

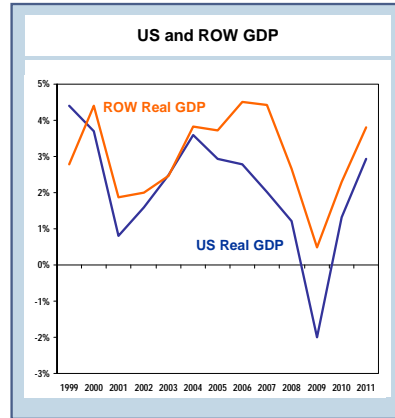
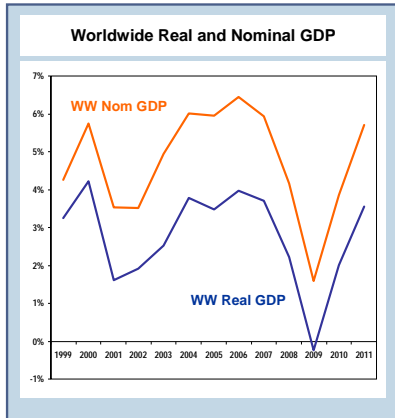
# THE SMARTER SUPPLY CHAIN OF THE FUTURE

IBM Global Chief Supply Chain Officer Study



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Photo Number: WC6D8959

# Economic Volatility... The best summary of today's global marketplace.



The global recession will result in -1% real GDP 2009 growth with -2% US growth and the "Rest of World" slightly positive

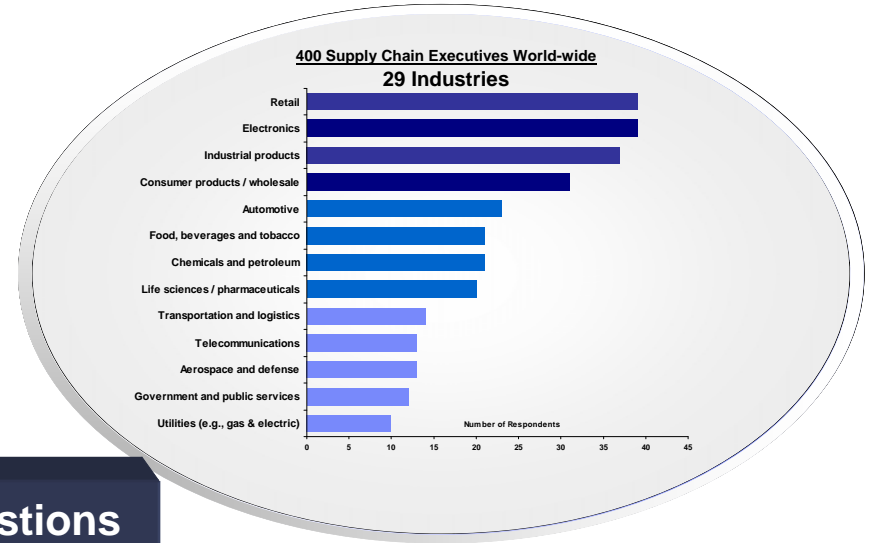
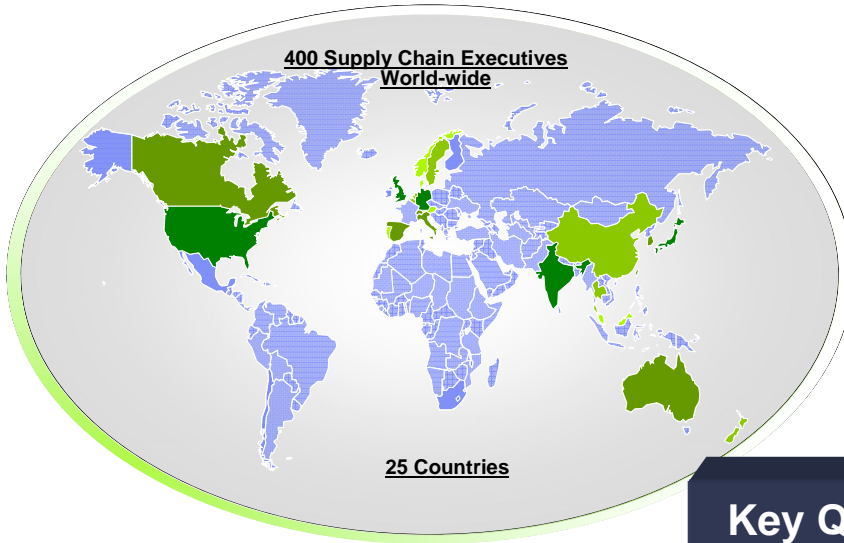
Source: Economic Assessments from Global Insight, IBM Finance and IPR, December 2008

## Supply chains continue to become more global and complex...



Going Global	Increased Network Complexities	Product Portfolio Turmoil
<p><b>Businesses and supply chains are becoming more global over the last decade</b></p> <p><b>3X</b> Between 1995 and 2007, <b>foreign subsidiaries</b> nearly tripled, from 265,000 to 790,000</p> <p><b>2X</b> <b>Transnational companies</b> more than doubled, from 38,000 to 79,000<sup>1</sup></p>	<p><b>Supply chains are involving more companies</b></p> <p><b>80%</b> Nearly 80% of executives expect number of <b>collaborative relationships</b> with third parties to increase<sup>2</sup></p> <p><b>65%</b> Between 2007 and 2010, R&amp;D <b>outsourcing</b> is forecast to increase by 65%</p> <p><b>80%</b> Engineering <b>services</b> and product-design projects are forecast to increase by 80%<sup>3</sup></p>	<p><b>Supply chains must contend with rapidly expanding and contracting portfolios</b></p> <p><b>17%</b> • In consumer products industry, <b>production introductions</b> increased by 17% in 2006, more than double the 2005 rate<sup>4</sup></p> <p>• Portfolio rationalization is <b>eliminating SKUs</b> almost as fast</p>

We wanted to gain insight into the challenges facing supply chain executives around the world... to learn what strategies and initiatives they are undertaking.

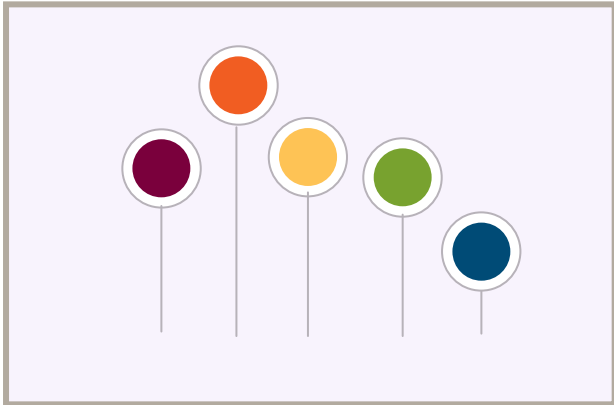


### Key Questions

- **What is our supply chain strategy? Are we working towards a common goal or are we driven by what we've done in the past?**
- **Are there opportunities for greater coordination, integration and collaboration between our supply chain functions and with our global network of partners?**
- **How can we gain visibility and access to economies of expertise to improve responsiveness and agility?**
- **Is our supply chain at risk? How are we mitigating our risk or managing it adequately?**
- **Are we exploiting data and technology to its fullest extent?**

# Summary and overview

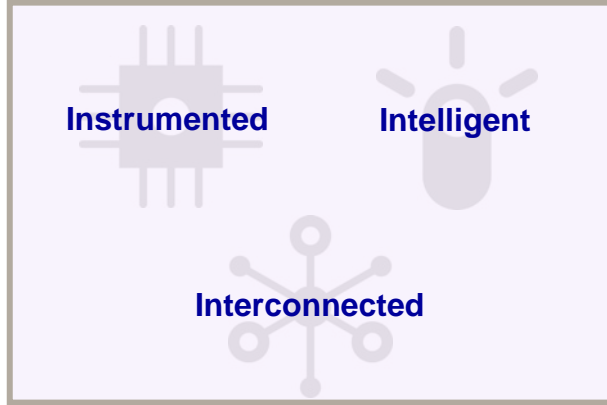
## The Top Five Supply Chain Challenges



### Five trends define the CSCO agenda

According to our extensive study of 400 Supply Chain Executives, we've found imperatives among visibility, customer demands, cost containment, risk, and globalization.

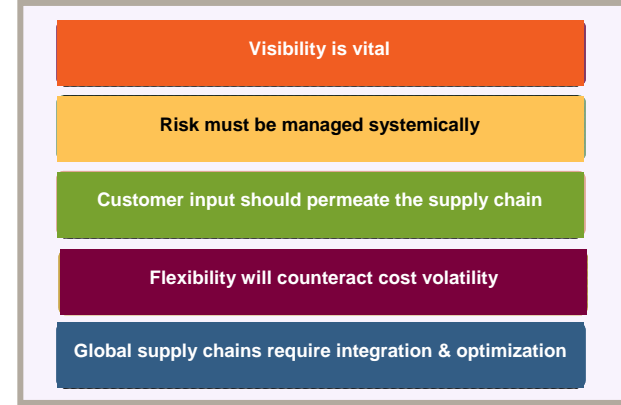
## The Smarter Supply Chain



### Instrumented, Interconnected, & Intelligent

The smarter supply chain has three new characteristics. Firms across the globe are beginning to see the benefits of building a new vision of supply chain excellence.

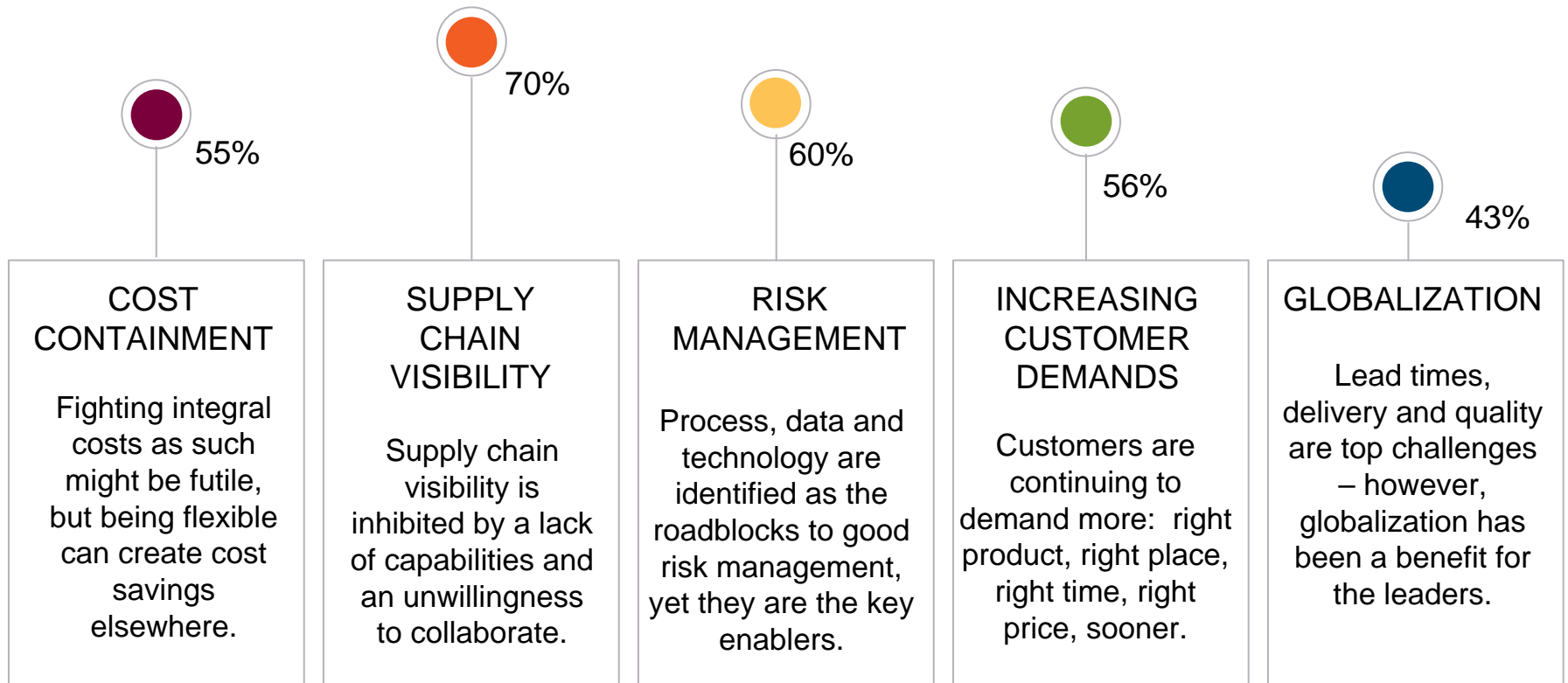
## Building the Supply Chain of the Future



### A new role for the CSCO and a map to the future

Building the supply chain of the future will require the emergence of a new kind of CSCO and a comprehensive set of new capabilities.

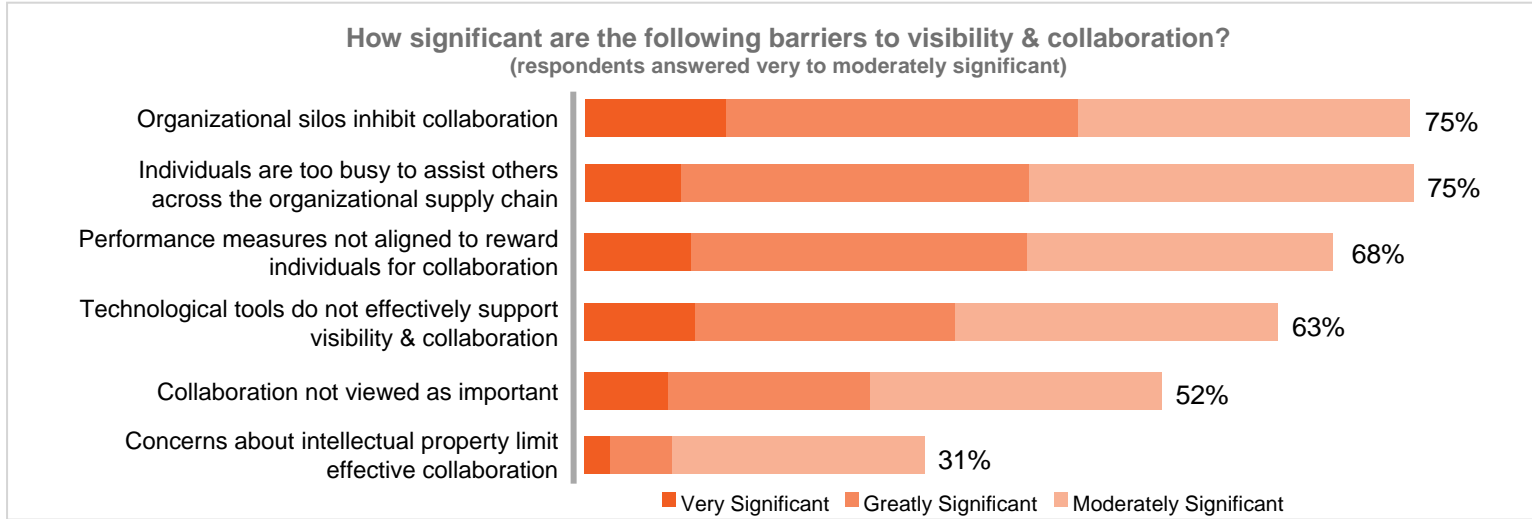
# Supply chain executives identify five major challenges that comprise their agenda



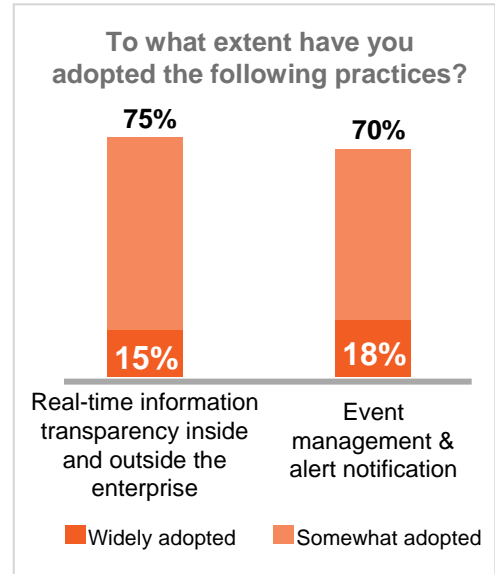
*Based on responses of “to a very great extent” and “to a significant extent”*



# Visibility: Supply chain visibility leads the CSCO's agenda



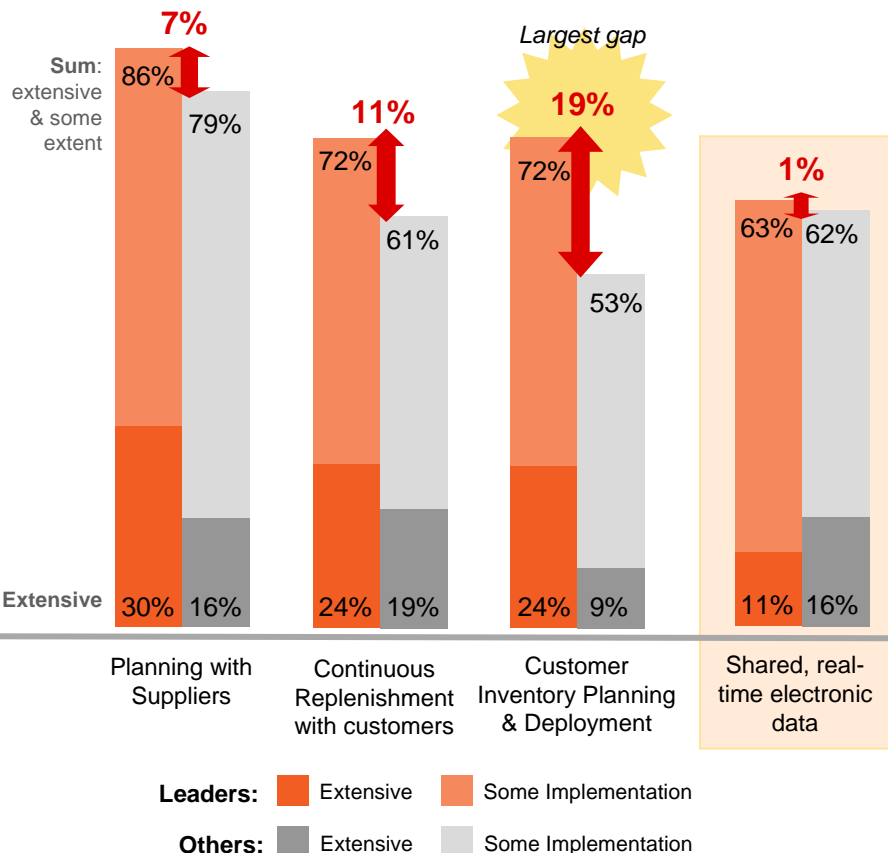
**As #1 Challenge – Why are we NOT integrating & collaborating more to increase visibility?**



**Future Outlook:** The Smart Supply Chain will require more connectivity, collaboration, and integrated processes to improve visibility among network partners as demonstrated by leaders



Extent of implemented Integration Practices  
Leaders vs. Others



Key Capabilities



- **Decision-support based advanced analytics and optimization to automate and self-actuate supply chain transactions.**
- **Multi-partner collaborative platform**
- **Sense-and-respond demand & supply signal notification**
- **Smart devices & sensors (RFID) to capture real-time visibility:**
  - **Shelf-level replenishment forecasts/orders**
  - **schedules/commitments**
  - **pipeline inventory**
  - **shipment lifecycle status**

\* Leaders determined based on respondents' ranking in AMR Research Supply Chain Top 25 for 2008



**Risk Management:** Managing risks, both operational and financial, is a top concern of supply chain executives world-wide



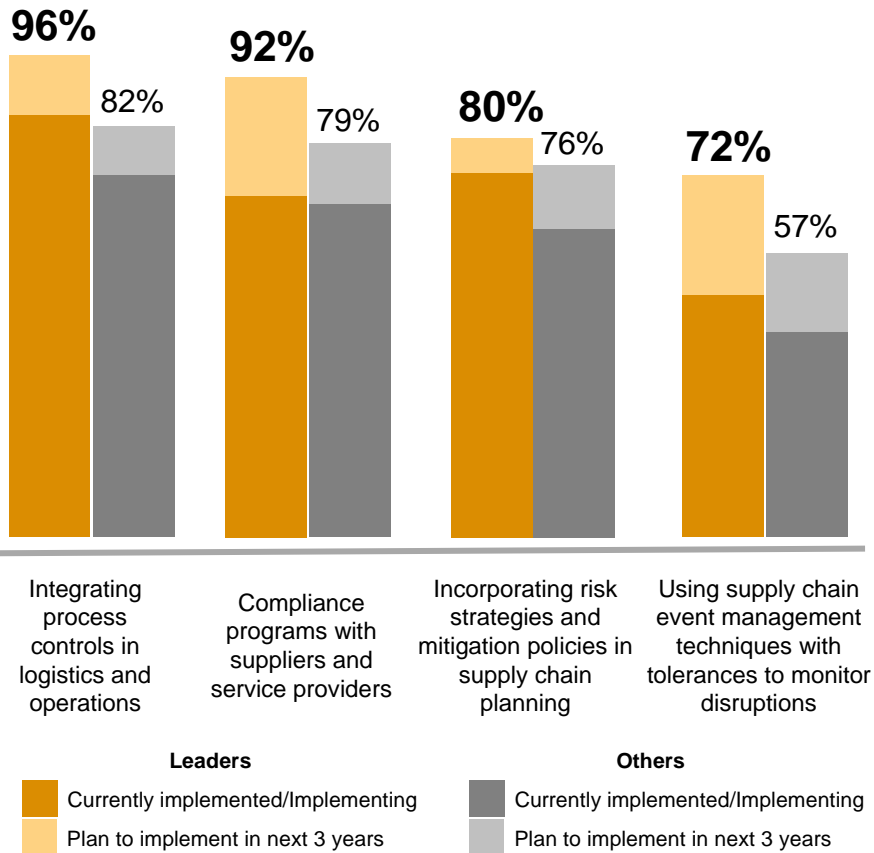
**69% manage risk in some fashion**





# Future Outlook: Leaders have more integrated risk management strategies and compliance programs

What types of risk management practices have/are you implementing?



## Key Capabilities

- **Risk adjusted inventory optimization**
- **Probability-based risk assessment & predictive analysis: Likelihood, severity, ease of detection for key risk factors with mitigation policies & procedures**
- **Compliance strategies & policies with suppliers, service providers, contract manufacturers**
- **Monitors & sensors for product traceability from ingredients to final customer consumption**

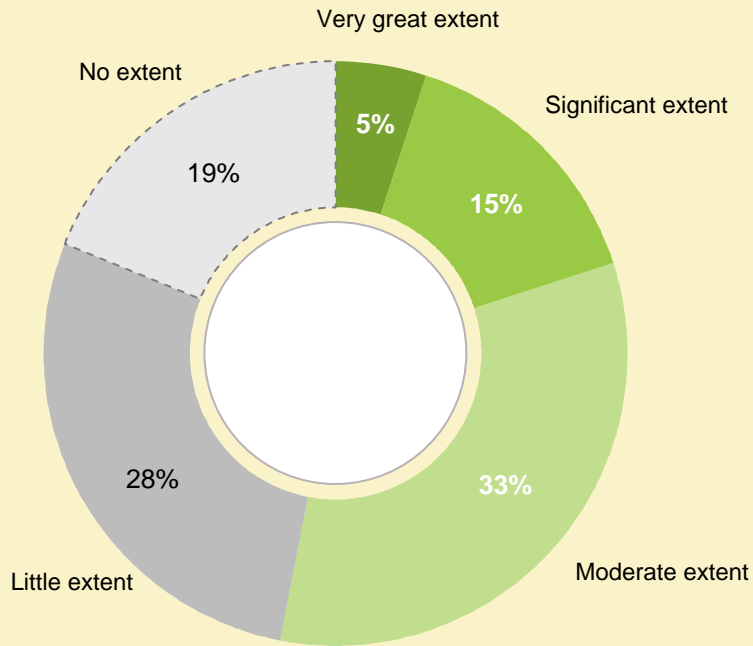


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**Customer intimacy:** Rising customer demands ranks as the third highest supply chain challenge

Extent of external demand collaboration with customers



**Almost Half (47%) FAIL to Collaborate with Customers!**

What are the most significant challenges in bringing new products and services to market?

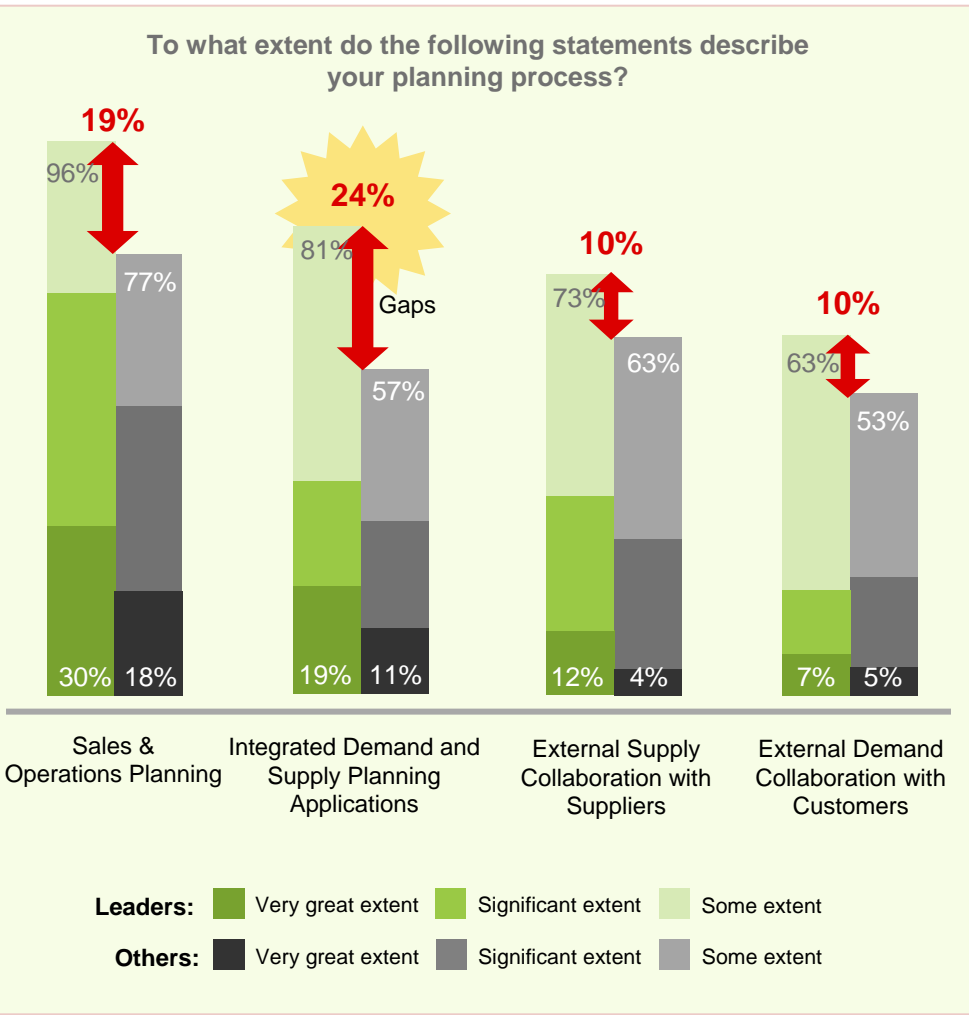
**67%**

Correct identification of customer needs





**Future Outlook:** The Smart Supply Chain will require further integration of customer demands from inception to delivery – the entire global network focused on the end consumer.

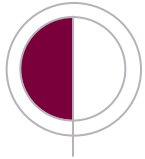


### Key Capabilities

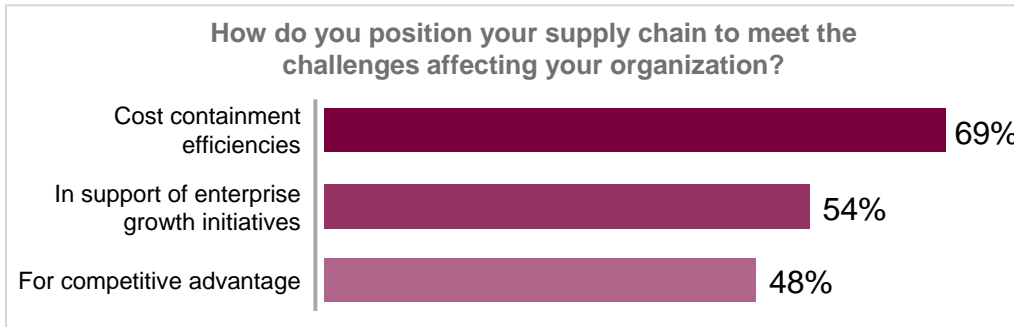


- **Simulation models of customer behavior, buying patterns, and market penetration applied to planning and operations volumes**
- **Cost to serve models and analysis**
- **Networked S&OP with optimized forecast, buy/sell decision support**
- **Customer collaboration throughout all SC processes**
- **Embedded software & analytics for automated product defect and service alerts**

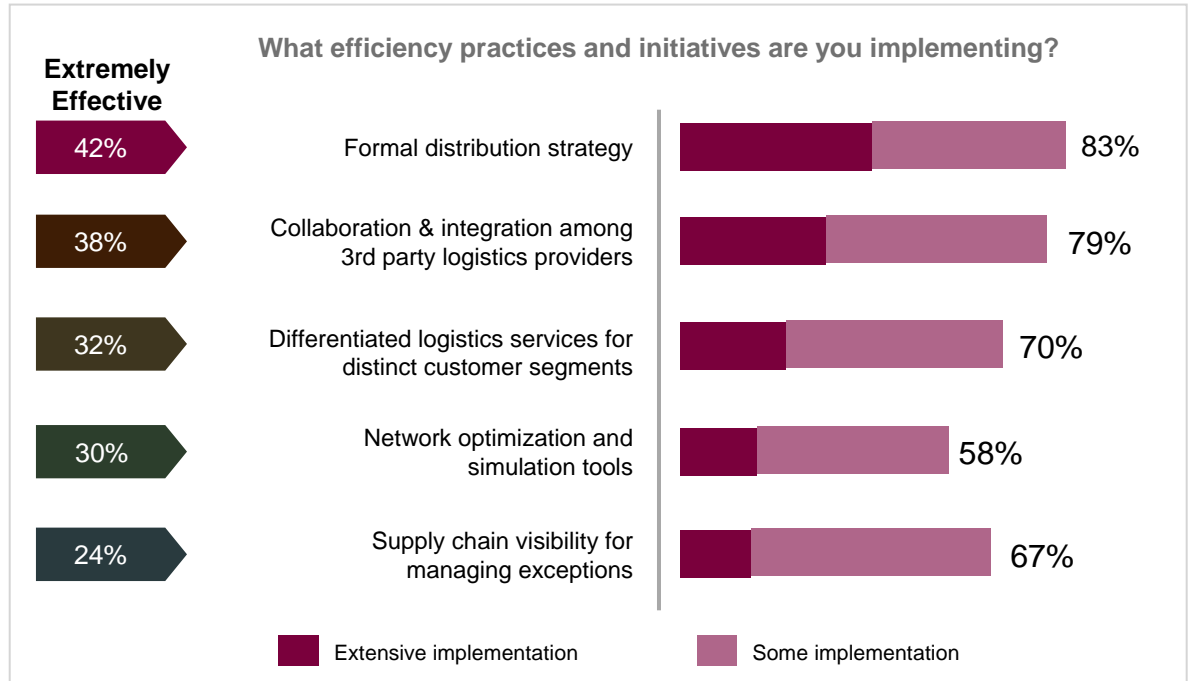
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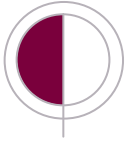


**Cost containment.** Constant cost containment pressures and fluctuating costs require a comprehensive view of the tradeoffs.

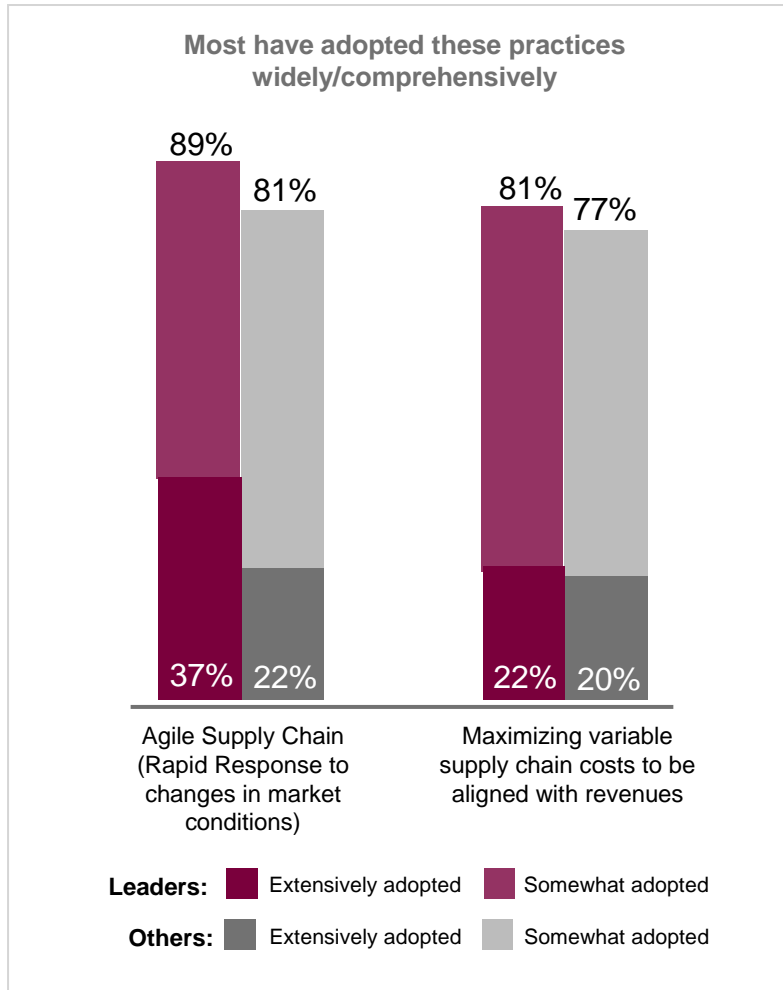


**CSCOs create flexibility to control the cost equation where they can**





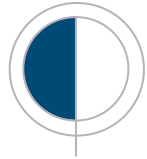
**Future Outlook:** Responding to new cost pressures will always be a challenge. What will tomorrow bring?



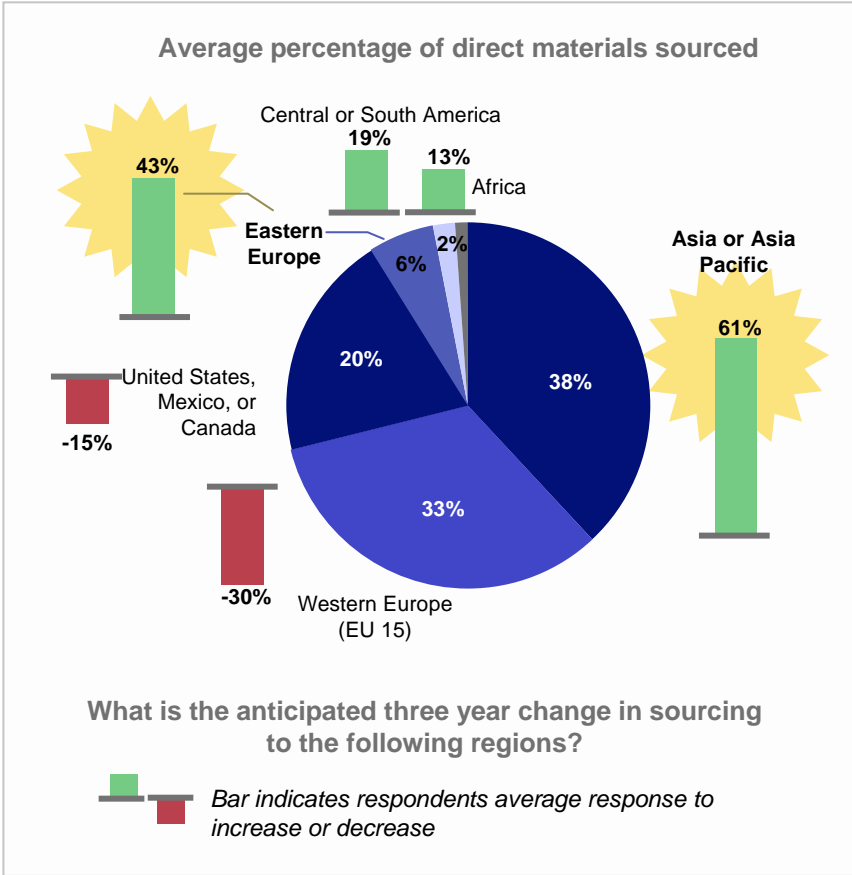
Key Capabilities

- **Simulation models and analyzers to evaluate flexibility factors: service levels, costs, time, quality w/ inventory synchronization.**
- **Variable cost structures that fluctuate with market demand**
- **Outsourcing non-differentiating functions to share risks across the global network**
- **Sensor based solutions to reduce inventory costs with increased visibility**

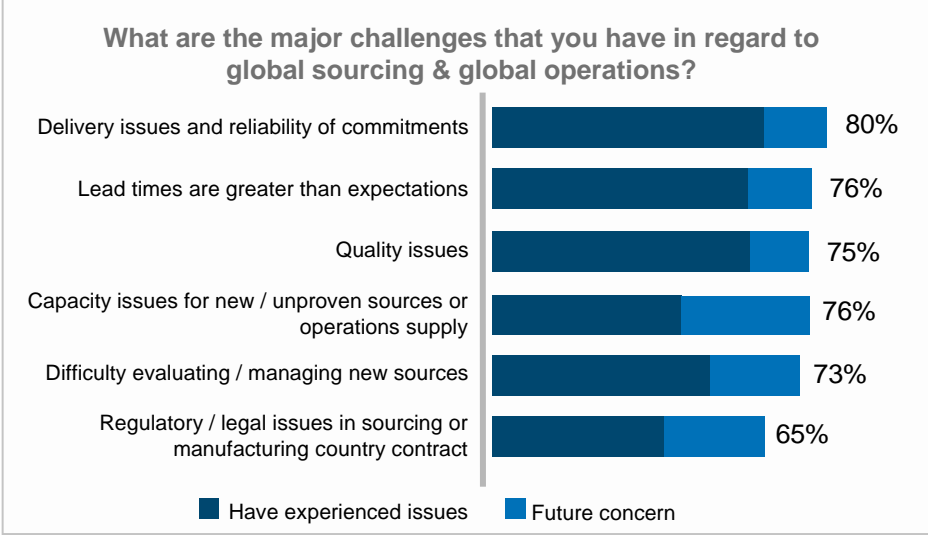
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# Globalization: Low cost country sourcing and operations have caused lead time, cost, quality and service level issues



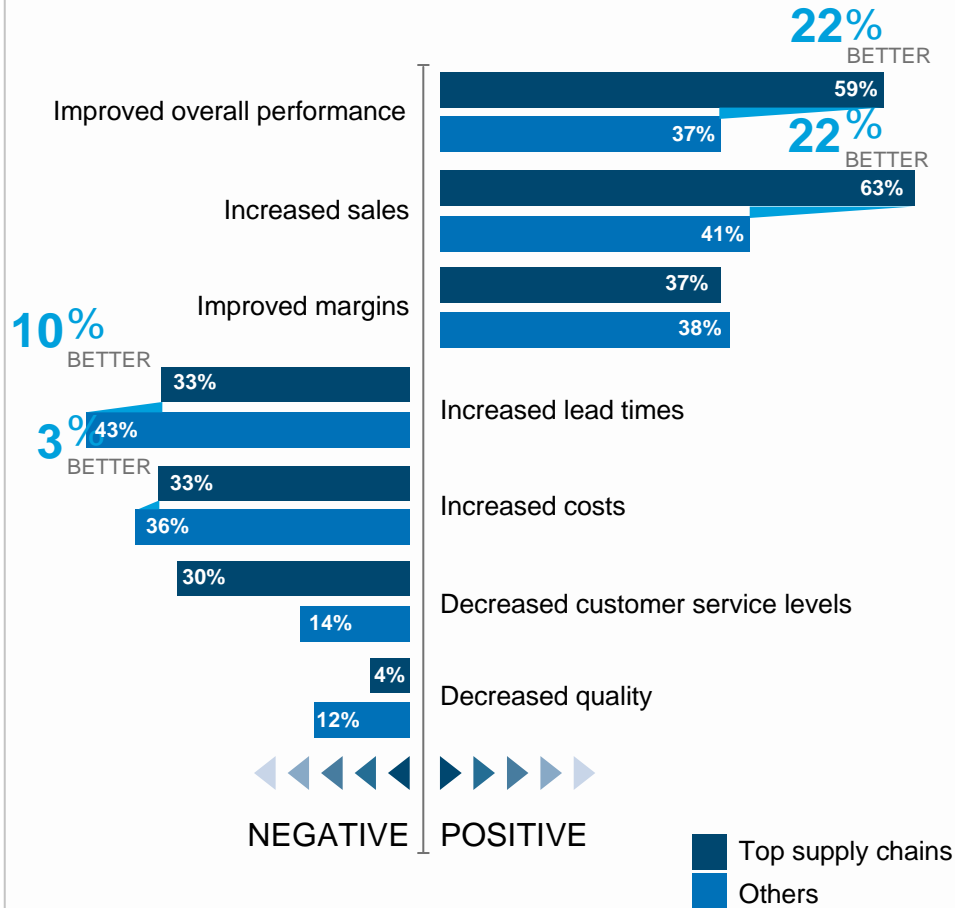
**The three year outlook indicates a continued increase in sourcing from low cost regions despite on-going and anticipated challenges**





# Future Outlook: The positive advantages of globalization of markets & operations, outweigh the negatives

Percentage who have experienced these outcomes as a result of globalization over the past three years



## Key Capabilities

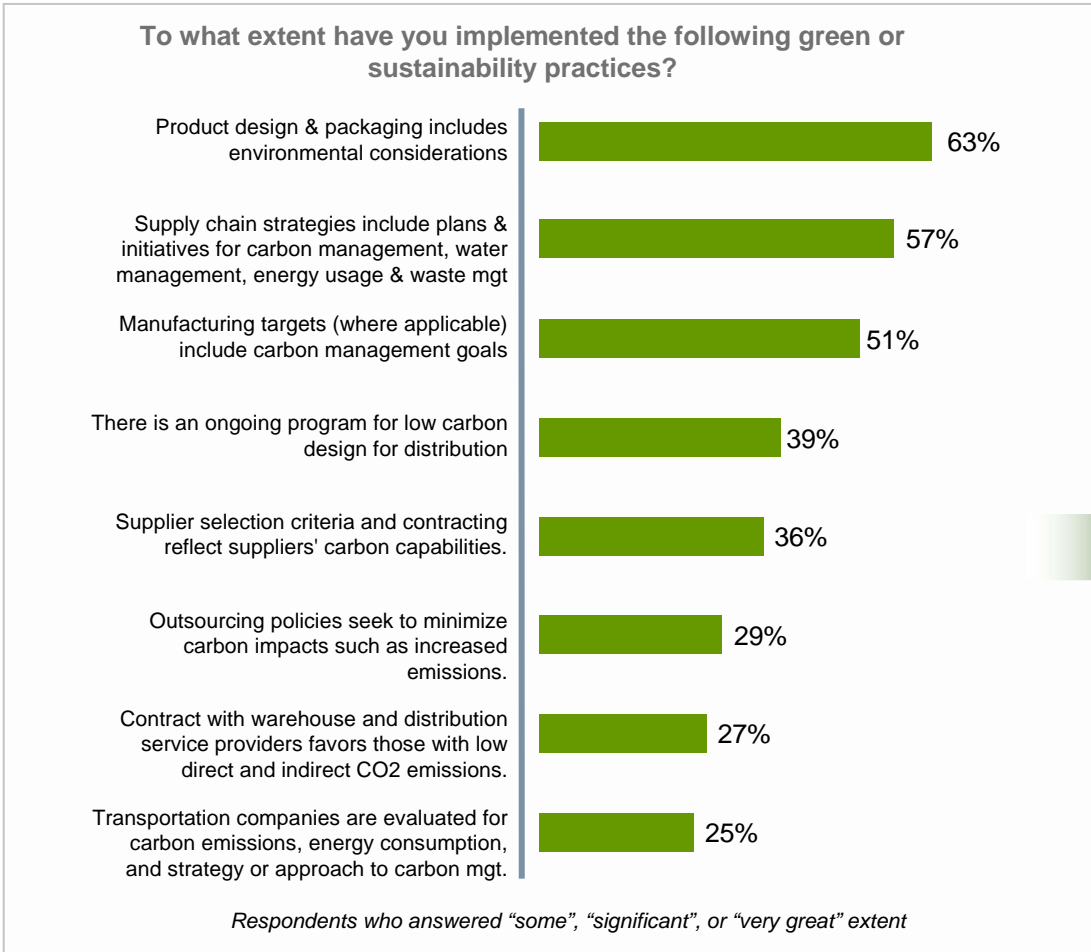


- **Leveraged global “centers of excellence” to optimize capability and delivery**
- **Demand, supply & distribution network planning & execution**
  - Simulation models
  - Optimization of inventory throughout all phases of pipeline activity
  - Scenario strategies for planning
  - Integrated production planning & execution
- **Sensor solutions connecting the expanding global trading partner infrastructure for increased supply chain visibility**

\* Leaders determined based on respondents' ranking in AMR Research Supply Chain Top 25 for 2008

# We also inquired about sustainability and green supply chain programs

**37% of SCM Executives view green strategies and operations as a significant challenge impacting their supply chain**



**Supply chain executives are embracing green programs**

**Sustainability practices differ by region**

- Supplier selection based upon compliance more prevalent in **Asia Pacific**
- Sustainability practices in **Europe** focus on carbon reduction in manufacturing & transportation
- **North America** has lower sustainability practices around low carbon distribution network design and supplier selection based on carbon capabilities



# And how does talent management fit into all of this?

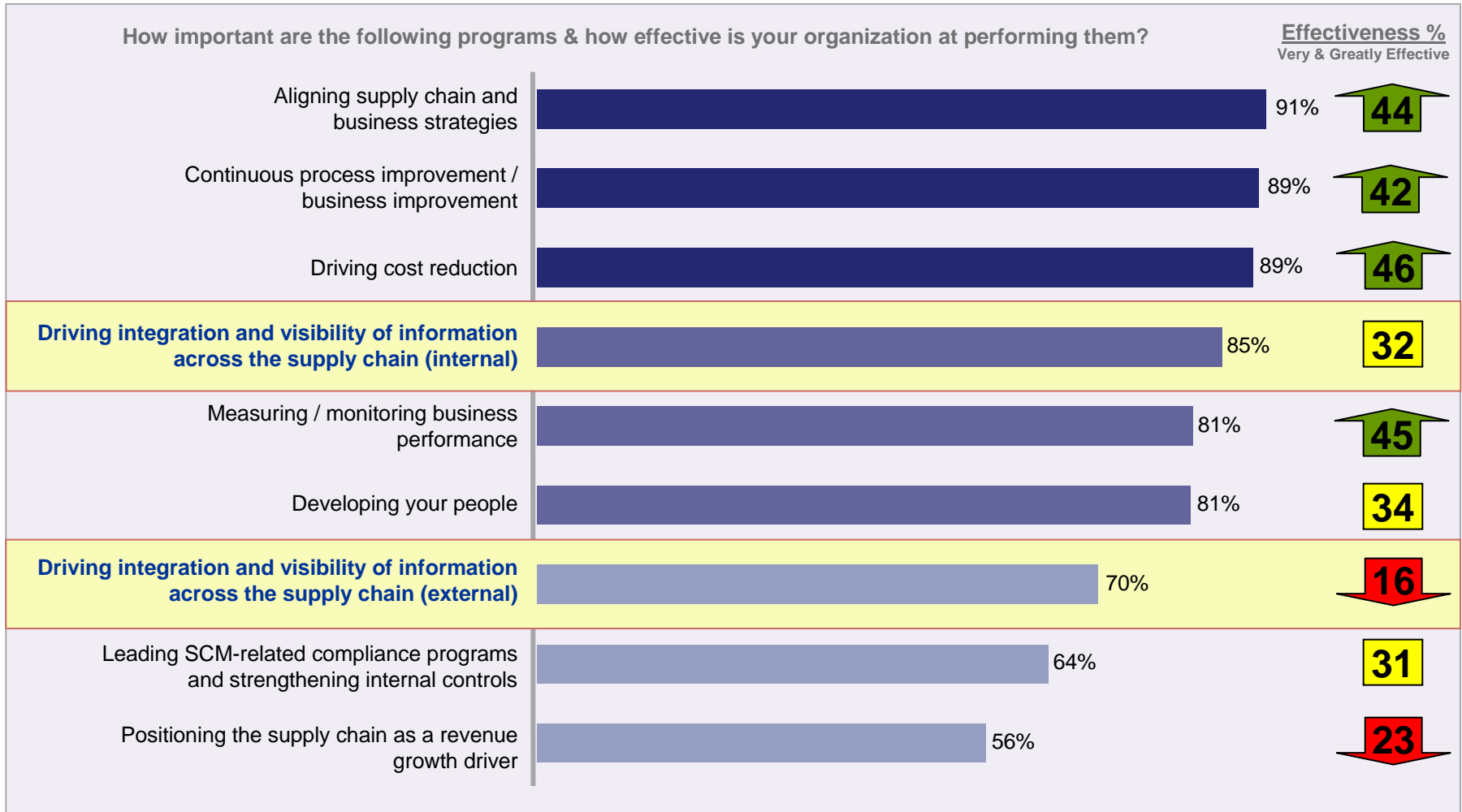


What are your top 3 capability-building challenges facing your organization?



**Building leadership talent was clearly the largest issue in managing world-wide talent**

# The opportunities for improvement abound.



Respondents who replied either "critical importance" or "very important"





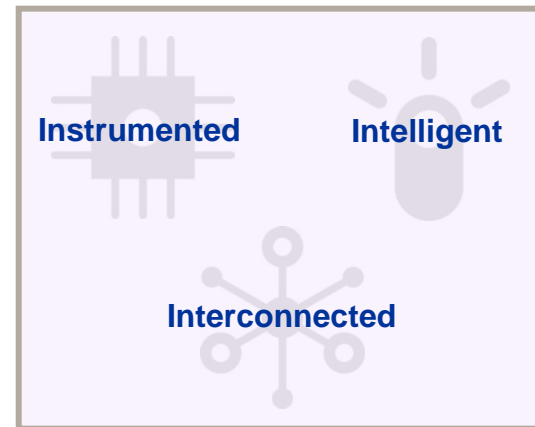
What have we learned from talking with 400 multi-industry supply chain executives world-wide?

How will we tame the volatility and orchestrate the complexity?

# We Must be Smarter



## The Smarter Supply Chain



### **Instrumented, Interconnected, & Intelligent**

The smarter supply chain has three new characteristics. Firms across the globe are beginning to see the benefits of building a new vision of supply chain excellence.

# The Supply Chain of the Future must be SMARTER...It will be Instrumented, Interconnected & Intelligent

## Instrumented

### Automated Transactions & Smart Devices

- Use of sensors, actuators, RFID, & smart devices to **automate transactions**: inventory location, shelf-level replenishment detection, transportation locations & bottlenecks
- Supports **real-time data collection & transparency** from POS to manufacturing to raw material
- **Sense-and-respond** demand/supply signals allow “predict and act”

## Interconnected

### Optimized Flows

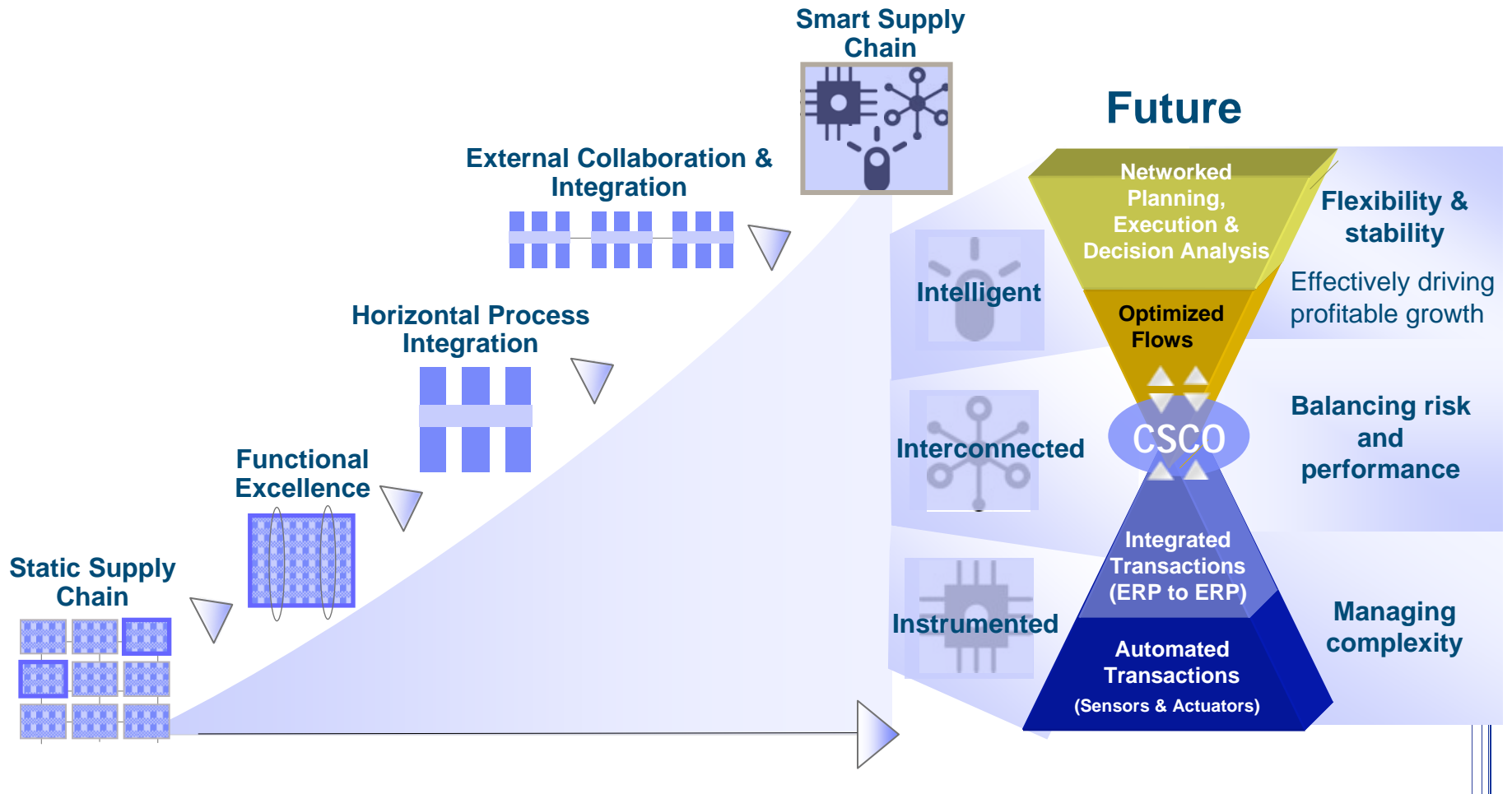
- Multi-Tier **system integration** across the network. Standardized data and processes.
- **Collaborative decision making** through decision support and business intelligence – starting with the customer
- **C-Suite risk management programs** for integrated financial controls with operational performance – monitored and measured

## Intelligent

### Networked Planning, Execution & Decision Analysis

- **Simulation models to evaluate trade-offs** of cost, time, quality, service and carbon and other criteria
- Probability-based risk assessment & **predictive analysis**
- Networked planning/execution with **optimized** forecasts & decision support

# Our Point of View on the Progression of Supply Chain Management to a Smarter Future



# BUT ARE WE READY?



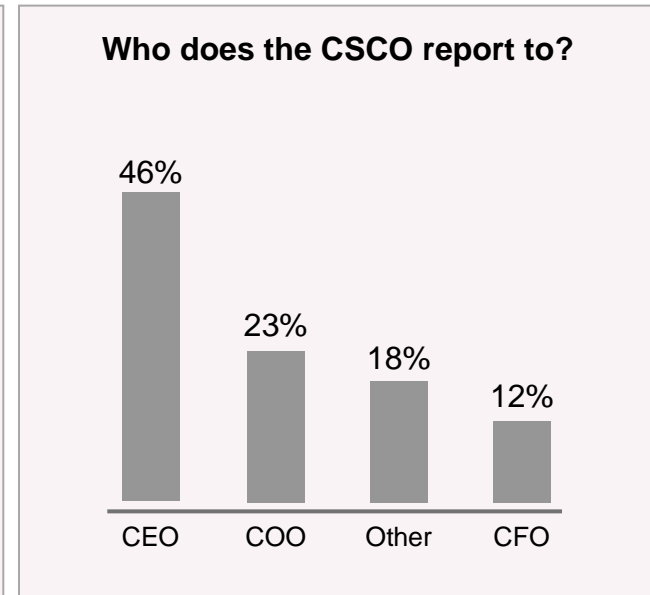
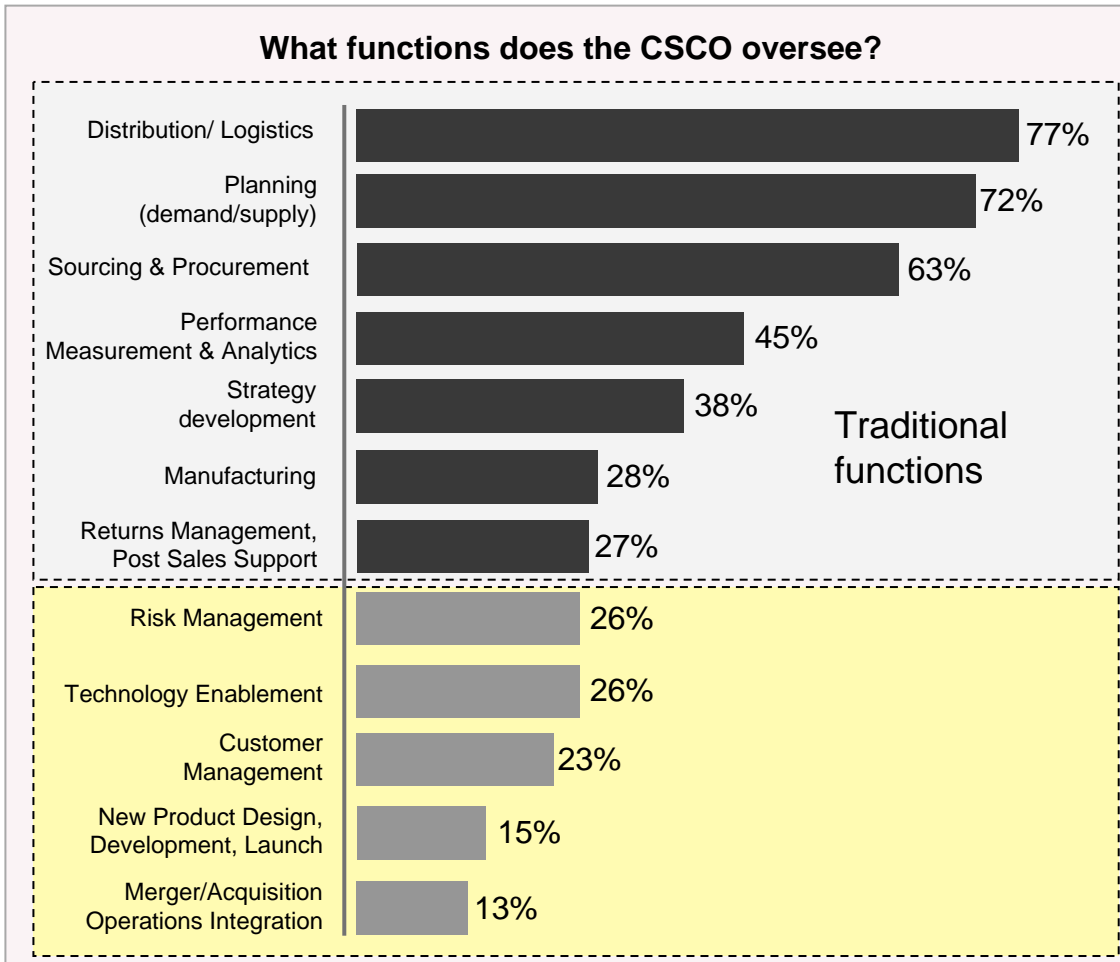
## Building the Supply Chain of the Future



### **A new role for the CSCO and a map to the future**

Building the supply chain of the future will require the emergence of a new kind of CSCO and a comprehensive set of new capabilities.

Today, the Supply Chain Executive continues to perform traditional operational and managerial functions





# The CSCO must take on a new *lead* role in orchestration of all supply chain resources and must connect with other leaders and groups

Address the **top challenges**:



Cost Containment



Visibility



Risk Management



Customer Intimacy



Globalization



Optimized Talent



Sustainable

**A new role** that is strategic and tactical as a conductor coordinating resources and stakeholders:

## The CSCO of the Future



- A critical & crucial role to continually balance, optimize and **orchestrate** global resources
- Is the ultimate “**Optimizer**” of the organization
- Requires negotiation skills, stakeholder management skills + supply chain strategy & execution + market knowledge
- Includes the functions of the previous CPO & COO, along with **bridging the optimization “gap”** of sales & marketing and finance aligned with supply, operations, and logistics

**New foundational competencies** that will drive success:

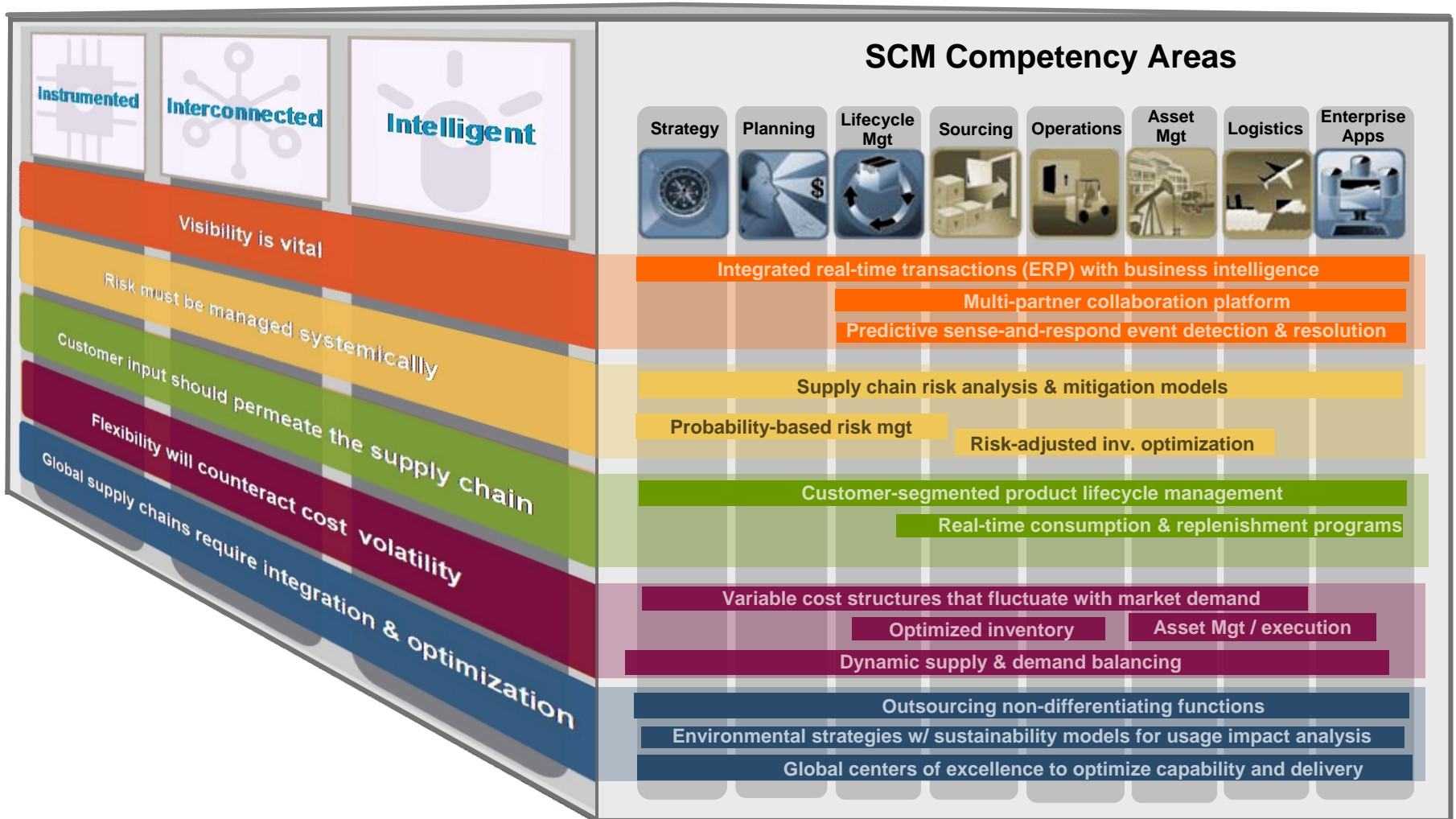
### Key Attributes

**Instrumented**

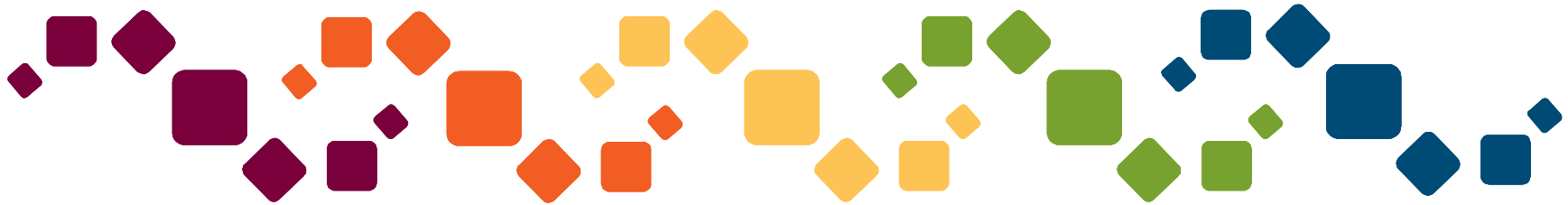
**Interconnected**

**Intelligent**

# The “Smartmap” to the Supply Chain of the Future



*Each company must plot their unique journey to smarter supply chain capabilities*



# The Smarter Supply Chain of the Future