

The Future of Global Supply Chains: Trends and Implications for the Medical Device Industry and Healthcare Markets



Discussion with:


MEDICAL DEVICE INDUSTRY
SUPPLY CHAIN COUNCIL™

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TOMPKINS
A S S O C I A T E S



Some Quotes for Thought

“...THE GLOBAL ECONOMY WAS CREATED BY THE AMERICAN STATE...ABSENT A DETERMINED EFFORT BY THE U.S. TO MANAGE THIS SYSTEM, IT WILL SLOWLY FALL TO PIECES, AND THE END MAY NOT BE FAR OFF...”

“END OF THE LINE: THE RISE AND COMING FALL OF THE GLOBAL CORPORATION”....BARRY C. LYNN

“...THE EMERGENCE OF THE CHINESE DRAGONS ON THE WORLD SCENE WILL FUNDAMENTALLY SHAKE UP THE GLOBAL COMPETITIVE LANDSCAPE....”

“DRAGONS AT THE DOOR”...MING ZENN AND PETER WILLIAMSON

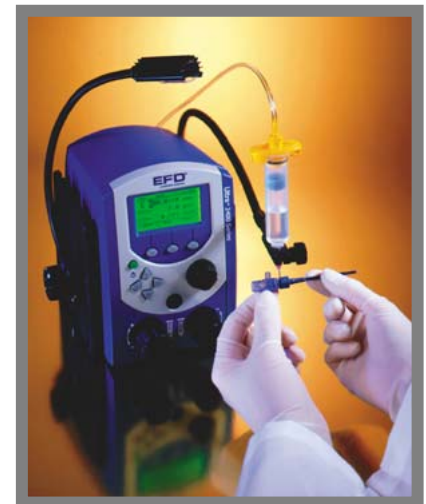
“...SO, YOU DO NOT UNDERSTAND THE IMPORTANCE OF SUPPLY CHAIN MANAGEMENT TO YOUR BUSINESS? I WOULD LOVE TO COMPETE WITH YOU!...”

LEN SCHLESINGER, VICE CHAIRMAN, THE LIMITED BRANDS



Introduction and Objectives

- Provide participants some global views on the state of supply chains
- Present and discuss my view of the top ten trends in global supply chain management
- Project some future issues and opportunities for thought
- Suggest some implications for the industry and your markets
- Suggest some areas of focus and initiatives for you to consider
- Above all, help to stimulate your thinking about the expanding role of supply chain management in your businesses





Topics for Discussion

- Introduction and Objectives
- The State of Global Supply Chains – Strategies, Processes, Technologies, and People
- The Top 10 Trends for 2007 – Shaping the Future
- Implications for Med Devices and Healthcare Markets
- What Should We Do? – Some Suggestions For Supply Chain Leaders
- Conclusion and Dialogue





The State of Global Supply Chains

Strategies, Processes, Technologies, and People

Strategies

- 80% of NA manufacturing companies are sourcing off-shore
- 40% of NA manufacturing companies are distributing to international markets
- Increasing concerns about the economy are slowing down imports and increasing exports
- Most companies are increasingly concerned about their supply networks and the financial impacts of globalization
- Non-NA based manufacturers are following similar strategies – the China “dragons are at the door”
- CEOs continue to seek cost reductions as well as profitable growth strategies



Global Macroeconomic Factors and Concerns

- The world is “flat?” It is fast, cheap, and out of control
 - “Fast “ in that connectivity makes the world a smaller yet more complex place.
 - “Cheap” in that products are dropping in price, becoming more powerful, yet outsourcing increases risks and other problems.
 - “Out of control” in that most of the world’s purchasing power is more and more in the hands of empowered, demanding, and impatient customers. Businesses are no longer in charge.
- The global economy is no longer US-driven
 - Before, the US could help the world
 - Now, the world can help the US – the building industry and credit markets need help
- What about oil prices?
 - The debate continues – will be get to \$100? Or, will the Saudis drop it to \$60?
- Will we see a recession?
 - The debate continues:
 1. Economic forecasters are usually wrong
 2. Once growth forecasts are lowered, they keep being lowered
 3. There are always good reasons to argue – “This time it will be different”
- Despite woes, GDP grows...consumers are hanging in there. While the economy softens – home sales, job growth, corporate profits, oil, and confidence – so far it shows resiliency. Yet, the business cycle is normally 5-7 years.

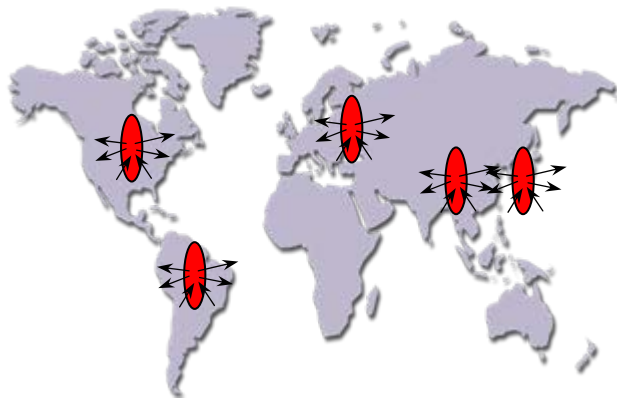


Key Trends in Global Supply Chains

Adoption of source, build, sell anywhere model

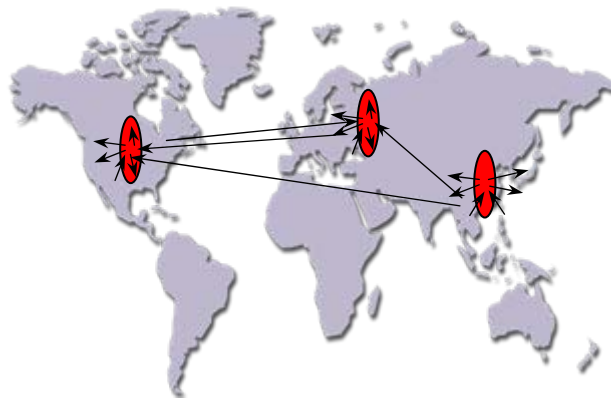


Regional Build and Sell, Local Parts Sourcing



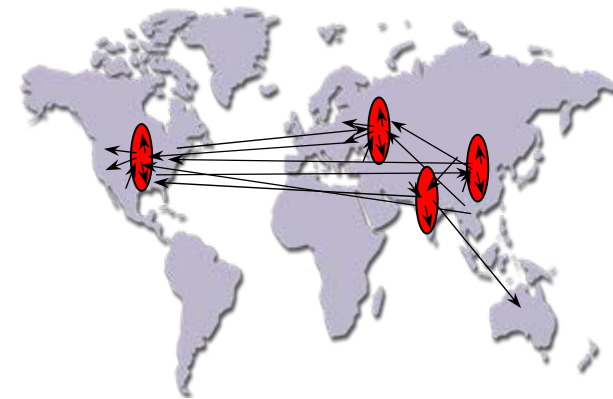
Supply Chain Costs
as a % of Total Cost =
<3-5%

Regional Build and Sell with Global Parts Sourcing



Supply Chain Costs
as a % of Total Cost =
10%-25%

Global Footprint - Global Build, Global Sell, Global Source (Cross Border Trade)



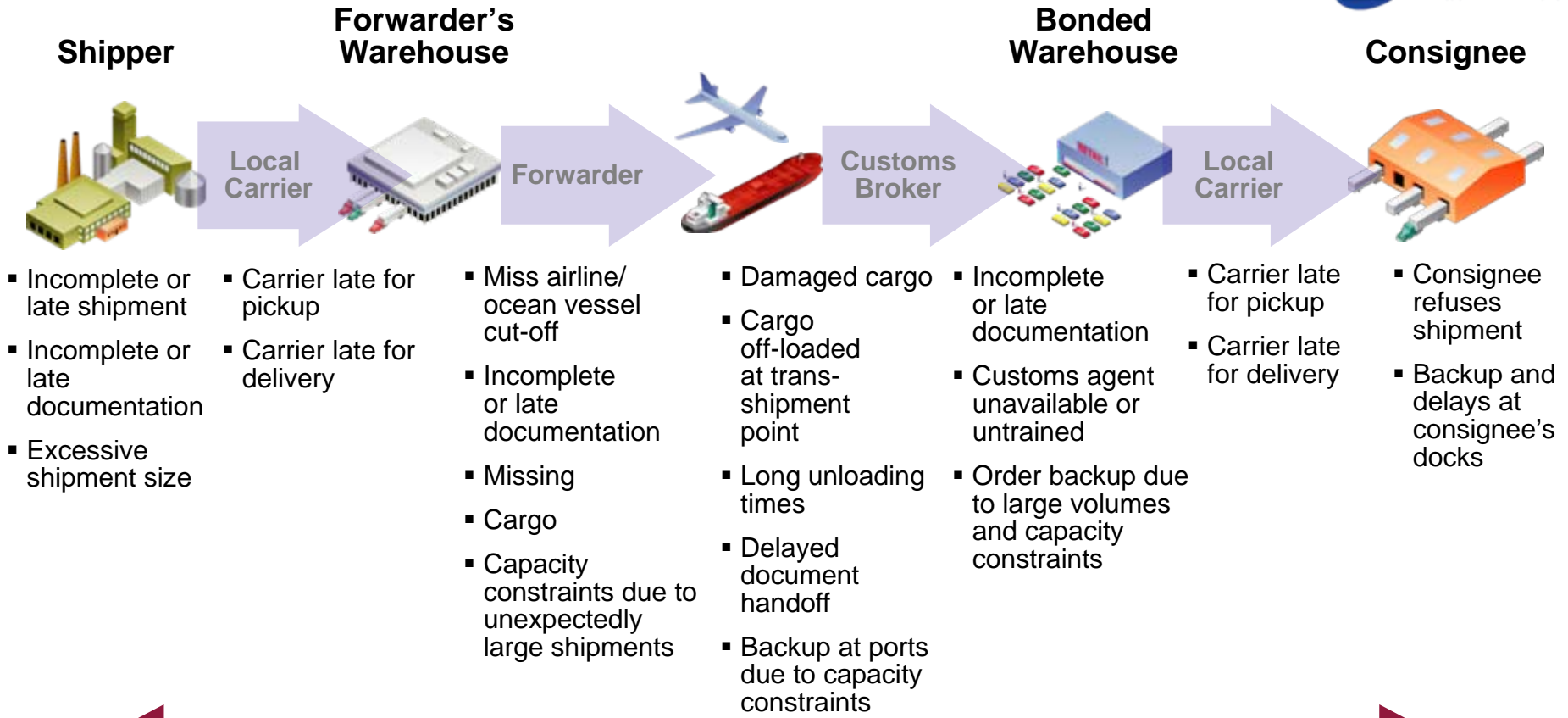
Supply Chain Costs
as a % of Total Cost =
15%-35%

■ Growing importance of supply chain management

- The Flat World, The Round World, The Real World
- Horizontal expansion – Bidirectional propagation
- Globalization driving Structural Changes
- Decrease in piece cost and increase in supply chain costs



Key Challenges Associated to Global Flow-of-Goods



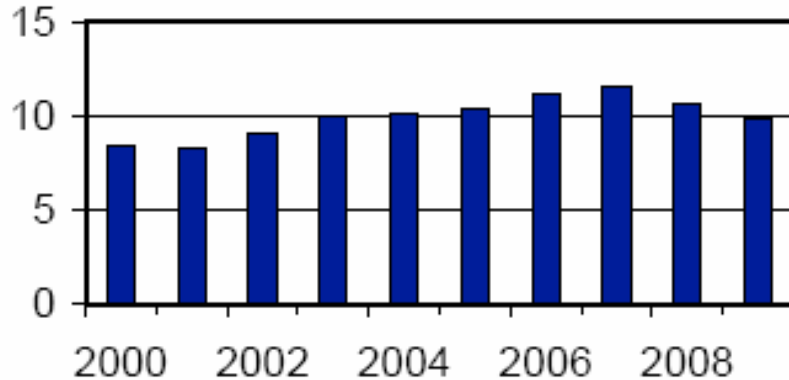
Lack of Visibility and Exception Management



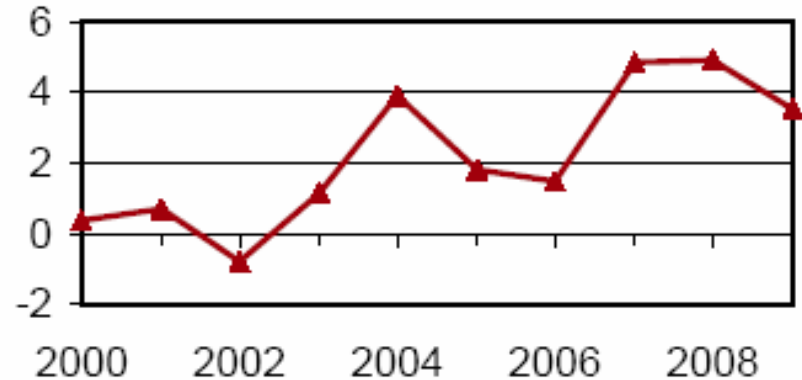
China

(Percent)

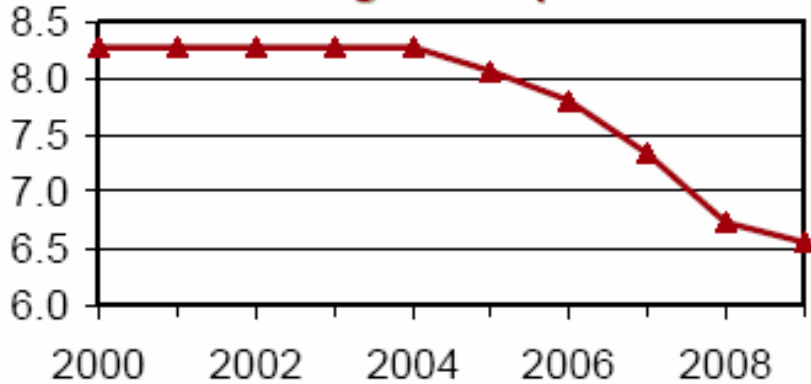
Real GDP Growth



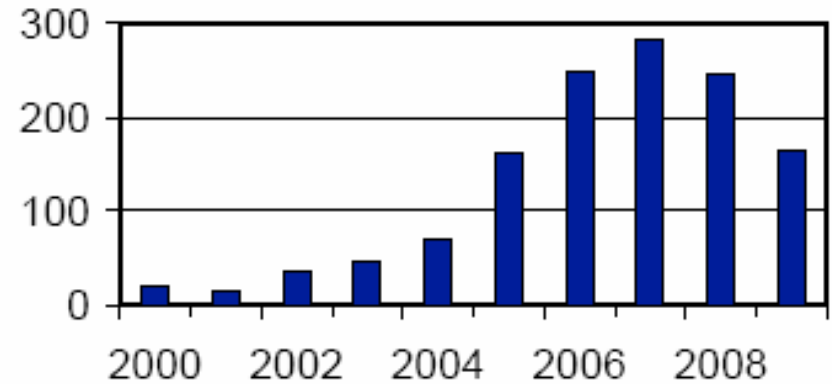
Inflation



Exchange Rate per US\$*



Current Account Balance**




*Year-end, **Billions of U.S. dollars

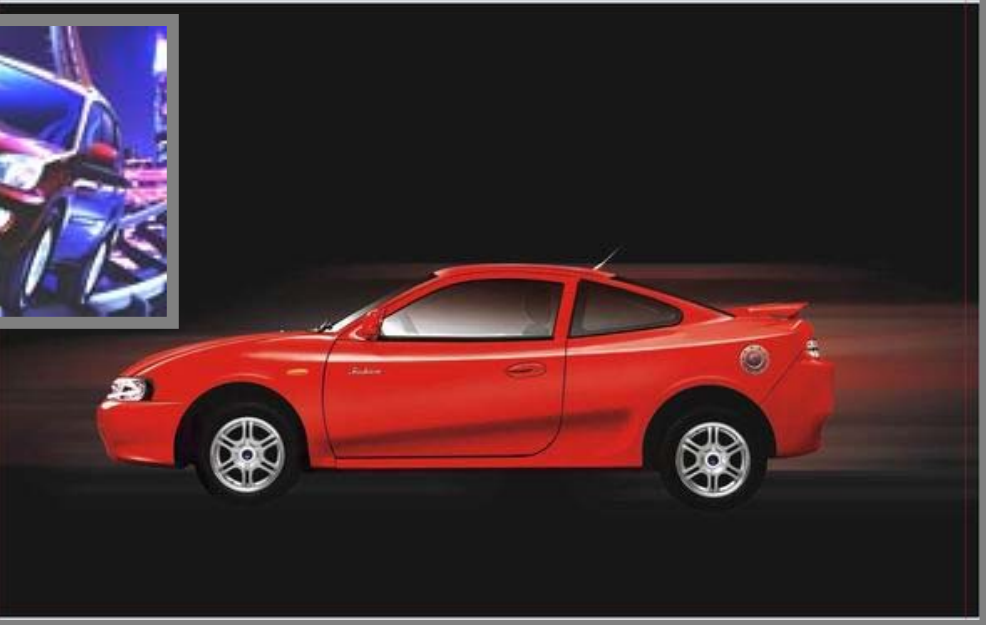


Chinese Imports



 **GEELY**

BO 1.3 / 1.5 (JL7135 / JL7155)





How Many of These China Owned Companies Do You Know?



- CHINA INT'L MARINE CONTAINERS GROUP (CIMC) (55% global market share)
- LENOVO (PCs)
- GALANZ (microwave ovens)
- TCI (consumer electronics)
- WANXIANG (universal joints)
- BYD (rechargeable batteries)
- ZPMC (harbor cranes)
- VIMICRO (multimedia chips)
- CAPITALBIO (biochip technology)
- CHINA MEDICAL (high-intensity ultrasound medical devices)
- PEARL RIVER PIANO (upright pianos)
- HAIER (consumer electronics & white goods)
- HUAWEI (telecom)
- SHANGHAI AUTO INDUSTRY CORP (SAIC) (automotives)
- AVIATION INDUSTRIES OF CHINA (AVIC) (airplanes)
- DAWNING (computers)



Do You Know Where This Is?





Other Emerging Markets: Is the Boom Ending?



- **Achieving best sustained growth in decades**
- **Stronger financially — trade and fiscal balances, foreign exchange reserves**
- **Flight from risk could restrain investment inflows — hasn't happened yet**
- **A sharp deceleration in U.S. imports will hurt**
- **Commodity exporters are vulnerable to a price correction**
- **Boom times have reduced the urgency of reforms and encouraged “resource nationalism”**



The State of Global Supply Chains

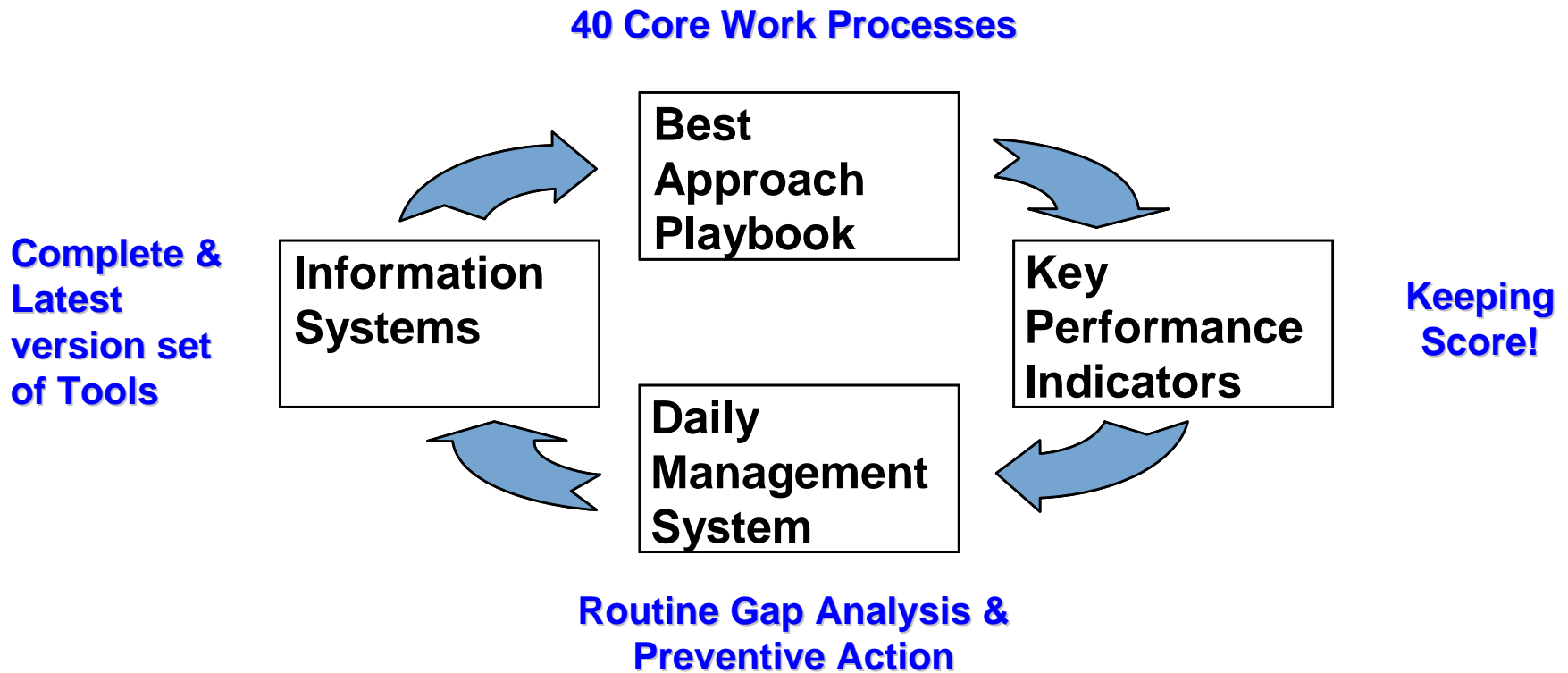
Strategies, Processes, Technologies, and People

Processes

- 80% of manufacturing companies are outsourcing some logistics processes as well as information technology, financial functions, or call centers
- Most all companies are concerned about the lack of standardization in their processes around the world
- Supply chain organizations continue to vary widely as to positioning, scope of control, role on the executive agendas, and ability to foster collaboration both within the business and with trading partners
- Most CEOs are still not satisfied with their process efficiencies despite the fact that process definitions and mapping value streams are more common
- Supply chain leaders often remain caught in the middle of this paradox – low-cost provider vs. high service provider?



Operations Excellence





The State of Global Supply Chains

Strategies, Processes, Technologies, and People

Technologies:

- 90% of manufacturing companies now have an ERP or are implementing one
- SAP, ORACLE, Microsoft, Infor, Epicor, Sage, Exact, Deltek, Lawson, IFS, are the top 10 largest -- with SAP and ORACLE owning 78% of the market
- Many also have supply chain software – i2, Manhattan, Manugistics, etc.
- Many also operating globally have trade management systems – Tradebeam, Management Dynamics, JP Morgan (Vastera), etc.
- Most companies are unsatisfied with their systems – many use at best 40% of their capabilities; many have not achieved the benefits promised; and many have not transformed their processes or changed their operating cultures as a result
- As companies go global, they are realizing more and more the need for improved IT to enable supply chain effectiveness



The State of Global Supply Chains

Strategies, Processes, Technologies, and People

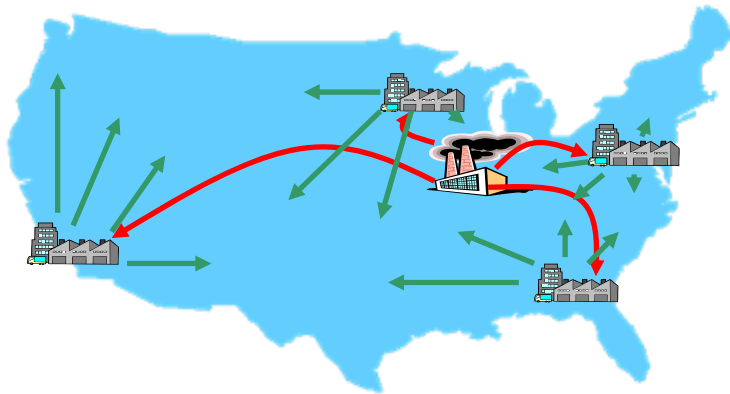
People:

- As implied above, companies are slow to adopt CSCOs, as well as the integrated supply chain processes that are critical for high performance – buy, make, move, and sell
- Most companies are concerned about talent gaps – especially in global supply chains
- 75% of global supply chain “problems” are due to people, communications barriers, or cultural misunderstandings
- Process efficiencies remain hampered by “functional silos” – sales and operations; logistics and finance; logistics and executives; marketing and supply chain management; new product introductions and logistics; etc.
- CEO and executive leadership is one critical component of supply chain excellence, but not the only one – while 75% of the “top supply chain companies” have CEOs who “get it”, the others do not

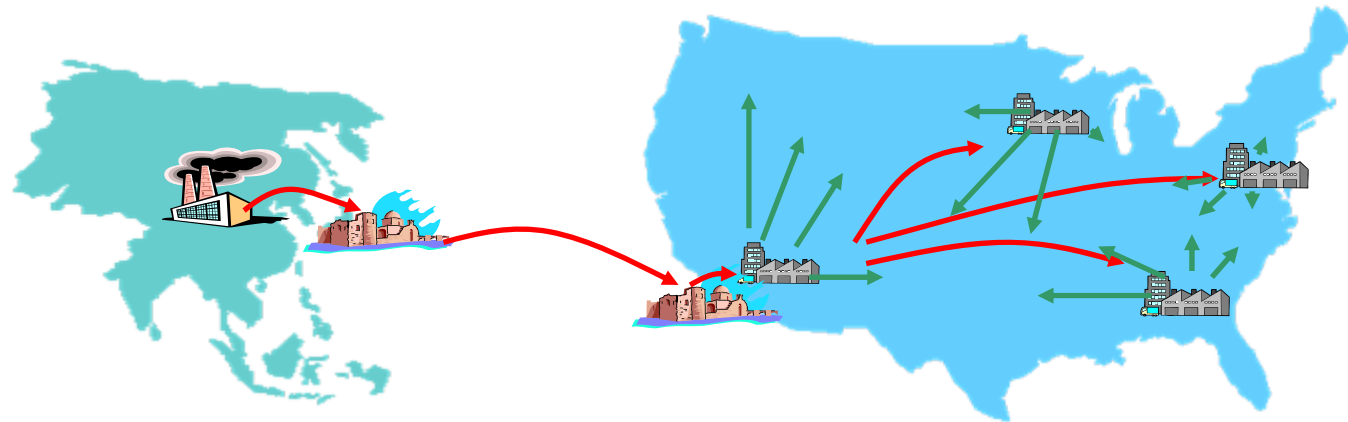


Global Trade Optimization

Landed vs. Delivered Costs

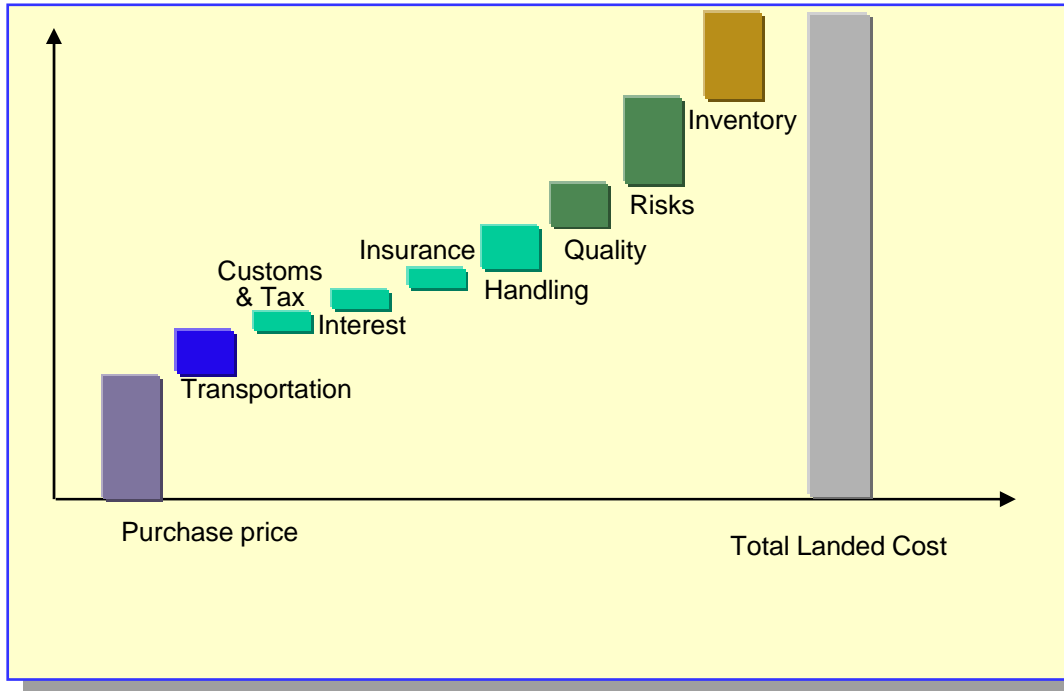


Landed costs are the costs to Port of Entry or internal destination...
whereas **Delivered costs** are the total costs to the customer's final destinations)



Total landed cost components

Total Landed Cost



TOTAL LANDED COST

- Estimates the real cost impact of purchasing decisions

NETWORK & INVENTORY

- How much, and where, should additional inventory buffers and value-added-services be located so as to maintain service levels?

RISKS/ QUALITY

- Supply chain and quality risks are non-financial measures in the decision process

PURCHASE PRICE

- Traditionally, Purchasing has been focused on minimizing prices.

TRANSPORTATION COSTS

- Transportation costs are dynamic and determined by the market, origin, destination, mode, fluctuating fuel prices

In addition to part-piece cost, Total Landed Cost is impacted by inbound supply chain design, inventory, transportation and quantified effect of risk and quality



The Effects of Supply Chain Disruptions on Corporate Performance



- Firms with supply chain disruptions have 33-40% lower stock returns over a 3-year time period
- Disruptions increase the risks...share price volatility is 14% higher in the year following
- Disruptions have a negative effect on profitability:
 - 107% drop in operating income
 - 7% lower sales growth
 - 11% cost increase
- Firms continue to operate for two years at lower performance levels
- It does not matter who caused the disruption, what was the reason, what industry, or when it happened

Source: Prof. Vinod Singhal, GA. Tech



The Top Ten Supply Chain Management Trends For 2007

- SC leaders track and understand prevailing market trends
 - Internal to their industry
 - External to their industries
 - Across geographies
- They do not follow the leaders but prepare for coming changes from customers, competitors, regulatory agencies, or stakeholders.
- The thought leaders may differ on which trends are evolving next but not on the definition.





Top Ten Trends



10. THE GREENING OF SUPPLY CHAINS

Companies across the globe are seeking energy-efficiency, new environmental programs, and related methods to protect the fragile business environment. Energy costs are the main driver, but packaging and other logistics matters are increasingly under scrutiny.

9. IMPROVED USE OF INFORMATION AND OTHER TECHNOLOGY

The ability of technology to enable better decisions is finally being realized. SC systems are only 30-40% utilized. As RFID struggles to show ROI and cost-effectiveness, new pilots are continuing to show promise.



Top Ten Trends



8. INFRASTRUCTURE

China, India, Brasil, and other developing countries are making significant infrastructure investments. The developed nations struggle with ways and means. Private investors are viewed as the solution, but real solutions require private and public cooperation, and quite possibly new organizations. No mode or facility is exempt from needs - toll roads, marine terminal operators, ports, rail, etc.... Capacity, congestion, safety, and economic growth are all affected by infrastructure problems.

7. LOGISTICS OUTSOURCING

The outsourcing wave continues, with both global and domestic growth in double digits. Relationships between logistics service providers and their customers are maturing and performance is improving. Both customers and providers need to improve logistics strategies, relationships, and performance even more. Innovation and collaboration continues to be weak.



Top Ten Trends



6. SALES AND OPERATIONS PLANNING – INVENTORY OPTIMIZATION

Despite inventory level improvements, long lead times, capacity shortages, and congestion along with continued problems with S&OP are causing levels to rise again. Some incur higher working capital costs to missed deliveries, or stock-outs. This trend will continue to occupy supply chain and finance managers time and concern. Demand forecasting remains a true challenge for companies which increases the intensity on S&OP.

5. GLOBAL SOURCING, DISTRIBUTION AND VISIBILITY

Globalization continues with container volume increasing despite port and land infrastructure constraints. Some companies either maintain or increase domestic production. The vast majority continue to source offshore. Distribution continues to grow. P&G, for example, now distributes more product in China than it imports. Sustained globalization requires better visibility. The need for product visibility is complex, but not impossible.



Top Ten Trends



4. NETWORK REDESIGN AND OPTIMIZATION

Globalization and its long supply chains raises natural questions of location and number of facilities and logistics strategy. Networks established years ago, or prior to the current volumes of imports or exports, may be too costly or unresponsive today. Many companies are re-evaluating their networks to optimize costs and service. In fact, lowest possible total costs with highest possible levels of service is a differentiator. New real estate mechanisms also exist which provide more flexibility.

3. COLLABORATION

This “buzzword” continues to place in the top 5 trends not because it needs definition, but because it needs improvement. The value proposition for increased collaboration among trading partners is understood but the implementation is slow. There are many reasons, but the barriers are clear and are breakable.



Top Ten Trends



2. SUPPLY CHAIN RISK MANAGEMENT

Globalization and resulting security issues has raised risk to #2. SC risk management involves many factors – physical, people, information, cash, infrastructure, weather ,and others. The challenge is defining a management structure to identify, plan, avoid, mitigate, and solve risks. Leading practices exist, yet most companies are still in the process of setting up processes.

1. SUPPLY CHAIN PEOPLE, TALENT, AND KNOWLEDGE

People as #1 may surprise some, but it is long overdue. Real success is not best practices, best technologies, or best work flows but the best people who are trained and knowledgeable about current and future state possibilities. Companies have ignored this long enough. Leading businesses view this as a top executive priority. For example, as a result of the impressive global transformation of IBM, the company now has a “ people supply chain” that identifies knowledge needs, gaps, talent, and the career chains necessary to lead IBM to one of the world’s best supply chain companies. Innovative people strategies are back. The best companies recognize this, commit to it, and win with it.



The Implications for Medical Devices and Healthcare Markets

Some Views

A. First, the expanding global market creates both issues and opportunities

- Growth projections for international markets are positive – double-digits are not uncommon. Consumer demand and product innovation should fuel this.
- However, moving products over long supply chains, to meet risky forecasts, creates higher costs of goods sold, as well as working capital needs.

B. Industry supply chain leaders will have to manage tighter supply chains in order to maintain or increase operating margins

- These challenges are no different than other global supply chain managers have to deal with – cost, time, service quality....And, added risks.
- End-to-end supply chains involve multiple parties, with issues of visibility, trading partner collaborations, long lead times, supply chain security, etc.
- Low-cost manufacturing objectives will mean more strategic sourcing, and more mergers and acquisitions, and thus more complex supply chains.



The Implications for Medical Devices and Healthcare Markets

Some Views

C. Transportation and logistics alone create challenges with global supply chains

- Ocean capacity can change relatively quickly depending on trade lanes
- Port delays and congestion are not history – will only worsen
- Multiple hand-offs of inventory create risks in themselves
- Shipping costs will rise (both ocean and air), as will fuel and peak surcharges, duties, etc.
- Ship-to points will change as population shifts occur

D. Healthcare markets will continue to be diversified and complex

- Hospitals, outpatient centers, physicians offices, clinics, labs, nursing homes, standalone centers, and new hybrid treatment sites will change in location, along with memberships in GPOs and IDNs
- Regulations, price controls, and reimbursement programs will slow cash flow, so that supply chains are even more important to profitability
- Currency fluctuations also affect margins and cash flow dramatically



What Really Is Innovation?



- One definition: “Identifying what the consumer or customer wants (needs) and satisfying them in new, creative, and insightful ways – profitably”
- “**Product Innovations**” are very common: e.g., Brand Extensions, Packaging, New Brands, Performance Increases, Other Product Enhancements, etc.
- “**Service Innovations**” are less common: e.g., Opening New Markets, New Sourcing or Transportation Solutions, Customer/Supplier Collaboration, Customized Services, Supplier Managed Inventory, etc.
- “**Technology Innovations**” are increasingly common: e.g., Disruptions, Applications, Mobility; Experiential; etc.



Some New Innovation Mind-Sets



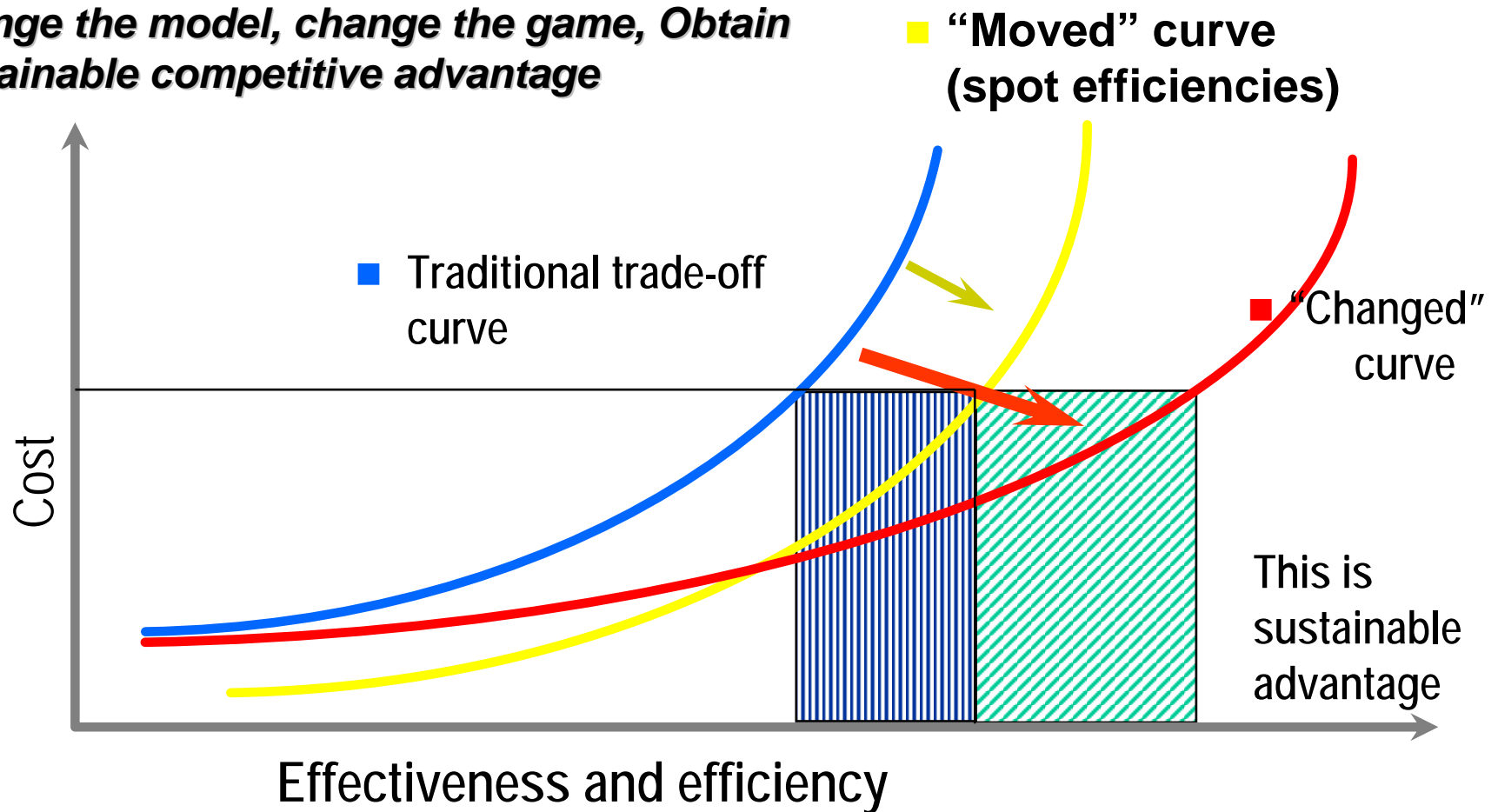
- Good Enough Can Be Great
 - You need not push for perfection before you try
 - Meg Whitman, eBay CEO: “It is better to put something out there and see the reaction and fix it on the fly...”
- Step, Don’t Leap
 - Great leaps forward rarely work
 - Small, incremental innovations can lead to big profits
- The Right Kind Of Failure Is Success
 - Most companies view failure as undesirable
 - But, most initial strategies are wrong
 - We must learn to listen, learn, adapt and reward
- Open Innovation, Do Not Keep It Closed In R & D
 - Companies still view innovation only in product terms, not in services
 - Companies assume field personnel don’t know how to innovate right
 - P&G : “from R&D to C&D” (connect and develop).
 - Learn from others and adapt to your situation



Supply Chain Innovation — Why Do We Do It?



Change the model, change the game, Obtain sustainable competitive advantage





Some Pitfalls and Misperceptions



- Supply chain innovation must be complex
- Innovation is just a series of new and interesting concepts about the structure, operational model, or a key function
- Ideas (or the best ones) must always come from people outside the company
- If a practice or idea is not from our industry, it's not applicable
- Execution will follow automatically (or pretty easily, anyway)



Some Pitfalls and Misperceptions (cont.)



- The answer to everything is “new information systems”
- The answer to everything is “new people”
- People will be able to comprehend, manage and execute to it once direction is given
- Once you innovate, you’re done



Supply Chain Progression



Push-Based



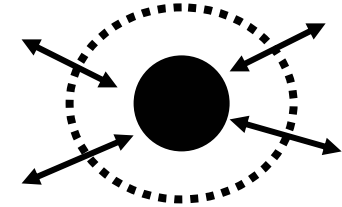
- Just-in-case
- Build-to-Stock
- Inventory is a hedge against uncertainty
- Forecasting rules
- Key metric is Days of Supply
- Little customer focus

Just-in-Time



- On-time delivery to plan is key
- Enterprise perspective
- Build-to-Order/Forecast
- Inventory is reduced to a minimum and kept moving
- Uses precise demand forecasting in an imprecise environment
- Uses static optimization to purge uncertainty

Adaptive



- Adaptive: high sense and respond - the extended supply chain
- Velocity emphasized and inventory is used strategically
- Simultaneous focus – profitability, liquidity, growth, capability, cash - to-cash
- Consumption-based forecasting



Supply Chain Progression (cont.)



Push-Based



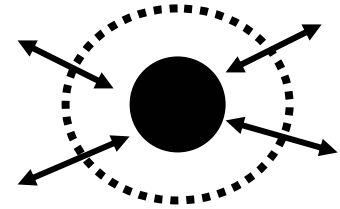
- Low-Velocity, High Mass
- Vertical integration
- No visibility
- Hedge against/ignore variability
- Focus on cost per unit

Just-in-Time



- Outsourcing of peripheral (“non-core”) processes
- Customer obsession – all customers
- Links in the chain thin and vulnerable to disruption
- Attack variability through demand signals

Adaptive



- Actively manages risk – demand, supply, operations
- Customers segmented
- Demand: Supply matching and high end-to-end visibility
- Virtuality, low break-even volume
- Uses operations flexibility and robust IT to handle uncertainty
- Supports distributed, adaptive operations



What About Supply Chain Transformations?

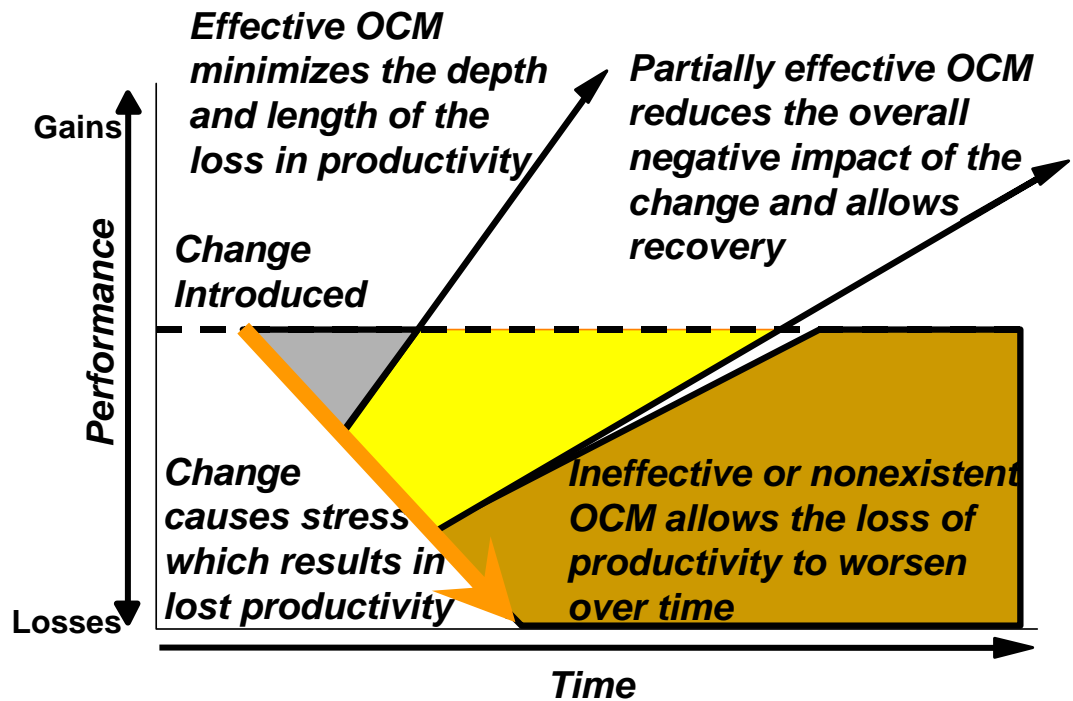
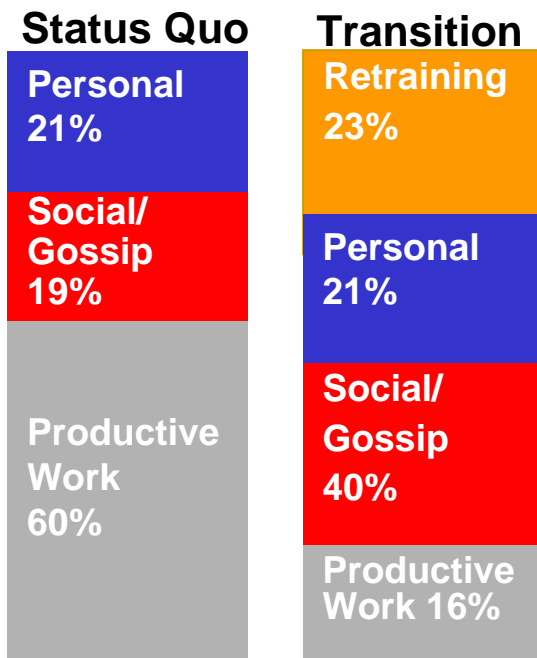
- High performing companies realize that supply chain excellence can provide large-scale benefits
- Key performance measures are affected by supply chain excellence
- Major opportunities exist for value creation and performance gains in all industry segments
- Before, transformations required years – but today’s rapid pace and competition requires “faster, better, and cheaper” change and agility
- Transformation initiatives can run in parallel – not only for speed and efficiency – but also to promote integration and take advantage of synergies



An OCM Process is Critical to Reducing Depth and Duration of Productivity Losses

Prepare stakeholders to understand and embrace change

Productivity During Transition





The 7 Types Of Stuck

- **OVERWHELMED:** Too much going on, not enough people or time
- **EXHAUSTED:** The team is paralyzed and burned out
- **DIRECTIONLESS:** No big picture – actions but no results
- **HOPELESS:** The passion is gone; the team lacks purpose
- **BATTLE-TORN:** The team is at war
- **WORTHLESS:** Poor metrics make measuring success impossible
- **ALONE:** The team is not in synch

SOURCE: "UNSTUCK", BY YAMASHITA AND SPATARO

Each of these states has a potential solution...the future best companies will be those who can lead themselves out of the state they are in... I'll leave you to ponder on these...



Conclusion

- Managing and leading supply chains in the global world of the 21st century has become one of the most challenging executive positions in the industry – CEOs and boards need to recognize this fact. only 20-25% of fortune companies have CSCOs today
- The effectiveness of supply chains can make or break a company, or a product line. Not only is shareholder value impacted, but a company's image and reputation can be damaged for months or years
- Global supply chains for all industries will continue to be complex....Supply chain innovations are required, while at the same time maintaining near perfect execution
- The human risks involved with medical devices raises the bar for our industry – both in visibility, performance, and in operating margins – which adds to the pressure on supply chain leaders
- If you enjoy challenges – both strategic and operational – understand the world – and can keep up to date on trends, forecasts, and best practices – this is the industry for the best supply chain leaders!