Point of View

Next-Generation Supply Management

Authors
Ram Muthukrishnan
Kevin Sullivan

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The global economy is continuously changing, forcing corporations to act swiftly and decisively to adapt. As the world becomes increasingly boundaryless, major multinational organizations are realizing that they not only must cut costs across the supply chain, but also position themselves to capture new market opportunities, innovate to differentiate themselves from the competition, and become adept at managing social, political, geographical, and other business challenges. More than at any time in the past, the growing complexity of doing business in a dynamic global environment requires a new approach to management decision making.

Recent global economic woes have only amplified this need for change. Many organizations reacted to the financial crisis by reducing headcount and discretionary expenses. To conserve cash, they placed a hold on critical new investments in innovation, and in preparing for the future. While this approach may have helped them survive in the short term, it has taken the focus away from long-term growth and sustainability.

As companies begin to see the light at the end of this economic tunnel, they are looking for ways to regain their momentum. Optimizing the supply chain from end to end will result in increased flexibility and resiliency. An immersive, virtual collaboration environment can aid these companies in overcoming many of the obstacles created by expanding distances, shrinking budgets, increasing complexities, and the speed with which decisions need to be made.

Four key activities are critical to achieving competitive differentiation:

1. Creating end-to-end supply chain visibility into both information and material flows
2. Using this visibility to drive holistic decisions that are optimal for the business
3. Streamlining operations using advanced technologies, new processes, and metrics that are aligned at all levels of the organization
4. Institutionalizing a robust supply risk management program that ensures the availability of materials at the right place, at the right time, in the right quantity, and with the right quality

Improving Supply Management Starts with Understanding the Contributors to Its Complexity

Supply chain management is not just about manufacturing products. It encompasses three complex and interconnected phases (see Figure 1):

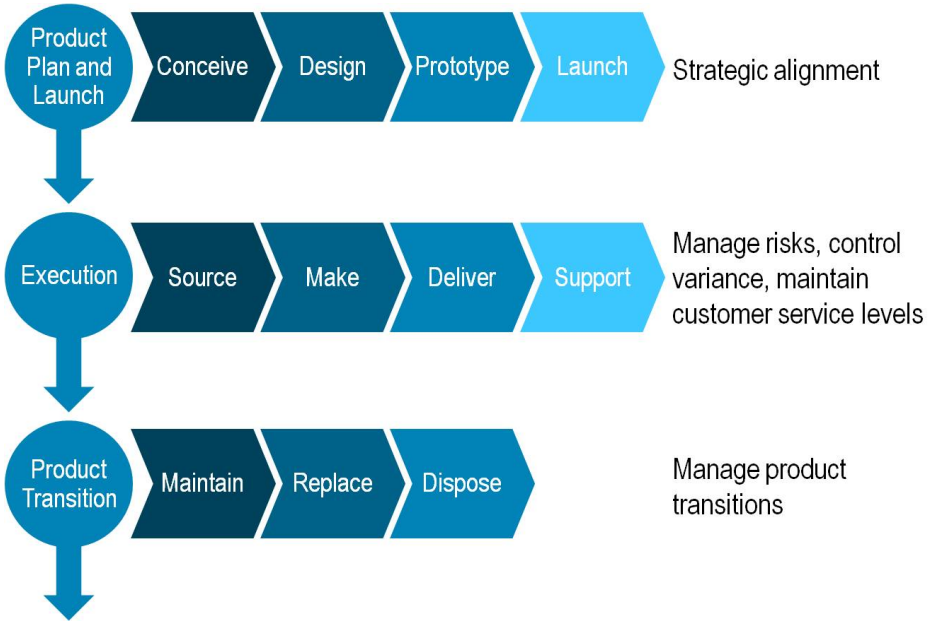
1. Developing and launching new products
2. Executing operations that comprise physical, information, and financial flows; post-sales service; repairs; and warranties
3. Planning product transitions

The new-product development and launch phase ensures products are strategically aligned with company objectives and goals. External research by Munro & Associates indicates that for industrial companies, decisions made in this phase drive about 50 to 70 percent of supply chain costs. Organizational silos create huge barriers to making the right new-product introduction (NPI) decisions. This results in high product development costs and long concept-to-launch cycle times.

The operational execution phase optimizes the supply chain network to minimize overall costs, manage risks, control variability, and create the infrastructure to deliver the highest level of service. Decisions made during the new-product development and launch phase limit the extent to which organizations can optimize this execution phase. Several interconnected processes that involve many groups, disparate systems, and divergent strategies often make this phase extremely challenging.

As new products are introduced to meet changing market and customer requirements, current products need to be phased out. End-of-life product planning is based on total lifecycle costs, and the transition phase must also ensure continued high levels of service to customers of products at or near end of life. Close coordination and alignment are needed between the product transition management, new-product introduction, and service management groups.

Figure 1. The Supply Chain Comprises Three Interconnected and Complex Processes.



Source: Cisco IBSG, 2012

Clearly, managing supply chains—from the supplier's network to delivering the product at the point of use—is an extremely complex operation, particularly for global industrial companies. If not managed carefully, the result can be long, slow, and expensive supply chains. Several factors contribute to this complexity:

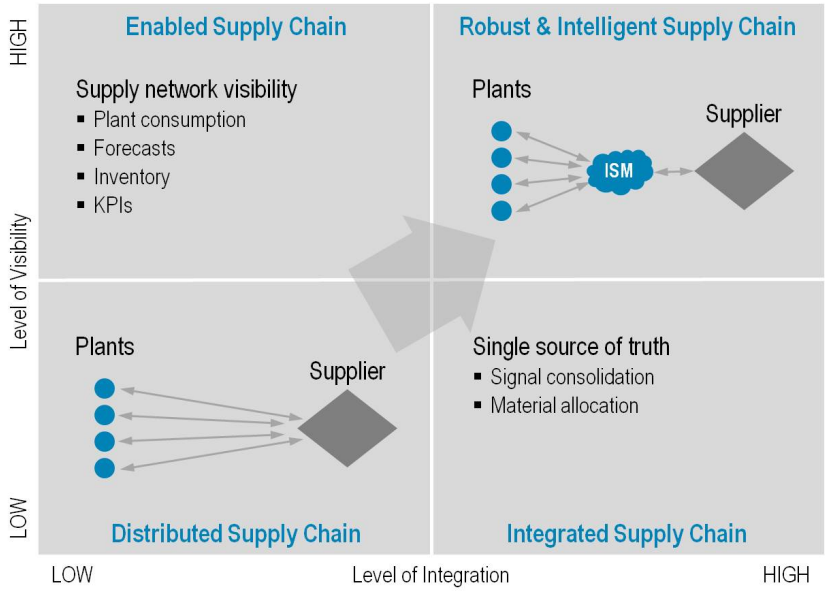
- Global reach, many cultures and time zones, varying demand characteristics, and dispersed supply and demand bases
- Interdependent and interconnected operations planning processes that cut across multiple business and functional units
- Proliferation of the parts, stock-keeping units (SKUs), and supply base
- Diverse and numerous technologies, tools, and systems to manage the supply chain across the enterprise
- Siloed organizational structures that conflict with overall company strategies
- Complexity of analytics needed to optimize the supply chain from end to end
- Misaligned metrics

If organizations fail to manage their complex supply chains properly, quality suffers, material insufficiencies slow production schedules, customer deliveries are missed, inventory increases, and transportation costs go up.

New Supply Management Approaches Are Emerging

Companies that adopt traditional supply management models make "siloed" decisions based primarily on experience. They don't take advantage of end-to-end approaches to optimize their supply chain. This leads to suboptimal decisions in today's global environment, which is defined by complex product and customer portfolios. As companies try to achieve competitive differentiation with customized service offerings, these traditional models are no longer sufficient. To succeed, companies must fundamentally reshape their business, operations, and organizational models to align with today's new market requirements.

Figure 2. Many Companies Are Moving to an Integrated and Intelligent Supply Management Model.



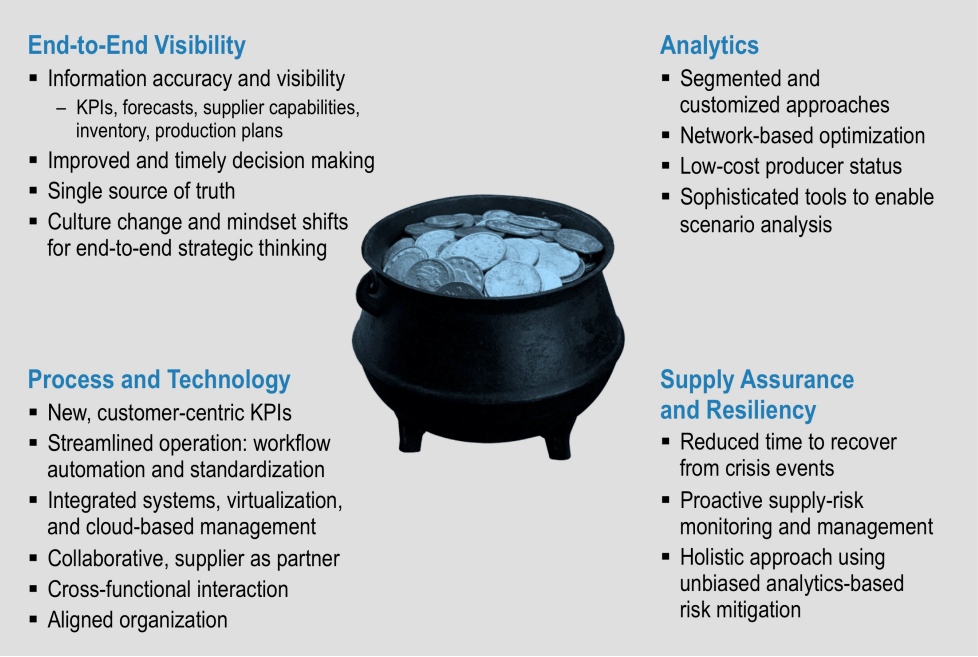
Source: Cisco IBSG, 2012

Many companies are starting to move away from a distributed supply chain, characterized by low levels of functional integration and supply chain visibility, to a more integrated and intelligent supply management (ISM) model (see Figure 2).

Senior executives of leading companies understand that moving to an intelligent supply chain management model requires end-to-end network-based processes and systems that orchestrate the flow of information signals and materials between the suppliers and production facilities. Based on our experience working with customers who are making the transition, we have identified four key initiatives that will help companies transform to the next generation of robust and intelligent supply chains (see Figure 3):

1. Creating **visibility and transparency** of data and insights across the entire supply chain
2. Implementing **sophisticated analytics** that effectively leverage this data and information visibility to optimize business decisions
3. **Streamlining operations** with new processes, tools, advanced technologies, key performance indicators (KPIs), and organizational alignment
4. Institutionalizing a **holistic risk management** program to ensure proactive management of all supply risks, as well as ensuring resiliency of the supply chain

Figure 3. Focus on These Four Areas To Transform Your Supply Chain.



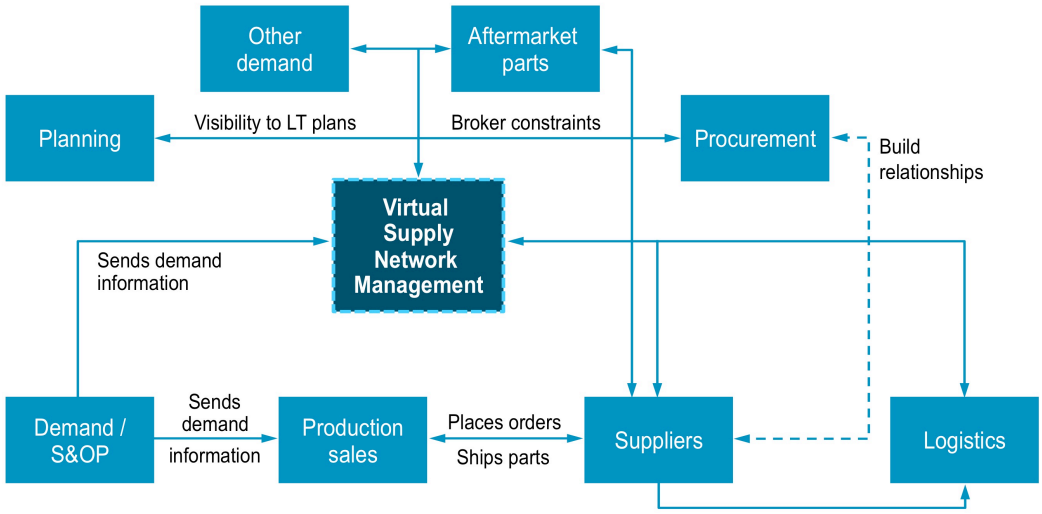
Source: Cisco IBSG, 2012

1. Creating Supply Chain Visibility and Transparency

Achieving end-to-end visibility means ensuring that all relevant information—from the supplier networks to the point where materials are used—is available and visible anywhere, anytime, and via any device. This information includes real-time data related to orders and shipments, as well as historical analysis of demand trends, supplier capabilities to meet current and future

demand, inventory turns at all nodes on the network, logistics and shipments, and supplier performance details. Several leading industrial companies are currently implementing a virtual supply management system to enable this visibility (see Figure 4).

Figure 4. Virtual and Transparent Supply Management System.



Source: Cisco IBSG, 2012

Benefits of creating this visibility and transparency include:

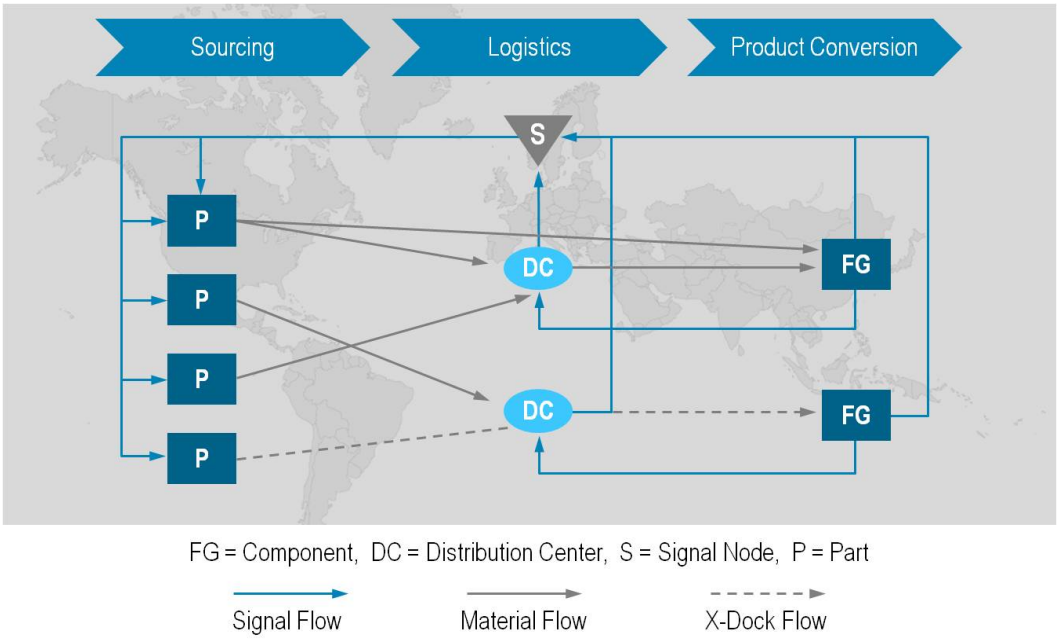
- Improved supplier performance
- Reduced operating costs
- Reduced variability in demand schedules and orders
- Improved sales and operations planning (S&OP) outcomes
- Improved relationships between manufacturers and suppliers
- Increased supply chain responsiveness

Companies are just beginning to understand the value of leveraging this information visibility and transparency.

2. Optimizing Decisions Based on Complex Trade-Off Analytics

Most large industrial companies have a global supply, manufacturing, and distribution network. Making the right business decision involves analyzing many pieces of information across the supply chain in an integrated manner (see Figure 5). The rapid industrialization of the Internet has created a deluge of information from many types of information sources. Fortunately, sophisticated optimization algorithms and systems to process this data are also emerging. Companies must leverage these new tools to transform data into insights that result in the lowest total cost.

Figure 5. Supply Chain Flows.



Source: Cisco IBSG, 2012

Optimizing the network involves the following steps:

1. Defining unique and customized supply chain segments
2. Determining the right network parameter values for each segment, such as inventory levels and lead times
3. Designing the right physical and virtual infrastructure to orchestrate material and information flows across the supply chain

In most cases, a single supply chain does not meet all of the requirements of the enterprise in the most profitable manner. Product, process, and customer characteristics typically define multiple unique supply chains within an enterprise. Most large enterprises also have many business models based on several supply chains. Best-practice companies develop customized solutions for sourcing, purchasing, manufacturing, logistics, and customer service for each of their supply chains by tuning the following network parameters for optimal performance:

- Supplier and transport lead times
- Economic order quantities
- Safety stock
- Reorder points
- Forecasts
- Others

Companies can ensure that each supply chain segment is cost effective and efficient by optimizing the network from end to end. This involves determining the right number of physical nodes and their location in the supply chain, along with determining the ideal information and physical flows for data such as purchase orders, electronic data interchange (EDI) signals, and

advance product-shipping notices. Analytics provide an effective way to optimize the overall supply model and achieve increased profitability.

3. Streamlining Operations

Creating end-to-end visibility and leveraging advanced analytics that transform data into business insights do not necessarily create world-class supply chains. Organizations must turn their gleaned information into better business decisions. Streamlining requires the following:

- An integrated and transparent system that provides a reliable, single source of truth, easily accessible anytime and anywhere
- A robust and secure information technology infrastructure that uses advanced technologies such as collaboration, cloud services, and "big data" management to create competitive differentiation
- Immersive synchronous and asynchronous video collaboration among supply chain partners for quicker and more cost-effective decisions
- Integrated, well-defined, and automated workflows
- Lean and standardized processes
- New supplier relationship models customized for managing strategic, leverage, bottleneck, and routine suppliers appropriately
- KPIs aligned at all levels of the organization
- Cross-functional interaction and working across silos

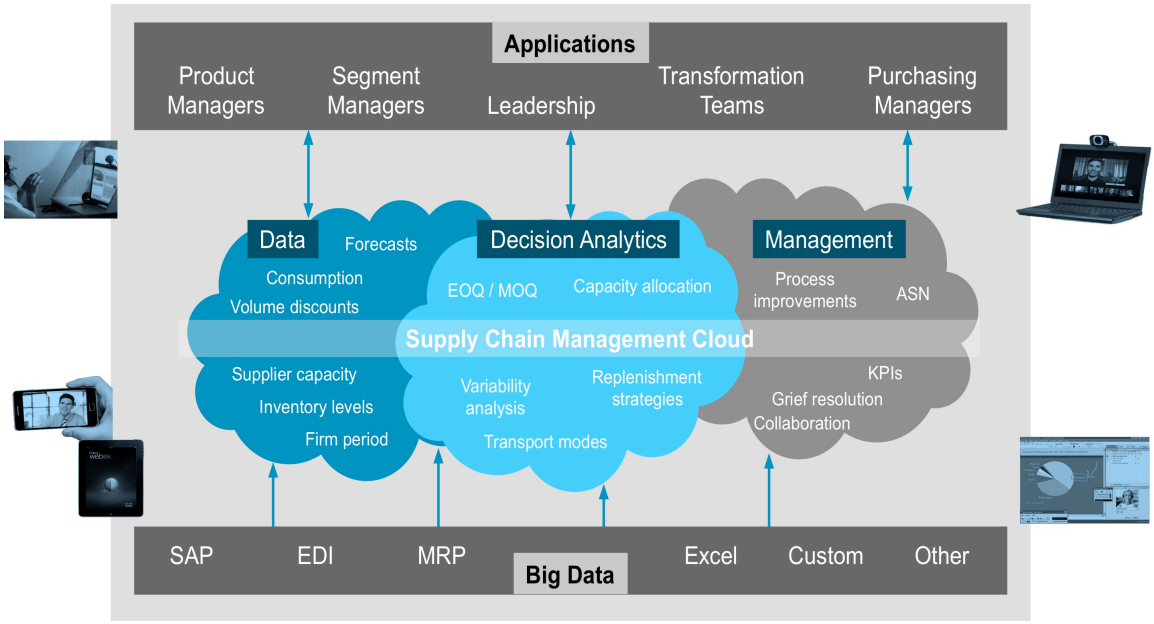
Companies are increasingly looking at potential cloud-based services (X as a service, or XaaS; see Figure 6) to solve their supply chain needs economically. Several factors are driving their consideration:

- The Internet of Things is creating "big data" that requires large data centers and sophisticated analytics to harness the information quickly.
- Increasingly, mobile workforces demand anytime, anywhere, any-device connectivity.
- Companies are outsourcing noncore (context) support services.
- Service providers who can provide these services at competitive costs are proliferating.

A recent McKinsey Global Institute study suggests that "big data" can create big impact, reducing product development and assembly costs by 50 percent and working capital by 7 percent.

Despite the benefits of moving to cloud-based models, some companies are reticent to adopt these approaches due to the costs and time required for implementation, service-level considerations, security implications, and the perceived loss of control over data when it moves to the cloud.

Figure 6. Cloud-Based Information Flow.



Source: Cisco IBSG, 2012

4. Developing a Holistic Risk-Management Program

A topic currently generating well-deserved interest is that of managing supply risks. Lean processes that cut down inventory, outsourcing and offshoring activities that lengthen supply chains and increase variability, uncertain economic conditions, and unpredictable natural disasters all combine to increase risk. Lack of preparedness to handle supply risks can result in significant financial impact. For example, according to a Swiss Re sigma report, the earthquake and tsunami that struck Japan in 2011 caused more than $200 billion in damage, and the more recent floods in Thailand resulted in losses exceeding $45 billion. Insurance companies for the most part cover only a portion of this, making recovery very expensive.

As leading industrial companies prepare for the growth ahead, they are focusing on implementing world-class supply risk management capabilities, processes, and technologies to guarantee the availability of supply to manufacturing facilities. They are implementing tools and processes that will proactively manage impending threats, with the aim preventing them or minimizing their impact. Not all risks are predictable, and world-class risk management programs are designed to ensure supply chain resiliency that minimizes the time to recover from a crisis event.

Figure 7. Understanding the Spectrum of Risks.

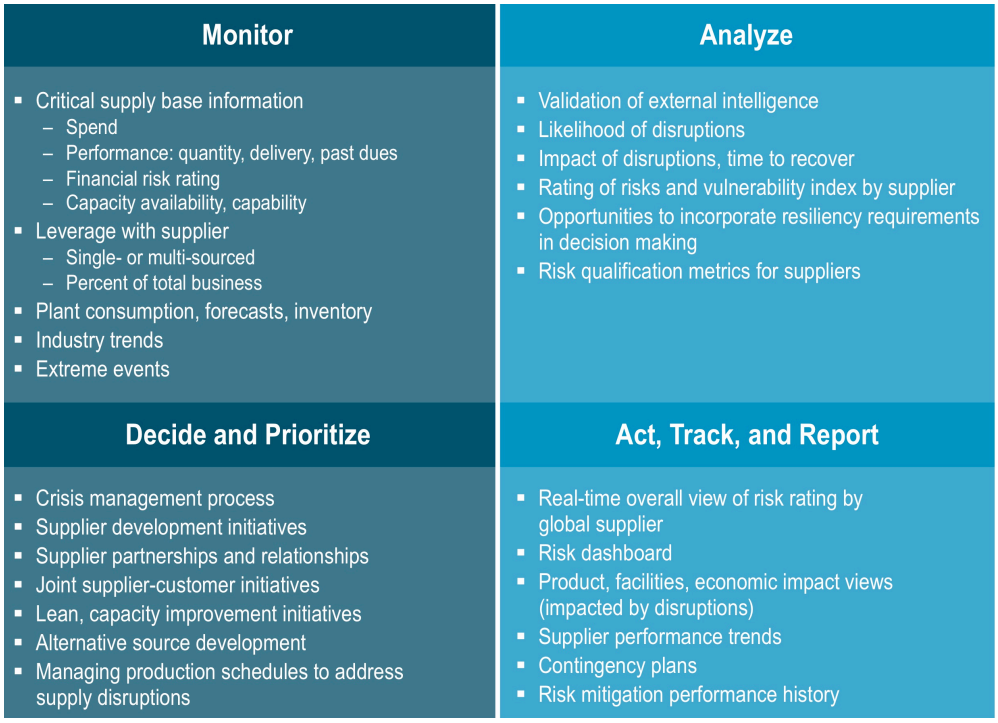
	Extreme Event	Continuous	Decision
Strategic / Competitive	▪ Political ▪ Regulatory / trade policies ▪ Disruptive technologies	▪ Competitive threats ▪ Forecasts ▪ Industry trends	▪ M&A, divestitures ▪ Sales and marketing ▪ NPI, product pipeline ▪ Compliance
Operational	▪ Natural disasters: hurricanes, typhoons, floods, earthquakes, volcanoes, tsunamis ▪ Accidents: nuclear, chemical, fires, power outages, plant breakdowns ▪ Wars ▪ Strikes ▪ Terrorism	▪ Supplier performance: shipping, quality, past dues, response times ▪ Capability: skills, capacity, raw materials ▪ Plan consumption, inventory, schedules ▪ Commodity prices	▪ Sourcing: BCP, capacity, viability, VSMs ▪ Footprint: supplier, manufacturing, distribution ▪ Product alignment
Financial	▪ Credit defaults	▪ FX / interest rates	▪ Capital allocation ▪ Leverage / debt structure
	Rescue	**Recover**	**Reduce / Remove**

Source: Cisco IBSG, 2012

Organizations face many types of risks (see Figure 7). Risks are classified as extreme, continuous, or decision-based, and can impact strategic, operational, or financial decisions. For industrial companies, a supplier's ability to meet expected demand growth is considered a significant risk. This risk manifested itself during the recent economic crisis, when several suppliers that were hurt financially are now either unable or hesitant to make big capital investments. Companies are becoming increasingly global in nature, creating supply, manufacturing, and demand bases that are dispersed around the world. It is now more important than ever to manage all types of risks effectively. While managing risk in a complex global environment is not easy, it can be accomplished by following these four steps (see Figure 8 for more detail):

1. Monitoring critical parameters that enable early detection of potential problems
2. Analyzing data and conducting predictive analyses to determine the probability and severity of potential risks
3. Creating a prioritized set of actions to manage risks in a way that ensures minimal impact on the company
4. Actively tracking the progress of preventive or corrective actions, and generating lessons learned that can be used to manage future incidents

Figure 8. Four Steps to Effective Risk Management.



Source: Cisco IBSG, 2012

Many companies are implementing physical and virtual infrastructures to manage supply chain risks. The physical infrastructure provides the means to monitor all events from a single location, and to enable instantaneous collaboration across functions and geographies for rapid decision making. It also includes a war room to manage extreme events and emergencies that require secure, dedicated, and full-time risk management. A virtual infrastructure expands the capabilities of the physical infrastructure to overcome the limitations associated with interacting across multiple geographies and time zones. Having a world-class risk management program is a competitive advantage.

Transformation Results in Significant Impact

A properly executed transformation program will not only improve current performance, but will also position the enterprise for sustained success, even under volatile conditions. Moving to this next-generation model results in benefits across the entire supply chain, including:

- Increased sales through faster responses and decision making
- Reduced inventory across the chain
- Improved service levels
- Reduced procurement costs
- Improved operational efficiency
- Reduced logistics costs
- Improved quality

Conclusion

The economic environment is continuously changing, and businesses need to evolve with the market to survive and succeed. The industrialization of the Internet has complicated matters by creating vast amounts of content in the form of data, voice, and video. Companies need to leverage this volume of information more effectively and convert it into profitable business decisions for competitive advantage. Industrial companies are increasingly realizing the need to transform. One large industrial company that is implementing these transformation programs expects to realize tens of millions of dollars in airfreight savings, an inventory reduction of 10 to 15 percent, and an improvement in supplier performance of about 30 percent.

While it is clear that significant benefits exist, companies must also anticipate and address several challenges efficiently. Otherwise, their progress could slow, or they could derail their entire program. Some of these challenges include:

- Complex and difficult-to-access-and-use information systems
- Limited or nonexistent analytic capabilities
- Cultural barriers and resistance to change
- Decentralized and distributed decision-making environment
- Misaligned metrics

Successful companies adopt a streamlined process supported and enabled by advanced technologies and change management tools.

For more information, please contact:

Kevin Sullivan
Manufacturing Consulting Practice
Cisco Internet Business Solution Group
815-713-6312
kevinsul@cisco.com

Ram Muthukrishnan
Manufacturing Consulting Practice
Cisco Internet Business Solution Group
312-515-7063
rammuthu@cisco.com

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