

A RESEARCH INTO EUROPEAN SUPPLY CHAINS

2008 - 2009

KEY TRENDS, CHALLENGES AND OPPORTUNITIES
FOR SUPPLY CHAIN MANAGEMENT



EXECUTIVE SUMMARY

A PUBLICATION BY THE TRUECONOMY CONSULTING RESEARCH PROGRAM

INTRODUCTION

Volatile energy costs, business risks, changing economic conditions, sustainability measures and emerging economies have collectively placed improving the performance of global supply chains at the top of the COO agenda. Significant supply chain transformations can be expected, as COOs begin to make future operations related investment decisions, in return for better supply chain performance. In order to better understand and respond to these supply chain transformations, we set out to develop an insight into the emergent opportunities and challenges a COO would face when making decisions regarding future operations.

Together with the Massachusetts Institute of Technology (MIT), under guidance of one of the thought leaders in Supply Chain Management, Professor Dr. David Simchi-Levi, a joint research team consisting of Mohit Pury from MIT and lead researcher of TruEconomy Dr. Costas Vassiliadis, conducted an extensive web based literature review followed by a survey of more than 110 executives of which approximately 2/3 are from Europe and 1/3 from the United States.

The study team researched

- the key trends, challenges and opportunities for European supply chains
- the differences and similarities between European and US supply chain trends and
- the key SCM process changes and IT initiatives that could enable European supply chains to make the most of future opportunities

The research identified the following five as key focus areas during the expected supply chain transformations

- Supply chain configuration
- Supply chain risk
- Sustainability
- Product innovation and transition
- Integration

Specific findings and insights in each of the five focus areas are discussed in the note below. We believe that this discussion can be the beginning of a series of conversations that could occur over the next few years as you apply the insights to your own business.

Drs. Jaap-Willem Bijsterbosch

Managing Director
TruEconomy Consulting

Ir. Lars Leemhorst

Managing Director
TruEconomy Consulting

KEY EMERGING TRENDS

SUPPLY CHAIN CONFIGURATION

Figures 1a, 1b, and 1c show the study's findings on the drivers of new supply chain configurations. The changes caused by these drivers will be seen more dramatically and quickly in some industries, at a pace that is determined mainly by the contextual differences between industries or between players within the same industry.

For meeting emerging market demand, the most commonly cited supply chain implementation is a multi-tiered distribution structure with multi-modal transportation. On the transportation side, more than 70% of executives agree on an increase in the use of multimodal transportation, and on including full life cycle energy and carbon footprint measures in their supplier selection criteria. This is an area of promising opportunities for transportation carriers. For example, carriers could now construct for their shippers, multiple origin-destination (O-D) itineraries as a function of parameters such as carbon footprint, cost and time. These itineraries can be priced by taking into account the value they provide to the shipper and the sensitivity of this value to the regulatory and customer influences that shape the shipper's carrier selection.

Of the European executives, 70% expect an increase in emerging market supply. Therefore, on the demand and supply side, supply chain executives will be paying more attention on preparing their organizations for a successful implementation of supply chain policies that match the new configuration.

Additionally, even though nearly 75% of European executives depend on contracts for a cost efficient and effective supply, they seem to have achieved limited success with their overall implementation. Only one out of five has said that the outsourcing of manufacturing operations has been

successful. Therefore the supply chain function that connects to and manages external competencies for a company will now be required to take a leading role in addressing the unpromising viewpoint on outsourcing.

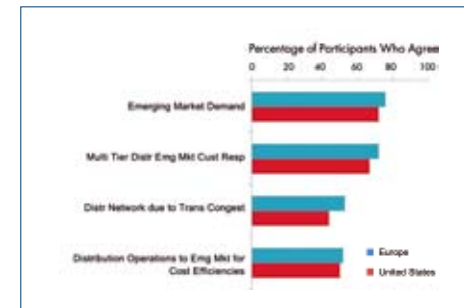


Figure 1a: market and distribution drivers of new supply chain configuration



Figure 1b: procurement and manufacturing drivers of new supply chain configuration

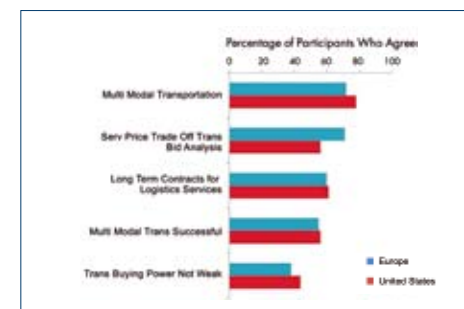


Figure 1c: transportation drivers of new supply chain configuration

SUPPLY CHAIN RISK

Foremost in the minds of supply chain executives is the growing importance of their organization's ability to understand and address potential disruptions throughout the supply chain. Nearly 70% of supply chain executives agree that a central view of the impact of a supply chain risk on the business as a whole through the use of standard practices across business units is generally absent. In the future, a quantitative assessment of the impact of different risk levels on cash flows and the use of options contracts to minimize exposure to risk will be seen as standard risk mitigation practices, for the overall business. Such an approach can also create a solid foundation for the equitable sharing of costs and gains from risk mitigation initiatives.

Figures 2a and 2b show an assessment of supply chain risk and measures. The broad acknowledgement of risk in internal operations, on the supplier side and on the customer side, points towards the gradual introduction of a measured level of redundancy in future inventory policy. Combining an increase in safety stocks with an increase in manufacturing flexibility through postponement strategies may be progressively seen as an acceptable and viable risk mitigation approach. Particularly, as low finished and work-in-process inventories inherent in lean inventory policies increase the chance of stock outs in different stages in the supply chain further amplifying demand variability and leading to more severe stock outs that can eventually cause an increase in the risk of customer order cancellations.

Overall, the risk concerns expressed by supply chain executives in the United States were higher.

The objectives to use available technologies such as RFID and high speed data

analysis for ensuring shipment integrity and monitoring, is also important from a customs view point for border and supply chain security. We may therefore see an adoption of complex risk management concepts such as predictive analytics that rely heavily on information from procurement, manufacturing, field sales and service locations, as inputs to the overall risk management framework. Additionally, a COO may also be expected to partner with the CFO for presenting key risk indicators alongside key performance indicators.

KEY EMERGING TRENDS

Future inventory policy points towards gradual introduction of a measured level of redundancy to mitigate risks related to lean supply chain models

Risk is foremost on the minds of supply chain executives, and nearly 70% say that a central view on impact of risk on the business is absent

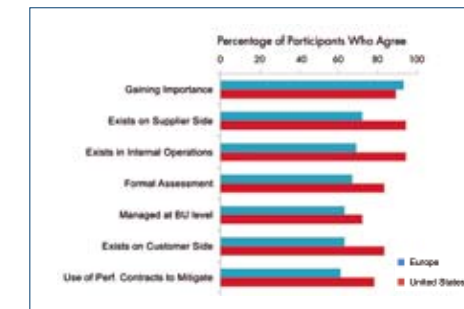


Figure 2a: supply chain risks assessment

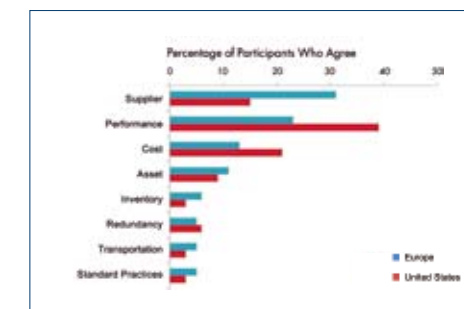


Figure 2b: supply chain risk measures

KEY EMERGING TRENDS

SUSTAINABILITY

Many expect sustainability related supply chain changes as a response to government regulations and are concerned about the impact of a cost increase, from the lack of common criteria across the supply chain.

Figure 3 shows an assessment of sustainability initiatives and concerns in the supply chain. While the growing concerns about greenhouse emissions resonate among both European and United States supply chain executives, they are doubtful about the implementation of practices beyond compliance with government regulation, in order to capitalize on potential business opportunities.

Overall, the concerns expressed by supply chain executives in the United States were higher. Many executives have said that in the future, measures for full life cycle energy and carbon foot print will be included in their supplier selection criteria. The systemic nature of the sustainability challenge will cause companies to increasingly rely on supply chain managers to expand the attention to energy use and pollution control beyond the internal operations.

An increase in the use of voluntary standards as opposed to regulations can create the common criteria, which the same number of executives has said that they need to determine how 'green' a product or supplier is.

Interestingly, 50% of executives have also said that, implementation of sustainability or green supply chain initiatives will increase supply chain costs and market share. This can be an opportunity for the supply chain function to be a key partner of the internal product innovation team, in an effort to design and build in better environmental performance into the

products. Such an approach to sustainability could also become a true competitive differentiator that makes real the executive's belief that sustainability initiatives will increase market share.

The absence of such approaches will drive companies to internalize environmental costs from manufacturing, use and post consumption, with a possible competitive disadvantage.

In an effort to build a company's value enhancing capabilities, supply chain executives will play a key role in aligning the regulatory and market environment with the corporate environmental orientation. Though the benefits from alignment and the costs of misalignment of sustainability initiatives are unbalanced across the supply chain, supply chain executives will continue to face the growing need for identifying, selecting and implementing green supply chain practices.

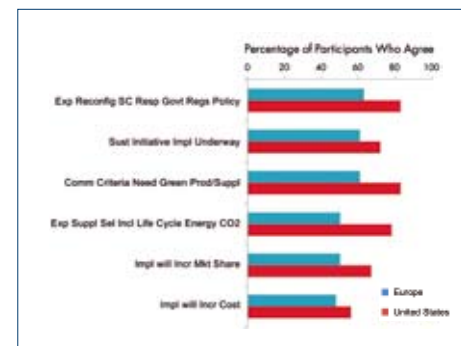


Figure 3: sustainability assessment and concerns

PRODUCT TRANSITIONS

Figure 4 shows an assessment of product transitions in the supply chain. Nearly an equal number of supply chain executives in Europe and the United States have said that synchronizing the transition of a product innovation across the supply chain, will grow in importance, and that it is a determinant of a company's leadership status in the supply chain.

A significantly larger number of European supply chain executives indicate that existing product transition teams do not include customers. Also, even more supply chain executives in Europe disagree that the internal supply chain function or suppliers are proactively involved, in an effort to better synchronize production innovation and transition decisions. This is perhaps due to the structural and cultural differences between European and US companies. US companies are decentralized to a lesser degree and have a larger experience base with faster clockspeed industries, both of which affect the level of internal and external cross-functional participation that is considered as necessary for managing product transitions.

While the extent of supply chain involvement is known to be a positive influence on new product success, it still is an area of more opportunity in Europe. For example, beyond the infrequency of radically new products where the priority of a supply chain executive is to get the product launched, increasing supply chain cost efficiencies for incremental innovations is equally important. Recognizing the need to optimize the total return on investment for new product development costs, the supply chain function can therefore be relied upon to reduce the time-to-market of sustainability related incremental innovations on existing products, conceivably to achieve

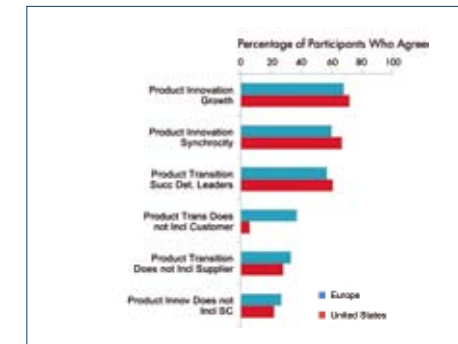


Figure 4: product transitions assessment

higher sales goals or even maintaining existing profitability targets. Additionally, supply chain executives can also consider partnering with existing 3PL networks for building their company's capabilities for aftermarket services. Third Party Logistics service networks have the proven aftermarket service capabilities in a number of industries upon which companies in Europe can meaningfully build, in their effort to combine products that have low volume and intermittent demand with innovative high value services.

KEY EMERGING TRENDS

Successful synchronization of product transitions will continue to be essential for a leadership position in the supply chain....

...however a number of EU executives say that involvement of customers and suppliers in product transition planning is limited

KEY EMERGING TRENDS

INTEGRATION

In order to achieve and maintain supply chain cost efficiencies and flexible and agile responses, more deliberate efforts will be made by European managers to prepare an environment where integration and close coordination is increased.

Figures 5a, 5b, and 5c show the study's findings regarding integration in the supply chain. An equal number of executives across Europe and the United States agree that visibility of customer and supplier transaction information along with the use of decision support tools, allows for an optimal response by the supply chain as a whole. They have also said that it improves performance as measured by forecast accuracy or fill rate. While it is known that integration enables such visibility, improves coordination and avoids local optimizations, a competitive advantage for the supply chain as whole, nearly all of the executives who said that they have no visibility of supplier transaction information were from Europe.

Therefore, in the future, there will be an increased effort to achieve supply chain integration at European companies. When combined with the trend of relocating operations to low cost and high demand emerging markets or the trend of relocating operations to different parts of a now wider Europe specializing in different areas, the urgency to develop more collaborative planning and forecasting capabilities will increase.

When asked about the difficulties (Figures 6a and 6b) they face with achieving such integration, more than half of European executives agreed that it was due to the perception of loss of information and control. More than half view their internal strategic planning process and internal demand planning process as having multiple disconnected sub-processes,

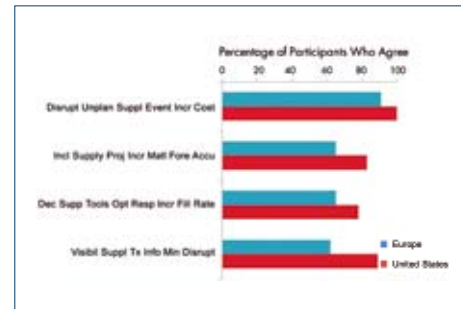


Figure 5a: upstream integration assessment



Figure 5b: downstream integration assessment

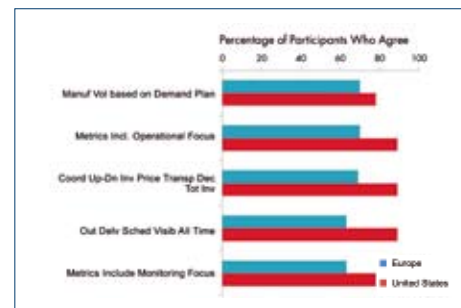


Figure 5c: data integration assessment

and lacking the use of common technologies. By comparison, they view manufacturing planning, delivery planning, supply planning, and procurement planning as having fewer disconnects. Similarly, more than half of the European executives also agree that the demand planning process with their customers had multiple disconnected processes, also due to the customer's perception of loss of information and control. Nearly the same number also lacked integration in their procurement planning process with suppliers, or in their delivery planning processes with their transportation service providers, also due to the same reasons.

Additionally, nearly half of the European executives also disagree that the customer, supplier or distribution center participates in optimizing overall inventory levels.

While improvements in order fulfillment lead-time, customer responsiveness and cost efficiency are to be expected from integration with suppliers and customers, European organizations will continue to be faced with challenges of internal integration. Therefore, in some cases senior management sponsorship will be seen as necessary for supporting a well running sales and operations planning process that is so crucial to creating a best in class global supplychain, and could be a major competitive advantage for a company. Such a sponsorship will drive the coordination of supplier and customer inventory policies along with pricing and transportation decisions that have the potential to eventually provide inventory reductions of up to 25%.

Increased integration can also lead to increased resilience by providing the ability to address response cycle times alongside optimal inventories. Integration would also provide the ability to run "what-if" scenarios

in order to determine inventory drivers and which pull vs. push strategy could also be enabled at each stage. Another example of an area that could drive a growth in integration efforts is the impact of reverse logistics on sustainability measures, such as automated tracking during product acquisition, disposition, or product transportation, reconditioning and follow-on distribution and sales. Also, in cases where European companies leverage alliances in order to improve access while reducing risk in emerging markets, organizational arrangements that complement and support supply chain integration will be preferred. In some instances, integration will be viewed as essential for border and supply chain security from a customs point of view.

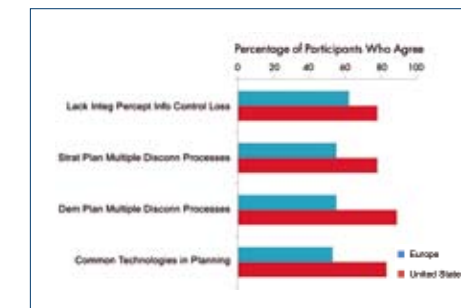


Figure 6a: internal integration difficulties

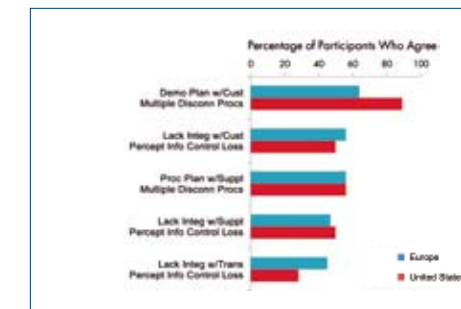


Figure 6b: external integration difficulties

KEY EMERGING TRENDS

More than half of the executives view their internal strategic and demand planning processes as having multiple disconnected sub-processes

SCM PROCESSES AND IT INITIATIVES

ENABLING SCM PROCESSES AND IT INITIATIVES

The key emerging trends have been mapped to SCM processes and subsequent IT initiatives that can serve as enablers. Typically, SCM processes are classified in terms of the time horizon they are focusing on as strategic, tactical and operational. Network optimization is an example of a strategic SCM process, whereas demand planning, supply planning and demand fulfillment processes are more on the tactical and operational end.

Figure 7 shows which SCM processes enable the emerging trends identified in our study.

Supply Chain Configuration

Advanced network optimization studies will more and more enable decisions on how to redesign the supply chain to accommodate emerging markets requirements as well as incorporating sustainability objectives. Optimization of product transitioning and synchronization decisions can first be taken at this level. Sensitivity to various risk elements as well as risk mitigation strategies by positioning inventory redundancies and manufacturing flexibilities (e.g. postponement strategies) can also be identified at a strategic and tactical level. Trade-offs between cost and flexibility can also be addressed at this level.

Supply Chain Risk

Risk minimization will involve initiatives at a strategic, tactical and operational level facilitating optimization of flexibility and redundancies on the one hand and on the other hand information sharing, performance monitoring and organizational awareness and alignment.

On strategic and tactical level, optimization initiatives will enable companies to understand and quantify various risk sources across their supply chain. Risk minimization strategies, such as positioning of redundancies and flexible manufacturing strategies are first identified at this level. At a more granular level, internal and external information sharing and alignment as well as performance monitoring enables companies to optimize their supply-demand balancing process and advanced planning systems to make proper use of the identified risk minimization strategies.

distribution strategies as well as to evaluate markets and customers and pricing strategies for new products. At the same time, advanced collaborative demand planning processes are required to provide accurate forecasts and information sharing to ensure delivery schedules. Furthermore, inventory planning – at a tactical level – and collaborative inventory deployment – at an operational level – are critical to identify inventory strategies and safety stock targets for phase in – phase out products and deploy accordingly. Finally, advanced demand – supply balancing processes that enable concurrent and constraint-based planning, optimal supply allocation and visibility to exceptions will also be required. Tight collaboration with internal and external partners will also become more important. Companies will practically need to raise the level of their game across SCM functions to reap the significant benefits.

Integration

Initiatives to increase the level of trust are critical to achieve a higher level of integration. Visibility to customer transactions, unplanned events and supplier disruptions, in order to improve material forecast accuracy, have been highlighted as significant emerging requirements. To enable these, emphasis on collaborative processes and tools in the area of planning and execution with internal and external partners is expected to increase. Joint efforts powered by appropriate partnership contracts on the one hand and investment on data integrity, reduction of planning cycles and tools with the ability to propagate changes up and down the supply chain in an accurate and timely manner on the other, will help to overcome the obstacle of perceived loss of information and control.

SCM PROCESSES AND IT INITIATIVES

Objectives around sustainability will be incorporated into strategic optimization studies. KPIs on sustainability will be defined and measured throughout the supply chains and product life cycles

Superior management of product transitioning trends requires optimal and aligned processes across the company SCM footprint

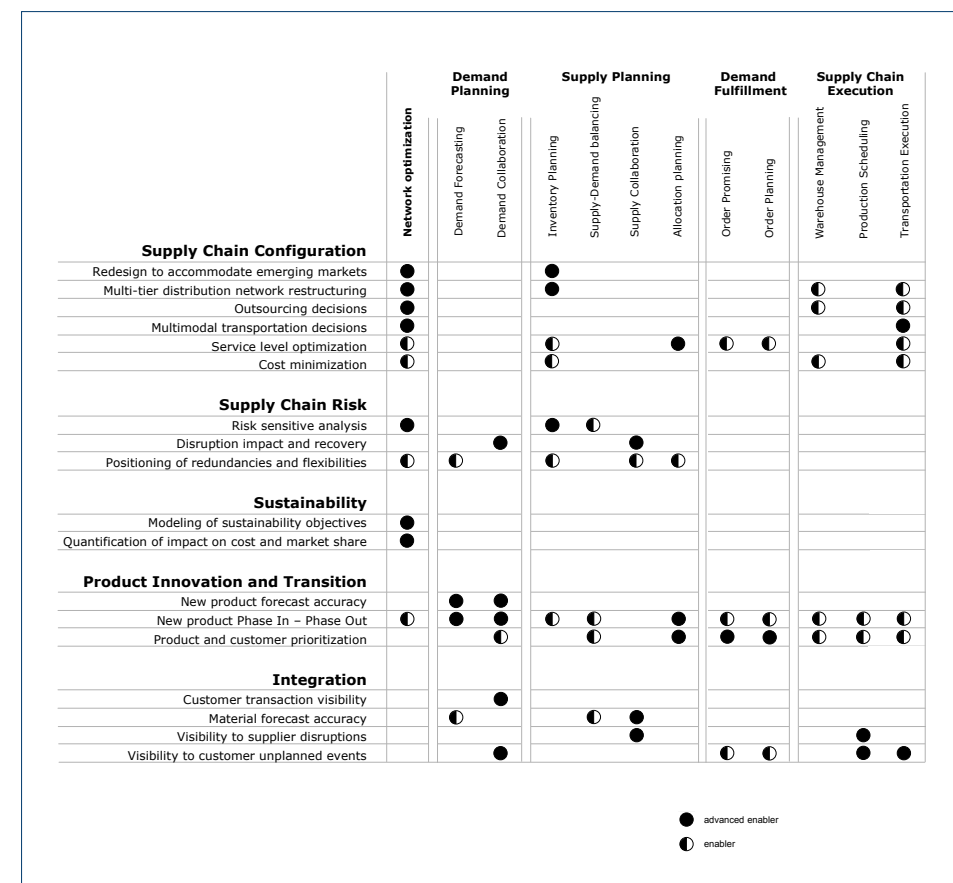


Figure 7: enablers for key emerging trends

*For the full research report,
related information and other research in the TruEconomy research program,
please contact:*

*Michiel Hoogeveen
+31 6 2219 8417
mhoogeveen@trueconomy.com*

*-
Costas Vassiliadis
+30 6 9481 83 139
cvassiliadis@trueconomy.com*

TruEconomy
CONSULTING
THE SUPPLY CHAIN EXPERTS