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Case Study: Motorola's Quest For Supply Chain Excellence

by Noha Tohamy

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Ongoing Supply Chain Overhaul Leads To Growth And Profitability

by **Noha Tohamy**

with Sharyn Leaver, Patrick Connaughton, and Elisse Gaynor

EXECUTIVE SUMMARY

In the early 2000s, Motorola's leadership and market share were eroding. Realizing that a return to growth necessitated transforming its supply chain, the company embarked on a major initiative to realign business units, rationalize the supplier base, and leverage current IT investments. Motorola also realized that long-term success requires tight communications along its supply chain — across product design, manufacturing, customer fulfillment, and distribution. Reaping the benefits, on July 19, 2006, Motorola reported that net income for the second quarter was up 45% to \$1.4 billion, while revenues rose 29% to \$10.9 billion. Motorola has also managed to gain market share for the seventh consecutive quarter, estimated at 22% of the market now, up from 17% a year earlier. Firms looking for a similar success story to Motorola's must take the prerequisite steps to ready their organizations for supply chain and business transformation. These steps include centralizing their supply networks, hiring chief supply chain officers, and proving to stakeholders the direct relation between an optimized supply chain and good financial performance.

TABLE OF CONTENTS

- 2 Introspection Points To A Breakdown In Culture And Supply Chain**
- 6 Reaping The Benefits: Motorola's Success So Far**
- 7 Motorola Fuels Future Success With Different Roles In Innovation Networks**

RECOMMENDATIONS

- 8 Five Prerequisites To Get Ready For Supply Chain Transformation**

NOTES & RESOURCES

Forrester interviewed Motorola's global supply chain practice about the transformation and innovation of the company's operations.

Related Research Documents

["Innovation Networks: Global Progress Report 2006"](#)

June 14, 2006, Trends

["The Essentials Of Consumer-Driven Innovation"](#)
May 26, 2006, Best Practices

["The State Of Global Supply Chain Management"](#)
April 11, 2006, Trends

TARGET AUDIENCE

Supply chain professional

INTROSPECTION POINTS TO A BREAKDOWN IN CULTURE AND SUPPLY CHAIN

In the early 2000s, Motorola was marred by many setbacks. The same company that pioneered mobile technology and Six Sigma was lagging behind companies like LG Electronics and Samsung in innovation and Nokia in market share.¹ By 2004, former CEO Chris Galvin had kicked off a wave of change, and new CEO and Chairman Ed Zander was taking the helm and driving for innovations.² But the company faced multiple challenges, hindering its ability to bring successful innovations to market, including:

- **A large and unruly supplier base that was difficult to manage.** With thousands of suppliers dispersed across the globe, monitoring the suppliers and managing their performance and component quality were major challenges. And with such a large supplier base, Motorola was unable to leverage its purchasing power to negotiate better terms.
- **Lack of visibility of performance indicators that stifled improvement.** The same company that invented Six Sigma became unable to measure its performance across business processes. The company knew that its performance, especially its supply chain performance, was not where it needed to be, but it was unable to pinpoint the breaking points.
- **Stagnant corporate culture that did not reward innovation.** The company suffered from the typical “early innovator” syndrome, where egos and entitlement had taken hold, making it difficult for people to accept change. Employees felt that Motorola ceased to encourage overperformance and creative thinking among its ranks.
- **High product complexity that eclipsed usability.** This is yet another syndrome of companies that have prided themselves on engineering prowess. Motorola’s designers and engineers seemed to take pride in increasing product complexity but paying less attention to products’ usability and simplicity.

Motorola's Executive Mandate For Excellence Brings New Supply Chain Leadership

After taking a deep look at its market position, Motorola realized that a confluence of factors had left it far behind world-leading companies. It also realized that supply chain excellence could contribute significantly to making or breaking any chance for regaining its market leadership. Looking around for best practices, Motorola executives saw IBM as a good example to emulate. Big Blue has focused on its supply chain as a growth driver, implementing a supply chain transformation that has shaved off \$20 billion in the first two years.³ Dell and P&G offered other models of companies reorganizing their supply chains to become more demand-focused, flexible, and speedy.

Under the leadership of Zander, Motorola recruited Stu Reed, an integral team member of the IBM Integrated Supply Chain group, hoping that IBM's success story could be replicated at Motorola. Within a few months, Reed and his team outlined a road map to supply chain transformation. For more than 18 months, the team has been sharply focused on making improvements across three primary areas:⁴

- **Rationalizing supplier base to allow for deeper relationships with key suppliers.** By consolidating its supplier base, Motorola hoped to create better purchasing power and rates, more control over quality, and better collaboration with the suppliers.
- **Simplifying business units and manufacturing centers to create more centralization.** With each business unit leveraging a standardized approach to sourcing, manufacturing, fulfillment, and distribution, Motorola hoped to achieve a more streamlined supply chain.
- **Accounting for supply chain needs in product design to improve adaptability.** Motorola realized that customers' feedback in the design and development phases is critical. The company also realized that better internal collaboration and a focus on reusability of components and design can significantly reduce time-to-market.

Rationalizing Supplier Base Improves Performance, Quality, And Inventory Management

Motorola's fragmented supplier base resulted in suboptimal purchasing power and made it harder to control quality, which was costly and time-consuming. The goal of the rationalization was obvious: deeper collaboration with the top 150 suppliers that benefits all parties. For example, Motorola gave these suppliers access to the company's supply chain data, providing a more meaningful length of forecasts. These suppliers can then view the schedule, share information, and ultimately better meet their commitment to Motorola. To build these collaborative relationships and continue to manage them, Motorola focused on three areas:

- **Relying on scorecards and fact-based negotiation.** As Motorola embarked on a sourcing transformation, it soon realized that the company did not have the facts that could help it improve sourcing. To manage win-win relationships with its suppliers, it had to rely on historical performance metrics to understand the suppliers' abilities to fulfill their commitments like improving fill rate and the procure-to-pay cycle. Motorola made it clear that it would rely on these quantitative measures to negotiate with its suppliers and that its high-performance suppliers would be rewarded with longer-term and higher-volume contracts. Motorola's goal was consistency to establish trust with its suppliers.
- **Managing the quality of sourced material.** A direct consequence of an unruly supplier base was a higher level of defects. In its efforts to overhaul its supply chain, Motorola worked with its top suppliers to reduce the significant costs of poor quality. What helped was Motorola's commitment to strengthen its relationships with its top suppliers. Also relying on fact-based

supplier management ensured that Motorola was able to work with its suppliers on reducing their defect rates. In return, top suppliers would potentially be rewarded with a longer, more profitable relationship with Motorola.

- **Collaborating with suppliers to manage inventory.** In the early 2000s, Motorola was frustrated because, on one hand, it was slow to go to market with new products, but on the other hand, its warehouses were filled with idle inventory. Motorola came to the conclusion that part of the problem was its suppliers' lack of visibility to its demand forecasts and inventory needs. Motorola also started supplier-managed inventory where, with guidelines from Motorola, the supplier is responsible for inventory management and sometimes owning the inventory while it is at Motorola's warehouses.⁵

Streamlining Operations Capitalizes On Shared IT, Production Resources, And Processes

With a previous mandate for cutting down fixed costs, the company looked to shed noncore businesses, including its semiconductor business, which was spun off as Freescale in 2004. In addition, Motorola announced plans to sell its automotive division to German auto-parts supplier and tire maker Continental AG for \$1 billion earlier this year.⁶ Soon after commencing Motorola's supply chain transformation project in 2005, the company's leadership team identified much redundancy in its business. In line with that, and from a manufacturing and logistics optimization perspective, Motorola is working toward a 40% reduction in its footprint by the end of 2006 while still growing the business.⁷ However, Motorola realized that these immediate cost-cutting initiatives, while necessary, were not enough to maintain efficiencies. The company turned its focus to long-term rationalization efforts, mainly in:

- **Standardizing on common IT systems.** Motorola saw that individual business units made many of its IT investments, resulting in redundancy in IT investments and a lack of one common strategy for IT throughout the whole company. And as with many user companies, Motorola did not believe that it was getting the expected returns from its IT investments. The executive team got busy looking to rationalize the IT landscape, with the ultimate goals of spending 80% of its IT budget on common process solutions and avoiding investments that were championed by individual business units and not expected to be used across the organization.
- **Eliminating redundancy and improving asset usage.** With business units preferring a decentralized structure, Motorola realized the high level of redundancy in functions like sourcing, manufacturing, and logistics across different business units. Each unit had its own relationships with suppliers and logistics providers. And manufacturing plants were unnecessarily specialized. This specialization meant poor asset usage, lack of standard business processes, and absence of best-practices sharing across the enterprise. Motorola focused on standardizing processes like supplier management or demand management so that every business unit was using the same methodology and the same IT infrastructure to calculate and monitor its asset, supplier, and manufacturing performance.

- **Continually measuring and benchmarking execution.** Motorola — the birthplace of Six Sigma — realized that any transformation would require constantly measuring the company's performance in executing its plans. To achieve the goal of execution excellence, the company needed feedback of its successes and failures and the ability to analyze the root causes and work on executable recommendations for continuous improvement. One example of centralization that resulted in execution excellence is Motorola's investment of approximately \$60 million over the next two years in a "control tower" concept, or a center of excellence, to centralize and oversee operations for strategic supply chain activities across all of Motorola's business units, including mobile devices, enterprise networks, and connected home products.⁸

Collaborative Product Development Enables Innovation And Improves Speed-To-Market

In the early 2000s, Motorola was coming down from its success with SmartTAC, with its mobile phones getting more complex and less user-friendly. Meanwhile, Nokia focused on the style and user interface of its phones, with features like a big screen and an easy-to-navigate menu, and became the No. 1 handset manufacturer.

Motorola realized that, regardless of how efficient and flexible its supply chain might be, to regain its market share and status in the mobile phone market, it had to energize its product design and development. The company focused on the product functionality and user interface but also looked to reinvent its brand as a stylish, cutting-edge technology. Specifically, Motorola focused on:

- **Collaborating with customers for more accurate demand signals.** Being one of the early adopters of collaborative planning, forecasting, and replenishment (CPFR), collaboration was by no means new to Motorola. However, the company wanted to extend its collaborative relationships with its customers to include design and development in addition to supply chain collaboration. Motorola wanted to take advantage of operators like T-Mobile's access to consumers changing preferences and demand.⁹ Together with its design for postponement strategies, this allowed Motorola to quickly respond to new trends in consumer demand.
- **Relying on reusable design and standard components.** To improve speed-to-market, the company examined ways to reduce the product design and development cycle. Motorola could shave off design and development time if designers and engineers capitalized on existing intellectual property across products and business units. Standardizing components could help with inventory excess and obsolescence problems by increasing the likelihood of the component use in an array of products. Furthermore, complying with industry standards would help maintain the resale value of the component at the end of a product's life cycle.
- **Capitalizing on design for postponement strategies.** Motorola realized that its ability to improve speed-to-market relies on how it can produce a differentiated finished product while leveraging already available components. This is because forecasting changes in customer

preference in small electronic appliances weeks in advance is a losing battle. Motorola now produces standard parts and components while postponing the production and assembly of the finished product. Closer to the time of consumption, Motorola can incorporate new demand signals like changes in consumer preferences for a product or a model. Additionally, building industry-standard components means higher resale value at the end of the life of the product.

REAPING THE BENEFITS: MOTOROLA'S SUCCESS SO FAR

Earlier in 2006, Motorola identified a faulty component in its trendy MOTORAZR phone, causing the phones to drop calls, power down, and power back up again. The problem was discovered in Motorola's inventory, leading the company to ask T-Mobile and Cingular Wireless to suspend the sale of that model. This problem had a silver lining. It demonstrated how adaptable Motorola's supply chain has become. Pinpointing the cause of the problem and localizing the impact very quickly would have been impossible at Motorola merely two years ago.

With the end goal of regaining its position as an innovator in the electronics space and building a world-class supply chain, Motorola is already seeing the fruits of its supply chain transformation efforts, including:

- **A reduction in defects in supplier components and finished products.** So far, Motorola has shaved off millions due to fewer quality problems, like recalls and product warranty costs. Motorola has reported a 30% reduction in total spills. Motorola has also reported half as many defects per million parts from its supplier base, thanks to a better-monitored, smaller supplier base. Additionally, there was a 20% reduction in factory defective parts, attributed to better performance measurement and streamlining of production.¹⁰
- **Improvements in different categories of working capital.** In July 2006, Motorola reported a 22% increase in inventory turns (i.e., 2004 to 2005) due to the rationalization of business units, manufacturing, and logistics operations.¹¹ Also, the company reported a 51% increase in quarterly revenue and a 75% increase in units shipped, per supply chain employee.
- **Increases in net income, revenues, and market share.** On July 19, 2006, Motorola reported another quarter of stellar financial performance. Net income for the second quarter was up 45% to \$1.4 billion, while revenues rose 29% to \$10.9 billion. Motorola has also managed to gain market share for the seventh consecutive quarter. It estimates its share at 22% now, up from 17% a year earlier.¹²

MOTOROLA FUELS FUTURE SUCCESS WITH DIFFERENT ROLES IN INNOVATION NETWORKS

Not complacent with its successes so far, Motorola is hard at work looking to find competitive differentiation in all areas of its business. Arguably, moving forward, incremental improvements will be harder to achieve, as Motorola has solved most of the critical, bigger network breakdowns. So, the industry is curious to know how Motorola can sustain this transformation. The answer lies in the company's ability to choose the most appropriate role that Motorola plays in each market. For example, Motorola should play the role of:

- **A Transformer that relies on its local partners to expand in emerging markets.** Earlier this year, Motorola announced a joint venture with Wipro Technologies to build and manage telecom networks. Motorola has also announced a partnership with Huawei Technologies of China to develop and market high-speed wireless equipment — Global System for Mobile Communications (GSM).¹³ Both partnerships can potentially help Motorola extend its reach to the most promising emerging markets: India and China.¹⁴ What Motorola will be bringing is product innovation expertise and a supply chain that can support market expansion. Local partners will serve in the roles of brokers to select local suppliers and partners, as well as a customer manager, relying on their local domain expertise.
- **An Inventor that creates products with appeal to high-growth markets.** As emerging countries take on bigger roles in the global economy, communication needs have fueled a boom in the mobile telecom market. Today, China is adding between 4 million and 6 million new cell phone subscribers per month, and India is adding a staggering 5 million subscribers per month.¹⁵ But unlike the mobile market in developed countries, these potential customers are not looking for a high-priced cell phone. Motorola has already adopted new business models that can offer cell phones in emerging regions like Africa for less than \$30.¹⁶ Moving forward, the company must continue to innovate to offer these customers, not just the bare bone technologies, but also additional features for the same low price, which a more mature consumer would seek.
- **A Broker that connects and facilitates interactions across a global ecosystem.** With a focus on faster speed-to-market, component and design reusability and effective and fast communications among Inventors, Transformers, and Financiers across the globe become imperative. To that end, Motorola has announced the launch of MOTODEV: a network that provides access to Motorola-wide tools and technical support and go-to-market initiatives. This network will facilitate the exchange of data on new product design and new business opportunities.¹⁷ The goal is to enable developers to apply and reuse their talent across the full range of Motorola platforms. Also, MOTODEV will enable an ecosystem that includes developers as well as its service providers and channel partners.

- **A Financier that funds promising new inventions and transformation efforts.** With a focus on the next-generation technologies that can differentiate its products, Motorola has played the role of Financier to new ventures across the globe. Most recently, Motorola Ventures has invested in online gaming company Happy Digital, ranked as one of China's top fee-based online games providers.¹⁸ More recently, Motorola's acquisition of Kreatel Communications, the Swedish maker of Linux-based Internet-Protocol-based digital set-tops and solutions, has solidified Motorola's presence in the high-growth potential market of digital television content over IP-based connections — Internet Protocol Television (IPTV).¹⁹

RECOMMENDATIONS

FIVE PREREQUISITES TO GET READY FOR SUPPLY CHAIN TRANSFORMATION

Motorola's success so far in turning its business around is another data point that shows that growth and profitability are predicated on supply chain alignment. A well-tuned supply chain is not a luxury anymore; it is the only way that a global company can grow and protect its shareholders' value.²⁰ This is because strategic goals like better speed-to-market or growth in emerging markets require a supply chain that is not only efficient but also one that is flexible and can adapt to changes in customers' needs. C-level executives must lead the changes in organization, governance structure, and technology strategy to transform their supply chains. Namely, company leadership must:

- **Show stakeholders how business performance depends on supply chain.** There is an abundance of cautionary tales of companies that have missed their business goals due to a glitch in their supply chains. What stakeholders need to better understand is how a well-managed supply chain can help with strategic goals like improving market share or expanding in a new market. To get their shareholders' blessings for investing in supply chain transformation, CEOs can point to the increasing number of case studies of companies like Motorola and how its adaptive supply chain has helped return to profitability and regain market share.
- **Hire a chief supply chain officer (CSCO) who reports directly to the CEO.** Most user companies have yet to think of the supply chain function as a top-line lever. And while more companies now have the heads of supply chain report to the CEO, few of them have anointed these supply chain heads as corporatewide C-level executives who are responsible for the operation, strategy, and vision of using supply chain as a growth opportunity. What is the profile of the CSCO? Someone with expertise in technology and operations and a knack for managing cross-functional teams and collaborating with external partners.
- **Centralize supply chain functions across regions and business units.** While each business unit or region can make an argument for autonomy, leading companies like Motorola

have realized that supply chain centralization is a must for transformation. This is because a centralized function can leverage collective purchasing power, production capacity, and existing relationships with service providers, as well as share best practices and tools across functions. For example, a company can set transportation sourcing guidelines centrally but allow business units to choose among suppliers that comply with these guidelines.

- **Power product design and development with customers' insights.** Companies in highly distributed supply chains like automotive or aerospace have adopted an array of collaborative frameworks. For example, a company like Boeing has instituted collaborative relationships with its suppliers and with customers to anticipate demand. Companies have also targeted breakdowns in internal and external communications among design, development, engineering, and manufacturing teams. But most companies have yet to build a two-way link between customers and R&D efforts. To form this link, a company must build a structured process for harvesting customers' insights and communicating them at an early stage to the design team to ensure that the group is designing not only for manufacturing but also for demand.
- **Measure SCM technology ROIs and build a road map for better adoption.** User companies that have invested millions of dollars on SCM technology investments have yet to reap the benefits. In a recent survey, 56% of the respondents have yet to see the promised ROIs.²¹ This is attributed to a myriad of reasons, ranging from insufficient adoption to lack of integrations. Regardless of the cause, ask your CIO to audit current technology and build a road map for generating more returns. For example, ask the CIO to assess how new frameworks like Web services and SOA can help integrate current technologies and offer business users much-needed process visibility.

ENDNOTES

- ¹ One of Motorola's major initiatives to breathe new life into the company's mobile-phone practice was 2004's introduction of the Razr phone; a product differentiated from competitor products by its simpler, sleeker, and smaller design. Source: Scott D. Anthony, "Motorola's Bet on the Razr's Edge," *Working Knowledge for Business Leaders*, Harvard Business School, September 12, 2005 (<http://hbswk.hbs.edu/archive/4992.html>).
- ² Chris Galvin retired in September 2003. On January 5, 2004, the board of directors selected Ed Zander to become Motorola's chairman and CEO.
- ³ IBM estimated saving \$27 million per day, based on procurement consolidation across IBM's business unit. See the March 24, 2005, Best Practices "[IBM Transforms Its Supply Chain To Drive Growth.](#)"
- ⁴ Motorola articulated its mission as delivering "seamless mobility solutions" to its customers, enabled by a world-class supply chain and achieving a two- to three-percentage point improvement in gross margin. Source: Stu Reed, "Integrated Supply Chain," Motorola (http://www.motorola.com/mot/doc/5/5703_MotDoc.pdf).

- ⁵ Suppliers also benefit as they are able to ship their products to other customers. And after 90 days, Motorola automatically assumes ownership of the inventory, so suppliers have a guaranteed buyer. Source: Dale Edmonds, "The virtue of virtual hubs," *Managing Information Services*, February 1, 2005 (http://www.misweb.com/magarticle.asp?doc_id=24277&rgid=5&listed_months=0).
- ⁶ In April 2006, Motorola announced that it would sell one of its classic business lines: the company's automotive electronics arm, which includes sensors, telematics, and safety-related electronics. The division will go to Continental, a German company best known in the US for its tires. Source: Marc Pertou, "Moto sells autobiz to Continental for \$1B," *Engadget*, April 3, 2006 (<http://www.engadget.com/2006/04/03/moto-sells-auto-biz-to-continental-for-1b/>).
- ⁷ In his call with financial analysts, Mr. Reed discussed the benefits of restructuring and streamlining Motorola's footprint.
- ⁸ CEO Ed Zander said the \$60 million investment will allow Motorola to control supply chain management activities across its businesses including mobile devices, networks and connected home products. Source: Aaron Tan, "Motorola commits US \$60M to bolster supply chain," *ZDNet Asia*, December 2, 2005 (<http://www.zdnetasia.com/news/business/0,39044229,39365022,00.htm>).
- ⁹ As more companies use Internet-driven "listening" methods, consumers will play a larger role in shaping product, experience, and marketing concepts. Forrester calls this process Consumer-Driven Innovation — where consumers decide the direction of the brand and products. See the May 26, 2006, Best Practices "[The Essentials Of Consumer-Driven Innovation](#)."
- ¹⁰ In his July 2006 presentation to the financial analysts, Mr. Reed discussed improvements in quality factory and supplier parts.
- ¹¹ Mr. Reed announced a 22% improvement in inventory turns in his presentation at Motorola's annual financial analyst meeting in July 2006.
- ¹² Motorola has gained market share for the seventh consecutive quarter, heating up the race with Nokia. Source: Roger O. Crockett, "Does Motorola Have Nokia's Number?" *BusinessWeek Online*, July 20, 2006 (http://www.businessweek.com/technology/content/jul2006/tc20060720_479530.htm).
- ¹³ By cooperating, Motorola may get access to more customers, particularly in emerging markets like China, and Huawei will get more credibility with customers leery of working with a newcomer. Source: "Motorola Gearing Up for Nokia Challenge," *NewsFactor*, July 27, 2006 (http://www.newsfactor.com/story.xhtml?story_id=133005QUX4MK&page=1).
- ¹⁴ Instead of throwing up barriers and viewing India and China as competitive threats, US tech vendors like IBM, Intel, and Motorola are building global high-tech Innovation Networks: multipolar ecosystems that exploit the huge markets and the growing talent pools in India and China. See the June 14, 2006, Trends "[Innovation Networks: Global Progress Report 2006](#)."
- ¹⁵ Only one in 10 Chinese own a cell phone, compared with four in 10 Americans. Source: Martin Fackler, "China's Cell Phone Market Ready to Explode," *AsianWeek*, August 31, 2001 to September 6, 2001 (http://www.asianweek.com/2001_08_31/biz_celphone.html). Indians are signing up for mobile phone service at

an extraordinary 5 million new wireless connections a month. Source: Nandini Lakshman, "Going Mobile in Rural India," *BusinessWeek Online*, July 24, 2006 (http://www.businessweek.com/globalbiz/content/jul2006/gb20060721_375326.htm?chan=search).

- ¹⁶ Motorola announced plans to develop an "ultra-low-cost" mobile phone for less than \$40 without compromising product quality or robustness.
- ¹⁷ On May 8, 2006, Motorola launches MOTODEV: "a unified developer experience featuring a web-based program and business ecosystem. MOTODEV is designed to make it easier and more rewarding for developers around the world to innovate with Motorola, its products and technologies." Source: "Motorola Launches MOTODEV: The Developer Network for the Business of Innovation," Motorola press release, May 8, 2006 (http://www.motorola.com/mediacenter/news/detail.jsp?globalObjectId=6709_6667_23).
- ¹⁸ "NewMargin originally had a fund of US \$35 million and was supported initially by Motorola. The highly touted VC firm has invested in several firms, including NASDAQ-listed Chinese telecom solution provider AsiaInfo." Source: James Borton, "Motorola Ventures Invests with Shanghai's New Margin," *China Venture News*, March 28, 2006 (http://www.chinaventurenews.com/50226711/motorola_ventures_invests_with_shanghais_new_margin.php).
- ¹⁹ "On January 17, 2006, Motorola announced it has entered into an agreement to acquire Kreatel Communications AB (publ), a leading developer of innovative IPTV-based digital set-tops, headquartered in Linköping, Sweden." Source: "Motorola To Acquire Leading Set-Top Platform Developer Kreatel Communications, Gain Immediate European Telco TV Presence," Motorola press release, January 17, 2006 (http://www.motorola.com/mediacenter/news/detail.jsp?globalObjectId=6303_6256_23).
- ²⁰ Professor Vinod Singhal at Georgia Institute of Technology found that manufacturers incur 20% erosion in their market cap whenever they report a supply chain glitch to Wall Street.
- ²¹ Firms agreed that technology solutions, like demand management or inventory visibility, have yet to live up to their promise to optimize supply chains. See the April 11, 2006, Trends "[The State Of Global Supply Chain Management](#)."

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