments involved. Trying to serve both market segments through one supply-chain logic, it would be almost impossible to do.
These examples show that companies can apply different ideas to improve their supply-chain agility:

- Use real-time information through web enabled applications to speed up supply-chain processes. As the example of RWS road construction shows, these applications provide for faster feedback loops between different actors in the supply-chain. Create a consistent planning structure for supply-chain operations covering three levels in parallel, including strategic, tactical and operational level. Apart from planning activities at each level, effective feedback loops need to be in place in order to monitor deviations of actions versus plans.
- Differentiate between generic and responsive supply chains within your company. Don't try to serve different market segments, with one supply-chain logic. This idea is particularly relevant for sourcing and procurement managers, who need to find different suppliers to match different supply-chain needs. Efficient supply chains that produce products in high volumes, low-cost and at a high degree of predictability, allow for global sourcing i.e line products from suppliers in faraway countries. However, responsive supply chains that produce products which have a unpredictable demand and that are produced in smaller batches at specific customer requirements, require a strong high-quality local supply base (with an action radius not exceeding 300-600 kms).
- Create effective feedback loops i.e. market sensing systems from your end user markets, rather than your direct customer markets, to your own company (as the example of MSD shows) in order to be able to react faster to changes in market demand.

More important than improving their supply-chain agility, real-time information can help companies to build new and more profitable business models. However, the road towards building agile supply chains, however, is long and takes a long sustained effort and investment in people, information technology, models and relationships. And a sourcing strategy from sourcing and procurement specialists, that is tailored to support different types of supply chains. Only then companies will be able to capture the benefits from using real-time customer and market information to improve their time-to-market and reducing operational supply-chain costs at the same time.

Author:
Prof. Dr. Arjan Van Weele [3]

[3] *NEVI Chair Purchasing and Supply Management, Eindhoven University of Technology, The Netherlands. Contact: a.j.v.weele@tue.nl. Website: www.arjanvanweele.com. Twitter: @Arjanvanweele.*

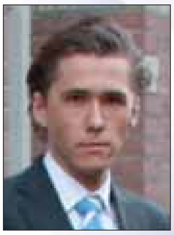
UPCOMING EVENTS OF THE STANFORD FORUM

For more information concerning Stanford forum events, please visit the Stanford Forum website: www.gsb.stanford.edu/scforum/

Student Supply Chain Supply Chain Simulation Game

September 24, 2012 - Eindhoven, The Netherlands

At the 24th of September, an interesting activity was held at the campus of Eindhoven University of Technology. This Student Supply Chain and Industria Master Studyclub activity, in cooperation with Involvation, was all about Supply Chains. Thanks to Industrial Engineering & Innovation Sciences' sub department Operations Planning Accountancy and Control (OPAC), the evening was a great success!
No general lectures or speeches about the utmost importance of SCM were given that day, the setup of the activity was competition based. Master courses about SCM are theory-based, and some may argue that a lack of knowledge in practice is at presence at some of the students. Alex Tjalsma, owner and partner at Involvation B.V., was the leading instructor of the evening with four of his colleagues. A standardized Supply Chain Simulation Game was prepared, for both Master students and company participants in order to show and teach some of the basic SCM tactics. At the end of the evening, around 10 p.m., every participant was able to distinguish the basics of SCM and some were even able to analyze the advanced SCM ins and outs. Chairman on behalf of the Master Studyclub was dr. Karel van Donselaar, assistant professor at the TU/e faculty of Industria Engineering & Innovation Sciences. Both Karel and Alex taught us much about practicalities about SCM, while playing the simulation game. References to existing companies as Apple for analyzing their Supply Chain while playing the game, gave clear insight in this particular type of business. At any point in the chain, questions were asked whether it was necessary to have stock, order / replenish that stock, and how much stock. Mission statement of the simulation game, was to maintain a minimum fill rate (P2) of 95%, at the lowest possible cost. Special cases as Bullwhip strategies were explained, for situations like Apple's newest product, the iPhone 5, with global sales figures over 5,000,000 in the opening weekend. How can you cope with such demand, and will your chain explode/implode, with certain misperceptions and/or behavioral causes? Moreover, participants that did not have their background in Industrial Engineering, tended to loosen up the operational rules they made with their team. Classical argumentation like "it's just one unit below base stock-level" were analyzed and explained in detail why strictly obeying to rules can be convenient, but also robust when one wants to create a more flexible Supply Chain. As all activities in the field of Industrial Engineering stick to, after finishing the simulation game, there was a nice social drink for possibilities to exchange business cards, talk with SCM experts, or just enjoy your drink and look back at a perfect evening full of Supply Chain Management.



Author:
Jorin Aardoom
BSc

European Commission invests in Information Platform for Green Transport

The European Commission has awarded a 3 million euro grant to a consortium of partners that will develop an information platform to make the European transport sector operate more efficiently, while at the same time facilitating the reduction of CO2 emission.

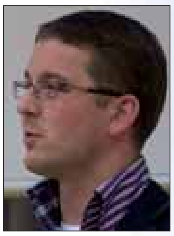
Led by Eindhoven University of Technology's Information Systems group, the consortium includes leading institutions that work both in the area of information platforms and transport. It includes IBM, Portbase, PTV, Wirtschaftsuniversität Wien, Hasso Plattner Institut, Exodus, Transver and Jan de Rijk Logistics. It is further supported by TomTom, DHL, viaDonau and Kuehne+Nagel.

The information platform will greatly simplify the exchange of information between transport planners, professionals and governmental bodies, in particular focusing on the exchange of information between different organizations. Currently, too little information is shared between these parties, even though small-scale project show great potential. For example, on a smaller scale, transport companies already share information about loads that must be transported. This enables them to find the truck closest to the pick-up location and thus reduce the number of empty-kilometers driven. Another well-known challenge that can be addressed by sharing information is that of increasing the modal-split. The consortium will tackle this challenge, by greatly simplifying the administration that is associated with switching modalities and with dynamically changing a transport plan.

To make this possible, the platform will provide facilities for information sharing, transport planning and communicating about the transport plan, both through desktop and mobile applications. The consortium will develop these facilities, based on existing solutions from project partners, such as Portbase and PTV, and based on the knowledge and experience from academic and transport partners.

The technological challenges that will be tackled by the consortium, include effectively handling the vast amount of information that is associated with European transport. This information consists both of the continuous stream of information related to, for example, location and speed of transport resources and of administrative information related to, for example, reservations and manifests.
In addition, the consortium will adapt existing planning algorithms by enabling them to work with such large amounts of information. Finally, it will develop efficient means of communication between the various stakeholders involved, including transport planners, truck drivers and governmental authorities.

The project, which is coordinated by Remco Dijkman and Paul Grefen, has a total budget of over 5 million euro, of which nearly 3.3 million euro is subsidized by the European Commission. It will run for a total of three years.



Author:
Dr. Ir. Remco Dijkman
Assistant Professor

The Supply Chain Colophon Link

Colophon

The Supply Chain Link
Summer/Autumn 2012, Volume XVI, issue III

European Supply Chain Forum
c/o Eindhoven University of Technology
Paviljoen G.02
P.O. Box 513
5600 MB Eindhoven
Tel: +31 40 247 3983
e-mail: eSCF@tue.nl
internet address: http://escf.ieis.tue.nl