White Paper

Trends in the Automotive Industry
Implications on Supply Chain Management

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Implications on Supply Chain Management

Recent emphasis on global climate change is increasing pressure on automotive executives to make the right decisions in many areas, including R&D and manufacturing. In fact, emission-level targets, currently in question, threaten to alter the entire structure of the auto industry.

These challenges hit an industry already plagued with high costs, low profit margins, and accelerating competition. New entrants from China (such as Chery Automobile) and India (such as Tata Motors) are working aggressively to capture their share of the global market, following the path taken by the Japanese in the 1980s and the Koreans in the 1990s—both of whom went beyond their domestic markets by focusing on the United States first, and on Europe later.

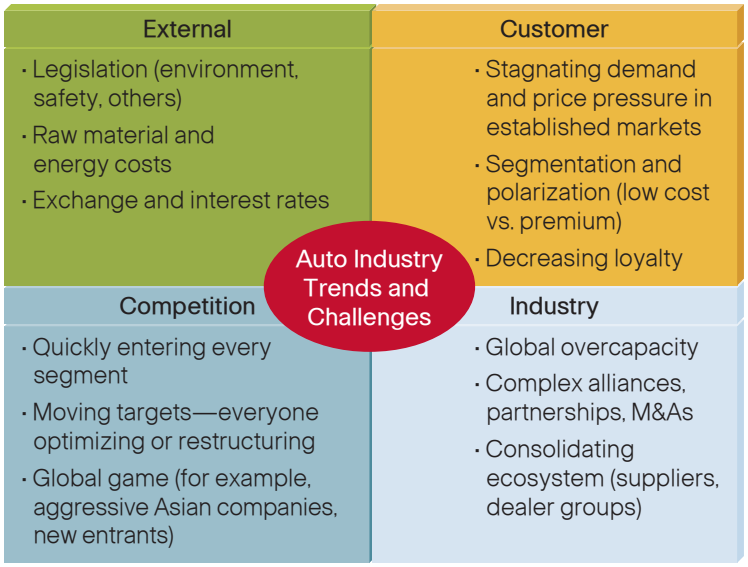
Only a handful of established players are consistently delivering satisfactory profits, such as Toyota, Honda, Porsche, and BMW; leading tier-1 suppliers such as Bosch and Denso; and some specialized tier-2 and tier-3 companies such as ElringKlinger and BorgWarner. Meanwhile, many others are undergoing some form of restructuring.

General macroeconomic and financial circumstances are not necessarily favorable, either. The cost of energy and raw materials continues to increase due to rising global demand. Strong fluctuations in exchange and interest rates pose another challenge and are difficult and costly against which to hedge.

In this dynamic business environment, a superior supply chain is one critical element to helping automakers differentiate themselves from the competition. In fact, many of trends in the auto industry are reinforcing the need to redefine supply chain strategies, layouts, and operations. This paper summarizes the current challenges in the automotive world and analyzes their implications on supply chains.

The most complex challenges automakers face are summarized in Figure 1.

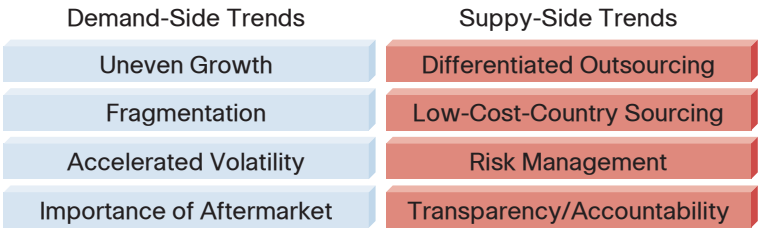
Figure 1. Global Challenges in the Automotive Industry



Source: Cisco IBSG, 2008

Based on these challenges, the Cisco® Internet Business Solutions Group identified eight major trends affecting the automotive supply chain. Figure 2 shows these supply- and demand-side trends.

Figure 2. Trends that Have Implications on the Supply Chain



Source: Cisco IBSG, 2008

Trends in Demand

Uneven Growth

The demand for cars is growing, stemming in large part from China, India, and Eastern Europe. Established automotive markets in the United States, Western Europe, and Japan, however, are flat to declining.

This uneven growth raises implications for the supply chain. For one, OEMs and their tier-1 suppliers must establish a local presence to benefit from these new growth opportunities in emerging economies. They must also tap into the local supply base to take advantage of cost levels and to fulfill local content requirements. At the same time, they must integrate local operations into their global supply chain management systems and programs. For example, sourcing processes from local suppliers must be aligned with global quality-assurance guidelines and procedures.

Fragmentation

Traditional car segments such as sedans, vans, hatchbacks, and pick-up trucks are fragmenting more and more into niches. Derivative car segments, on the other hand—such as coupes, roadsters, minivans, and two-seaters, as well as cross-over vehicles such as four-door coupes, SUV coupes, "soft"[1] SUVs, and sport vans—are growing.

A combination of customer demand for personalization—the right product for their specific use at the right time—and manufacturers conquering new customer segments is causing automakers to grow their product offerings. The environmental or "green" movement is encouraging fragmentation even further, by shifting demand away from large and/or high-consumption vehicles to smaller and/or more fuel-efficient cars, giving birth to even newer segments, such as city or microcars[2], and new propulsion technologies, such as hybrids, clean diesels, and diesel hybrids.

Despite measures to control incremental costs resulting from fragmentation—such as platform, module, and component sharing across models and brands—segmentation results in a more complex supply chain that needs to be managed. Hence, the supply chain requires integrated capabilities and flexible tools based on real-time information to address this increasing complexity.

For example, using an identical gearbox in two different car models does not prevent the manufacturer and its supplier from having to manage the supply chain process on a transparent basis to ensure on-time delivery of the specific gearbox to the specific assembly line in the specific location.

1. A "soft" SUV is a vehicle that looks like an SUV on the outside—for example, has a higher wheel base—but drives more like a typical sedan, and is not optimized for off-road conditions.
2. Already established in Japan, this segment of very small cars (two- or four-seaters with a wheel base of 3,500 millimeters maximum) is forecasted to take off in Europe first, and eventually the United States. At the 2007 Frankfurt Motor Show, many manufacturers displayed concept microcars, including the "Up" from Volkswagen and the "iQ" from Toyota.

Accelerated Volatility

In the past, forecasting new product demand was easy. Today, new cars that initially sell well may lose ground within as little as two years. Shifts in customer demand—from product to product, from brand to brand, and from segment to segment—are accelerating. Customers have more choices than before, want more personalization, and, in general, enter the showroom better informed. As a consequence, customer loyalty is decreasing—across all segments and across all manufacturers. The supply chain, therefore, must cater to these shifts through quicker responsiveness and overall flexibility. Yesterday, it was enough merely to set up the supply chain when launching a new product and then make a few changes to it over the product's lifecycle. Today, a higher degree of flexibility and responsiveness must be built in up front so that suppliers can react quickly when overall product volumes are not in line with plan, or when the mix within the product differs from original forecasts.

Aftermarket

The aftermarket business is often a somewhat neglected area, even though it typically generates the largest share of OEM and dealer profits. Managing this business depends on processes and IT systems that let manufacturers track product in the following areas:

- Sales—which product is selling, and at which price?
- Channels—through which channels is product being sold?
- Replenishment—what are the products' replenishment cycles?
- Customers—which kinds of customers are buying which kinds of products?

Creating transparency in the aftermarket business both in sales and in operations of the business and value chain is an important way for automakers to defend this source of revenue and profit against independent parts and service suppliers.

Trends in Supply

Differentiated Outsourcing

Outsourcing in the automotive industry will continue. Differences in labor costs and disadvantages in scale and scope are influencing this trend. Outsourcing will create opportunities for both automotive suppliers and supply chain management providers (such as logistics companies and IT firms) to expand their businesses into adjacent areas—for example, preassembly or management and quality control. To benefit from continued outsourcing, supply chain management providers must offer flexible, modular solutions because not every manufacturer will concentrate on the same core capabilities and functions.

Low-Cost-Country Sourcing

The auto industry will continue to source from low-cost countries as manufacturers and suppliers continue to complement their commodities with more complex products and services. The lowest price, however, isn't everything—automakers and suppliers must look at the total cost of sourcing, including logistics, quality of work, and management. This approach is referred to as "best-cost-country" sourcing, and for supply chain management providers represents another opportunity to encourage, enable, manage, and optimize sourcing.

Risk Management

Most manufacturers agree that their supply chain risk has increased in recent years. Natural disasters, terrorism, workforce issues, and level of dependence on partners and suppliers are just some areas that require strong capabilities in risk management. Manufacturers and their suppliers must account for supply chain alternatives in their overall supply chain strategy. Increased transparency based on real-time information (see "Transparency and Accountability" section) allows them to identify risks early on and, ultimately, to manage them. This represents an opportunity for supply chain management providers to expand their value-added services. They have the opportunity to become risk-mitigation agents by ensuring the required transparency and by offering, for example, fall-back solutions or performance guarantees.

Transparency and Accountability

Business operations are becoming more complex and global. Supply chains are turning into complex supply networks. As a consequence, auto manufacturers and suppliers need transparency and accountability across the entire supply network. For example, near-real-time information flow based on a sensor-driven supply chain across the extended enterprise is in high demand. Information should, ideally, flow in two directions to help ensure better and faster interactions within enterprises and among OEMs, suppliers, and supply chain management providers. At the same time, there is a focus on security across these complex information networks, led by the need to manage risks. The supply network has become very complex globally and is optimized to the penny. Because of this, automakers and suppliers cannot afford to go after breakdowns in the supply chain. Providers must deliver performance and output in a transparent manner—they are now held accountable much more stringently than in the past, and are at risk when it comes to paying high penalties in case of nonperformance.

The Supply Chain of Tomorrow

In a highly competitive environment, an effective and efficient global supply chain is a must for automotive manufacturers and their suppliers. The industry landscape is exposed to a set of critical challenges and trends that are leading, if not accelerating,

the need to fine-tune supply chain strategies and operations even further. The increasing requirement for real-time information and effective communication across the supply network is critical for managing and optimizing the supply chain on a flexible basis, while keeping costs under control.

While most global car manufacturers and tier-1 suppliers are in the process of addressing these requirements, smaller tier-2 and tier-3 auto suppliers have a long way to go.

In this context, information technology plays an increasingly important role, effectively turning IT from an "operational delivery" function into a "strategic, differentiating" asset. The underlying IT network plays a critical role by enabling the integration of various endpoints (for example, RFID sensors, bar-code readers, handhelds, and laptops), communication technologies (fixed-line, wireless), IT assets (servers, databases), and applications in a secure and scalable manner. For specialized supply chain management providers, these trends represent significant opportunities to grow their businesses and expand their value-added offerings.

In regard to the "green" challenge, the focus on the environment might reshape this supply chain scenario even more radically. Rising energy costs, regulation concerns, and the demands of conscientious customers require automakers and their suppliers to reduce the carbon footprint of their entire operations—including supply networks.

More Information

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco, helps Global Fortune 500 companies and public organizations transform the way they do business—first by designing innovative business processes, and then by integrating advanced technologies into visionary roadmaps that improve customer experience and revenue growth.

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