

Proceedings of the Supply Chain 2020 Project's European Advisory Council Kickoff Meeting



A Meeting Held by the
MIT Center for Transportation & Logistics
and
Zaragoza Logistics Center

Madrid, Spain
September 8, 2004



This report was written by Ting Shen and Larry Lapide of the MIT- CTL. Please contact Larry Lapide (llapide@mit.edu or 617.258.6083) if you have any questions or if you would like to discuss this report.

Table of Contents

- 1. SC 2020 Project Introduction..... 1
- 2. Supply Chain 2020 Background and EAC Role..... 1
 - a. Research Questions 2
 - b. Research Scope 2
 - c. EAC Member Comments on Research Plan 3
- 3. Supply Chain Excellence Discussion..... 3
 - a. Excellent Supply Chain Research Framework..... 3
 - b. Illustrative Business Strategies and Complementary Operating Models 5
 - c. EAC Member Examples of Business Strategies and Operating Models..... 5
 - d. Balancing Operational Objectives 7
 - i) Objectives Balancing Framework..... 7
 - ii) Balance by industry and company 8
 - iii) EAC member comments on the objectives balancing framework 9
- 4. Wrap Up..... 10

1. SC 2020 Project Introduction

The Supply Chain 2020 (SC2020) Project is a multiyear research effort to identify and analyze the factors that are critical to the success of future supply chains. This pioneering project will map out the innovations that underpin successful supply chains out to the year 2020.

Initiated by the MIT-Zaragoza International Logistics Program, the global research project involves dozens of faculty, research staff, and students at MIT and other institutions around the world. Two advisory councils, the Industry Advisory Council (IAC) and the European Advisory Council (EAC), made up of supply chain executives from leading companies, are playing a crucial role in helping to shape the work and generate new ideas.

By looking further into the future than most business research initiatives, the SC2020 project hopes to deliver practical breakthroughs on the design and management of future supply chains. The project also aims to help companies understand the forces that are changing supply chains so that they can be better prepared for the future. This work can create value in society through improvements in transportation, logistics and Supply Chain Management (SCM) practices.

SC2020 research is broad and far-reaching, and is designed to meet a series of objectives in two phases. The objective of Phase 1 is to understand excellent supply chains and the underlying strategies, practices, and macro forces that drive them. Leveraging what is learned during the first phase, Phase 2 of the research will project the future using scenario generation and planning methodologies. As well as leading to a better understanding of future successes in supply chain management, the work will highlight what actions organizations should take to help ensure supply chain excellence.

The first meeting of the EAC, held on September 8, 2004 at the Madrid Airport, sought insights from the corporate supply chain executives. Also participating were faculty and staff from the Zaragoza Logistics Center (ZLC), in addition to the MIT Center for Transportation & Logistics (MIT-CTL). Participants discussed the nature of the SC2020 project and a presumed framework for researching today's excellent supply chains, according to the following agenda:

1. Introduction to the MIT-CTL
2. Introduction to the ZLC and the Zaragoza Logistics Plaza
3. Supply Chain 2020 Background and EAC Role
4. Supply Chain Excellence Discussion

Items 3 and 4 are discussed below.

2. Supply Chain 2020 Background and EAC Role

During this phase of the kickoff meeting EAC participants were brought up to speed on the progress made thus far in defining the objectives and research work plan.

a. Research Questions

The SC2020 project is focused on understanding current and future critical success factors, addressing the following two major and corresponding related research questions:

1. What will excellent supply chains look like in 2020?
 - a. What constitutes an excellent supply chain today?
 - b. Which organizations are included and how did their supply chains evolve?
 - c. What principles drive excellence?
 - d. What macro factors impact them?
 - e. What might happen if these macro factors change?
2. What should companies do to prepare for 2020?
 - a. What risk management strategies should they follow?
 - b. What “sensors in the ground” should they put in place?

b. Research Scope

The research is broad in scope as it defines SCM to include practices, processes, and infrastructure that support ‘physical’ products and goods as they move from raw material conversion at suppliers to finished goods at OEMs, and on to end-use consumers. Business practices to be included will encompass support throughout product lifecycles from “conception-to-death” -- including design, manufacture, distribution, marketing & sales, post-sales support, and recycle. These practices will run the gamut from those that are purely transactional, requiring no decision-making, to decision-making processes involving varying degrees of planning, from operational to tactical to strategic.

The SC2020 work plan is comprised of two major phases:

- *Phase I* research, lasting approximately one year, is focused on understanding excellent supply chains. It will involve identifying and researching the organizations that drive today’s successful supply chains in a broad range of industries, with the aim of understanding the evolving business strategies, operating models, practices and principles that are responsible for driving improved performance. The research also will foster an understanding of the critical macro forces that might change these drivers in the future. Macro factors comprise: 1) external forces, such as economics and global trends that lie outside the direct control of supply chain enterprises; and 2) supply capabilities that enterprises use to develop and evolve their supply chains.

- *Phase II* research will leverage what is learned during the first phase of the research to project the future and its implications for short-term corporate action, using scenario planning methodologies. It will entail the generation of a set of future macro scenarios and an analysis of how each will affect excellent supply chains in the future. Based on the set of future scenarios and the characteristics of what it will take to achieve excellence, recommendations will be derived to help corporate organizations prepare for 2020.

c. EAC Member Comments on Research Plan

Throughout the project update EAC members provided helpful advice for the researchers to consider. Some major feedback provided included:

- For the project to be truly global, it needs to realize that excellent supply chains in Europe are likely different than those in North America and Asia. For example, European companies have been dealing with reclamation and recycling laws for quite some time, so are likely to be ahead in this area of SCM. While on the other hand, they may be behind in return processes in comparison to their North American counterparts. Also the research needs to focus more on Asia. Recall that supply chain process innovation can also come from there, as exemplified by the fact that Just-in-Time (JIT) processes in use by many excellent supply chains today emanated from Asian-based Toyota.
- Make sure the research considers a whole supply chain, not just that under the purview of a single company. An enterprise's customers' customers and suppliers' suppliers need to be researched, as well. Business practices and processes need to be viewed as crossing company boundaries.
- It will be important to understand the past to help project supply chains in 2020. The project needs to formally and systematically analyze what has happened over time to identify what factors were known and unknown 10 to 15 years ago. In this regard, while unknown macro factors can't be incorporated in scenarios, at least one can see the extent to which these might impact excellent supply chains in 2020. This might be the case with many technology-based disruptive factors that can have a profound effect 10 to 15 years out, yet are relatively unknown today.

3. Supply Chain Excellence Discussion

a. Excellent Supply Chain Research Framework

A proposed framework for researching excellent supply chains was discussed with EAC members to solicit their feedback. (See Figure 1)

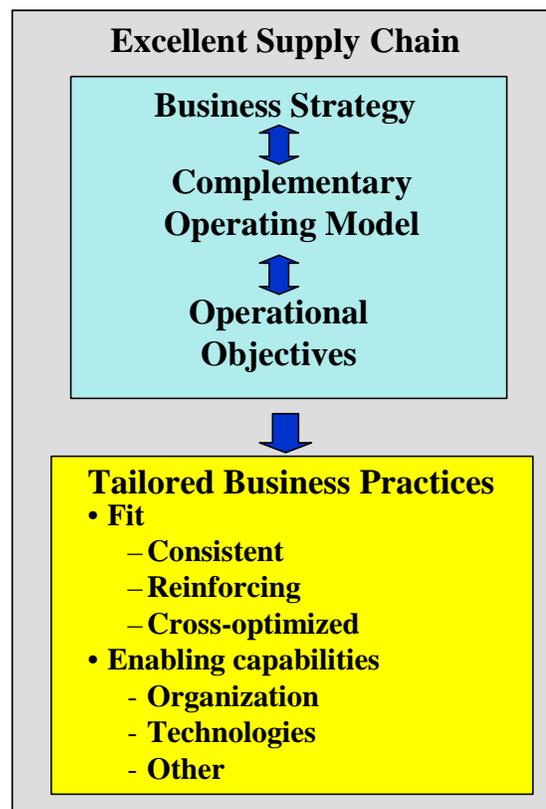
Under this framework excellent supply chains have four characteristics. First, they support and enhance the strategy of the business. Excellent supply chains are integral to the overall design of

the business. Second, the supply chain embodies a complementary, if not necessarily unique, operating model that creates competitive advantage. Third, excellent supply chains emphasize high-performance execution, where performance is defined by a balanced set of business-relevant objectives or metrics. Fourth, excellent supply chains leverage a tailored set of business practices.

Strategy, operating models, objectives, and practices are all interrelated. Specifically, strategy, operating model, and objectives all mutually support each other. The tailored set of business practices, in particular, is a subset of all possible business practices. Practices are chosen to mutually reinforce each other and for their ability to support the strategy, operating model, and objectives of the organization. The use of the term "tailored practices," rather than "best practices," reflects the alignment of the practices to fit the context of the organization. This interrelationship is explored in Michael Porter's article "What is Strategy?" in the November-December 1996 *Harvard Business Review*.

Figure 1

Excellent Supply Chain Research Framework



b. Illustrative Business Strategies and Complementary Operating Models

A few well-known examples from the U.S. were discussed to illustrate business strategies and complementary operating models of excellent supply chains in order to open up a discussion with EAC members and to solicit examples from Europe.

- **Wal-Mart:** The company's strategy is to be the lowest priced retailer. First, its operating model is to achieve the lowest cost to shelf through operational innovations. Second, Wal-Mart always selects low-risk products to ensure profitability, and often offers less variety compared with other retailers.
- **Dell:** Dell's main strategy is to become a computer equipment provider who provides the highest value versus price. First, Dell's operating model focuses on selling customized bundles of standardized products through a build-to-order model. Second, Dell only provides post-sale support of items sold instead of supporting the whole environment. This operating strategy is different from its competitors such as Hewlett-Packard and IBM.
- **P&G:** The primary strategy for P&G is to be a provider of leading innovative consumer brands. Both innovation and brand leadership are P&G's focus. To support this strategy, one of the most important parts of P&G's operating model is new product innovation. The second key part is high shelf availability. P&G has effective measurements to ensure that products are there when consumers want them, and have cross-functional business practices to coordinate promotional activities.
- **Cisco:** The strategy of this high-tech company is to be a single-source provider of networking equipment for its thousands of diverse customers. To achieve this Cisco acquires and integrates innovative technology companies instead of developing all products through R&D. For instance, it has a record of acquiring 150 companies in 5 years. Another important part of its operating model is to outsource manufacturing to stay asset-light. Extensive electronic connectivity to its customers, suppliers, and contract manufacturers enables Cisco to quickly fulfill customers' diverse and changing needs for networking equipment, in a 'distributed order management' fashion.

c. EAC Member Examples of Business Strategies and Operating Models

After the four U.S examples were described, EAC members were asked to discuss European-based examples of business strategies and operating models. The following were identified:

- **Borealis Group:** Borealis is a fully integrated petrochemical company. Its main business lies in serving the plastics manufacturing industry with the highest standard of raw materials. This strategy and value also determine how the Borealis Group builds its supply chain. Safety, one of Borealis's top priorities, is built into the strategy, supported by a strong company culture. The operating model to support the strategy includes choosing suppliers with an excellent record of safety and building mechanisms to monitor safety-related behavior such as drivers smoking while

driving. Key performance indices (KPIs) have been established to ensure safety. Other key parts of the operating models include innovation and customer intimacy. Innovation is mainly driven by product development, but also includes operational innovation such as implementing Vendor Managed Inventory (VMI).

- **ImBev/Interbrew:** Interbrew has recently combined with AmBev to create the largest global brewer. The strategy or objective of the company was to become the biggest and most profitable (in terms of earnings before taxes) brewer in the world. The key part of the operating model to support this strategy is to build the best supply chain that allows it to easily merge distribution networks without interruption. Other important components of the operating model include e-business, and profit-driven activities. They aim to improve operational efficiency through better integration and adopting best practices in the industry.
- **Zara:** Zara's strategy is to provide unique and innovative fashion products at low prices. The retailer ensures that consumers quickly buy a product when they see it by creating and fostering scarcity. The operating model to support the strategy is built upon an extremely fast (agile) supply chain with a short time-to-shelf. Zara locates the design function, production, and point-of-sale demand in close proximity to each other and has created an integrated supply chain to respond quickly to changing fashion trends. Zara also builds unique strength in all areas of design, production, and retail. Shelf availability and trend information is critical to Zara, with local store managers playing an important role in providing the most updated demand information. Unlike other fashion manufacturers, low labor cost is not a major concern of Zara. Recently, Zara has been broadening its product offering into categories such as cosmetics and it is also starting to outsource to China.
- **Metro Group:** Metro Group is one of the world's largest trading groups, created in 1996 in a merger of several major retail companies. The company's strategy is to deliver the best value to customers for the total package of products and services provided by Metro. Unlike Wal-Mart, Metro might not always offer the lowest price or carry the lowest risk products, but it aims to offer the best value-based product assortment. The operating model to support the strategy is to build an efficient, standardized, and harmonized supply chain. The idea is to have one logistics group to provide intra-company service to the different branches of Metro. Centralization and standardization are key components of its emerging operating model. Shelf availability is also important and Metro has been testing several cutting-edge innovations such as RFID to improve operational performance, especially in moving goods from the store backroom to the shelf.
- **Nokia:** The key strategy of Nokia is to provide innovative products and achieve short time to market. The operating model of Nokia is that it designs its products in-house, but reduces risk and remains asset-light by outsourcing manufacturing to companies such as Flextronics. It has standardized processes in a supply chain that is designed to be fast and handle lots of new products. In product design, Nokia often re-uses technology platforms and components, which is a strategy to minimize the supply chain cost of bringing new products to market.

- **Unilever:** The business strategy of Unilever is to achieve the highest profitability, growth, and return-on-assets. It has sold many plants and has had to put in place processes to coordinate with the third parties that own them, complicating its processes to meet its asset goals. Unilever's operating model has three components: quality, service, and cost. While keeping its global branding, the company's strategy is to have local supply chain for local demand to minimize complexity. However, it is global when it makes sense.

d. Balancing Operational Objectives

i) Objectives Balancing Framework

As part of the supply chain excellence discussion the balancing of operational objectives and metrics was discussed. The working hypothesis presented to EAC members dealt with how a supply chain's operating model needed to run well against a balanced set of stated objectives and associated metrics that are consistent with business strategies. Operational metrics were posited as falling into three general categories as follows:

- **Customer-response** metrics that are customer-facing and might include order cycle time, perfect order fulfillment rate, and new product time-to-market.
- **Efficiency** metrics that are internal-facing productivity and cost-related such as line items picked per hour and supply chain costs.
- **Asset utilization** metrics that are also internal-facing and largely focus on maintaining economies of scale. Such metrics could include measures such as plant utilization, inventory turns, and cash-to-cash cycles.

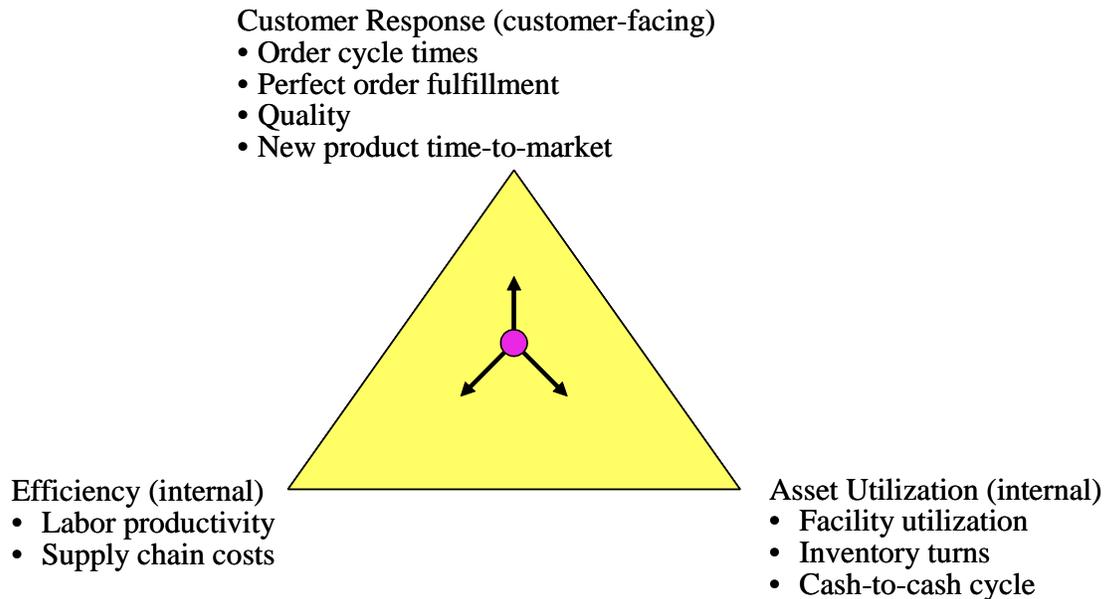
Figure 2**Objectives Balancing Framework**

Figure 2 was presented as a visual for EAC members to consider in terms of how companies might focus their goals by giving each type of goal a different weight when aligning them to operating models and business practices. Companies that focus exclusively on customer response goals would fall into the top portion of the triangle shown, while companies that focus exclusively on efficiency-based internal metrics would fall into the lower left portion of the triangle. Companies that focus equally on all three types of metrics would fall into the middle of the triangle.

ii) Balance by industry and company

The EAC members were presented with the idea that the focus placed on each of these metric types could vary by industry. In capital-intensive industries asset utilization is so important that facilities are operated 7 days a week and 24 hours a day to recoup heavy up-front investments. These industries might include semi-conductor, petroleum refinery, chemical, and other commodity item manufacturing, such as steel, pulp & paper, and coal.

In low-margin industries with mature products, such as food & beverage and commodity consumer goods, efficiency objectives like low supply chain costs are critical to generate sufficient margins. Meanwhile in high-margin, innovative, and short-product-lifecycle industries like pharmaceutical, fashion apparel, and entertainment media, customer-responsiveness metrics tend to be more important to increase product availability, in order to reduce lost sales and maximize margins.

In addition, EAC members were presented with the proposition that companies within the same industry might vary in their focus on different types of goals. For example, in the computer industry one might argue that Dell is focused more on efficiency than Apple, which is extremely focused on customer-facing goals with regard to bringing innovative technology to the market. Also, IBM might be considered to be more focused on asset-utilization than both these companies, given its size and propensity to leverage economies of scale. Additional examples included Wal-Mart, Best Buy, and Amazon in the retail industry. These three retailers were compared and it was suggested that Wal-Mart is most focused on efficiency goals, Best Buy on customer response objectives, and Amazon on asset utilization goals.

iii) EAC member comments on the objectives balancing framework

Generally EAC members had an extensive interactive discussion around the usefulness of the objectives balancing framework, and related it back to their own corporate environments. Some of the major points made during this discussion included:

- Many companies find that operational objectives often vary by brand or product. For instance, products that have strong brand equity, price-insensitivity, and high profit margins need to be focused more around customer response goals, while price-sensitive, higher-volume brands need to be focused more on efficiency objectives because of competition and lower margins. In the automotive parts industry, there is a set of products with stable (predictable) demand for which operational objectives focus on providing a cheap and efficient supply chain. The unstable (unpredictable) parts, that are asset-intensive and subject to faster demand changes, need a flexible supply chain. Thus, companies often need to address different needs in supply chain management, rather than building a one-for-all solution for different brands or products.
- Operational objectives could vary by business units within a company. For example, the Borealis Group has a chemical plant in Abu Dubai that never shuts down, with asset-utilization as the primary operational objective. On the other hand, some other Borealis plants can be shut down when demand is low, and here the focus is on other objectives.
- Operational objectives also evolve over time. For example over the history of Novartis, a company formed by the merger of two companies, the initial focus was on asset-utilization, then on customer service, and then on cost efficiencies. When first formed, Lucent focused a lot on customer response because of the high growth it was experiencing in high margin businesses, yet more recently it has a greater focus on asset-utilization, as exemplified in its outsourcing of manufacturing. As the business environment and a company's core competences change over time, operational objectives change accordingly.
- As competitive strategies evolve over time, operational objectives also change and are almost always unequally balanced. As corporate boards meet to alter business strategy and change priorities in a changing competitive climate, supply chain

objectives will also need to change -- often placing a greater focus on one type of operational objective over the others.

4. Wrap Up

The meeting concluded with a discussion of plans for future meetings that call for two face-to-face meetings, rather than just one per year as originally planned. Different EAC members may host meetings at their corporate facilities. In addition, one or two webcasts each year may be used to supplement these face-to-face meetings.