

# Supply Chain Management

## Unit 8- Future of Supply chain

Venkadeshwaran K  
Associate Professor  
School of Mechanical Engineering  
FET, JAIN (Deemed to be University)

# Syllabus

## PART B

### UNIT – V

6 hours

#### OVERCOMING THE BARRIERS TO SUPPLY CHAIN INTEGRATION

creating the logistics vision- the problems with conventional organizations- Developing the logistics organization- Logistics as the vehicle for change- Benchmarking

### UNIT – VI

6 hours

synchronous supply chain- extended enterprise and the virtual supply chain- role of information- 'Quick response' logistics- Production strategies for quick response- Logistics systems dynamics

### UNIT – VII

6 hours

SUSTAINABLE SUPPLY CHAIN - The triple bottom line- Greenhouse gases and the supply chain- Reducing the transport-intensity of supply chains – Carbon footprint and supply chain-Reduce, reuse, recycle

### UNIT – VIII

5 hours

SUPPLY CHAIN OF THE FUTURE: emerging mega-trends-shifting centres of economic activity, The multi-channel revolution seeking structural flexibility

### COURSE OUTCOMES:

# Contents – Supply Chain Megatrends Handbook

- 1 Introduction to the five Supply Chain Megatrends
- 2 Megatrend 1: Multiple Supply Chains
- 3 Megatrend 2: Move On or Move Home
- 4 Megatrend 3: Green and Sustainable Supply Chains
- 5 Megatrend 4: Global Supply Chain Risk Management
- 6 Megatrend 5: Managing Supply Chain Complexity

# Emerging mega trend

- major trend to globalised supply chains,
- precursor for the ever more seismic changes
- demographic and wealth redistribution changes include
- existing supply chain arrangements less than optimal.



# Shifting centres of gravity

- All supply chains have a **'centre of gravity'** determined by the pull of demand and supply factors.
- **shifting centres of gravity and the growing urbanisation of society are trends that are already evident**
- The **rise of mega-cities** presents a particular logistical challenge.
- , there will be a **need to bring supply much closer to demand.**

# **The multi-channel revolution**

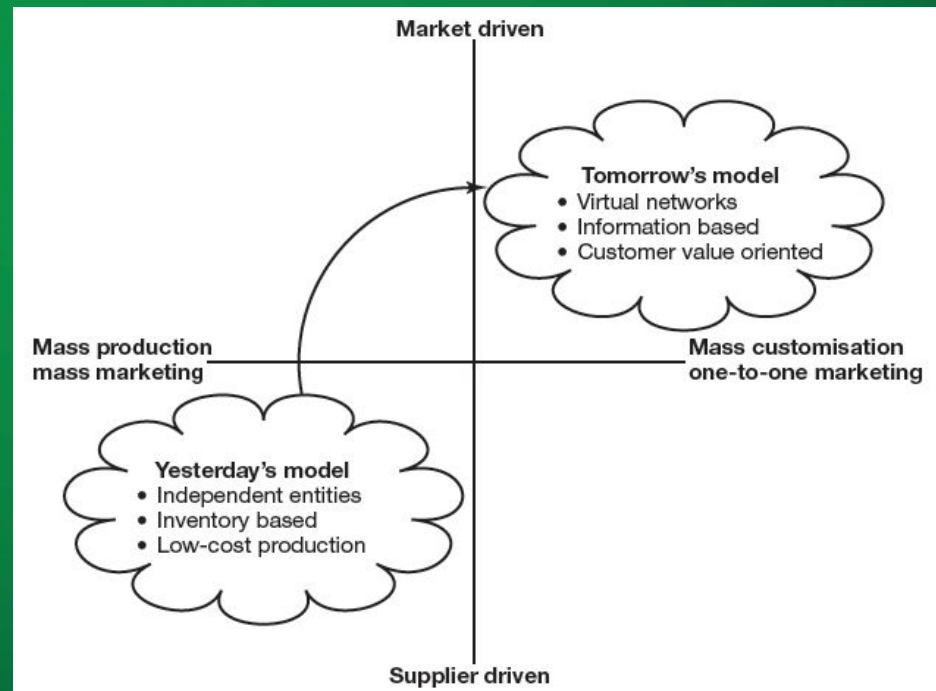
- **Spurred on by the arrival of the Internet, there has been a dramatic growth in recent years of the use of alternative channels of distribution.**
- **Internet is revolutionising both marketing and supply chain management.**
- **the Internet 'democratises' the supply chain by placing the customer or consumer at the centre of the network.**
- **Equally the supplier can learn more about the customers and their buying behaviour**
- **Associated with the rapid rise of Internet channels has been the growth of 'mobile' media,**

# The multi-channel revolution

- One of the advantages of having direct contact with the customer through online ordering is the dramatic improvement in visibility of real demand that it provides.
- From a logistics and supply chain management perspective, the multi-channel revolution has a number of implications.
- Whereas a bricks and mortar retailer has the ‘last 50 metres challenge’, the online retailer is concerned with the ‘last mile’ costs.

# *The need for adaptability*

- the rate of change has accelerated to the point where the business models that have served us well in the past may no longer work at all tomorrow.





# Seeking structural flexibility

- It has long been recognised that flexibility in operations and supply chain management is a desirable attribute. **This capability might be defined as *dynamic flexibility***
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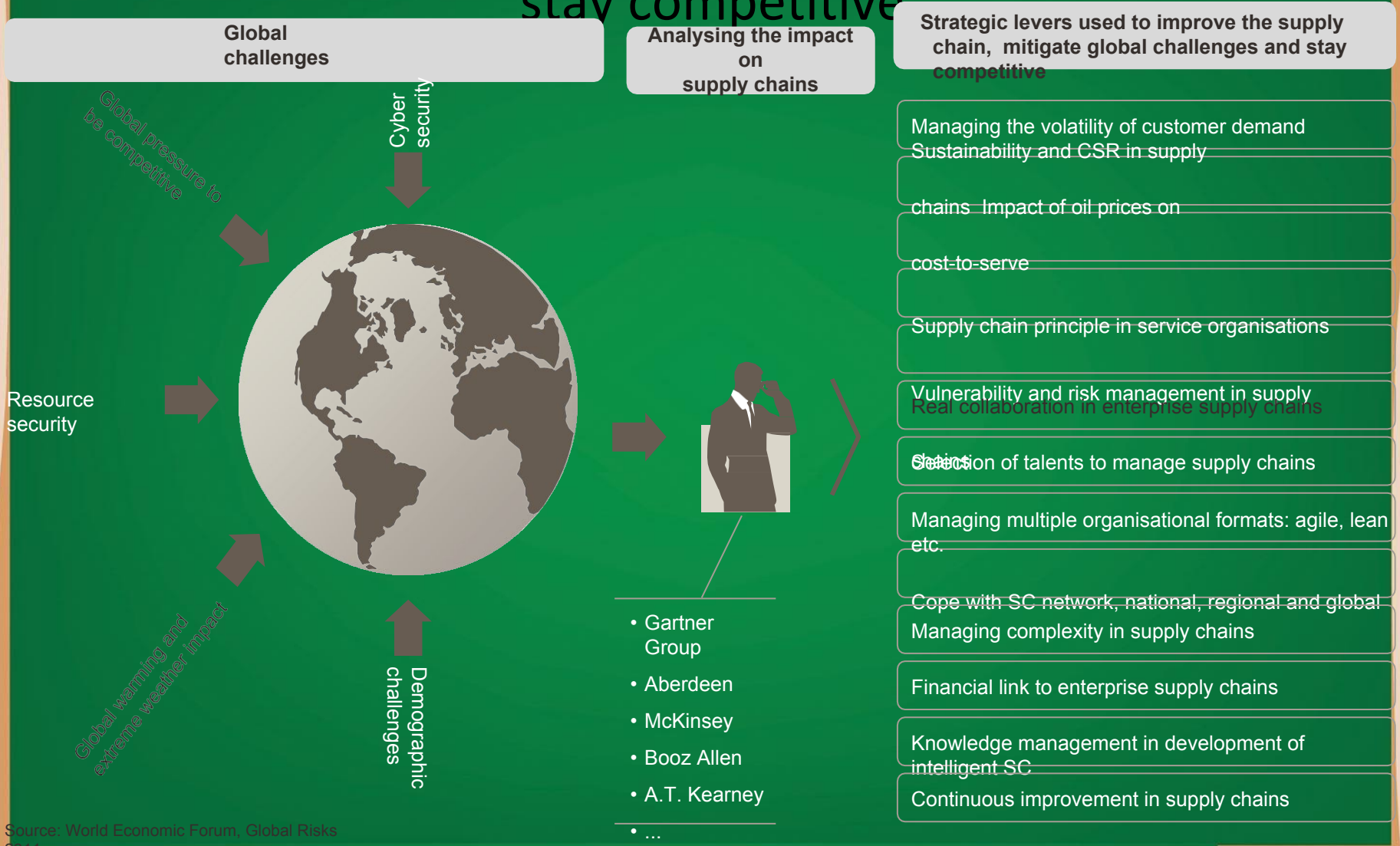
# **What are the key enablers of structural flexibility?**

- **is a corporate culture and ‘mindset’ that is open to change and is comfortable with frequent changes to processes and working practices.**

main elements that underpin  
structural flexibility include:

- *Visibility and information sharing*
- *Access to capacity*
- *Access to knowledge and talent*
- *Inter-operability of processes and information systems*
- *network orchestration*

# Leading companies work with various strategic levers to cope with the global supply chain challenges in order to stay competitive



Source: World Economic Forum, Global Risks 2011



## Implement Consulting Group has summarised the strategic levers into five supply chain megatrends

### Multiple Supply Chains

Customer demand is developing to be more volatile and unpredictable than before. Market leaders are splitting their supply chains into dedicated value streams to meet different buying behaviours and to respond in time.

### Move On or Move Home

As China has become the world's primary country for manufacturing, the demand for labour has increased manifold. This has led to a steep rise in hourly wages. This trend is expected to continue, and other low-cost regions are becoming attractive.

### Green and Sustainable Supply Chains

Socially and environmentally responsible managements have advanced the core of their companies' value propositions. Especially in emerging economy contexts, corporate sustainability has emerged as a strategic priority for business leaders across industries.

### Global Supply Chain Risk Management

Based on recent years' natural disasters and disruptions in supply of goods combined with global supply chains and lower inventory levels, companies must now design their supply chains to mitigate risks to be able to supply the market even after upstream disruptions.

### Managing Supply Chain Complexity

While operating a global supply chain network has a myriad of advantages, it has its challenges as well. One of these challenges is lack of visibility into various information sources leading to complexity which influences daily operations and performance.

## Multiple Supply Chains

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The root cause of the problems plaguing many supply chains is a mismatch between the type of product and the type of supply chain.

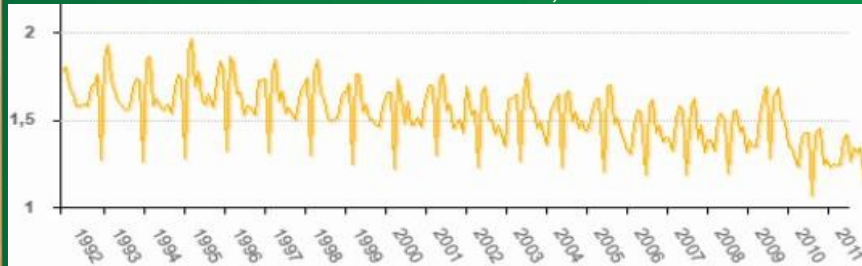
*Marshall L.  
Fisher*

# Unpredictable demand, lower stock levels and increased complexity drive multiple supply chains

## Drivers and lead indicators

- Unpredictable demand patterns caused by e.g. financial crises and environmental disasters
- Pressure to lower stock and just-in-time deliveries at the same time as the world trade has increased

Total business inventories/sales ratios, 1992-2011



Source: [www.census.gov/mia](http://www.census.gov/mia)

World trade development, 1991-2011



Source: The Netherlands Bureau for Economic Research

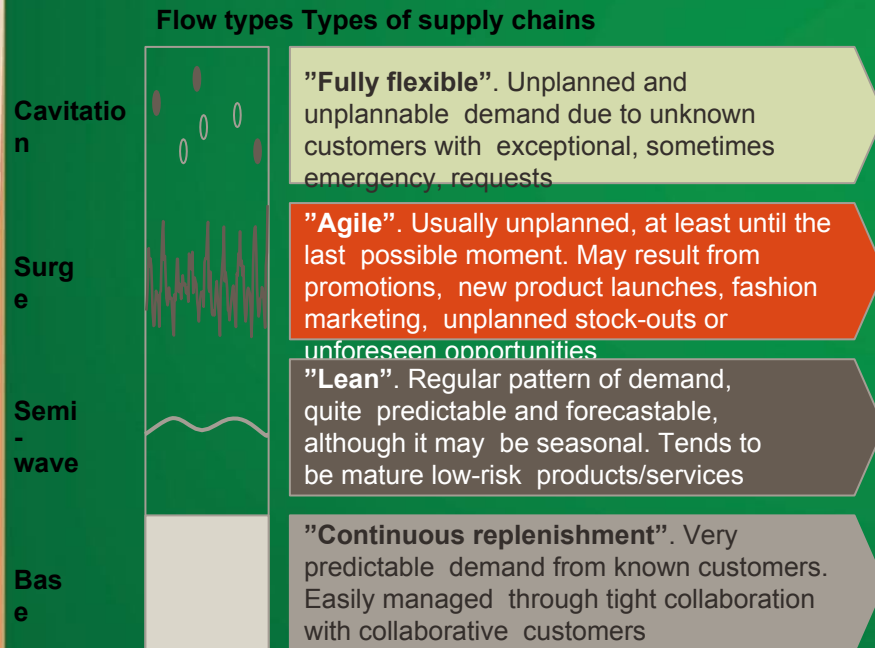
## Impact on supply chains

- As a consequence, companies are facing:
  - Increased complexity in supply chains
  - Decreased transparency throughout the supply chain
  - Risk of not being able to handle the complexity in the supply chain, damaging relationships throughout the supply chain
  - Difficulty in forecasting and planning production and inventory
- To avoid the consequences, companies tend to:
  - Increase inventory levels creating higher inventory costs causing dead stock as demand is unpredictable
  - Create an organisation with many steps and non-value activities

# Configuring multiple supply chains must be based on your customers' demand

## Impact on supply chain strategy

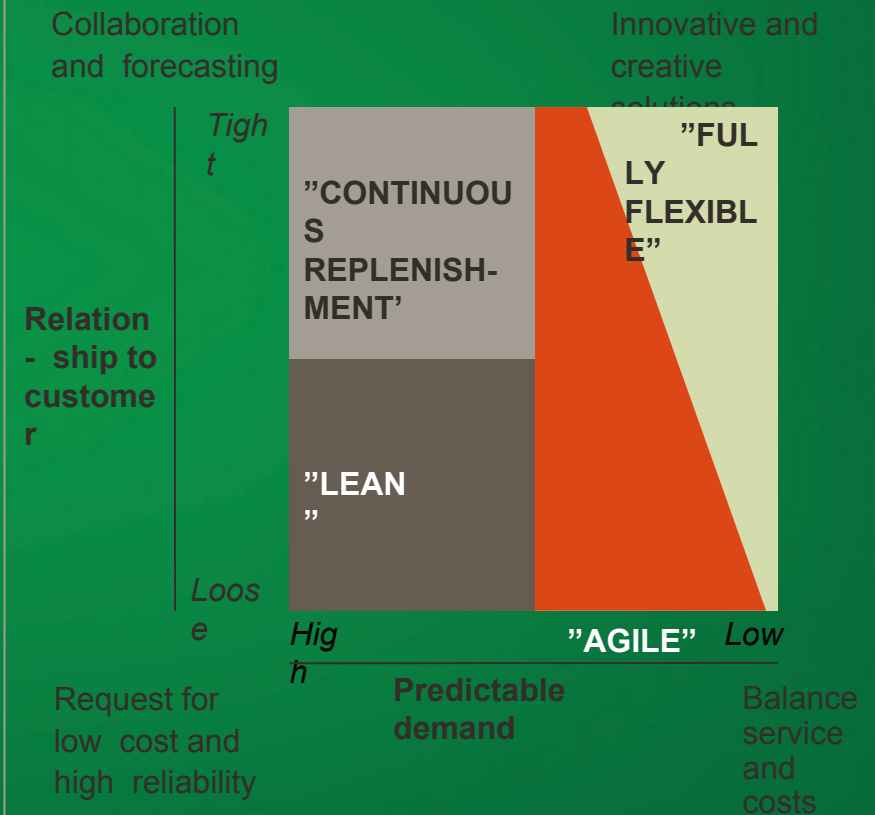
The below model divides supply chains into four dedicated conveyor belts based on different demand flow types. All supply chains demonstrate value-add and clear value propositions against the customers' buying behaviour. For each flow type, the marketplace is analysed and used for configuration of related supply chains.



Source:  
Gattorna

## Impact on relationship

The below model describes the four generic configurations of the supply chain in relation to "relationship to customer" vs. "predictable demand".



Source: Gattorna



## Move On or Move Home

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Life is like riding a bicycle – in order to keep your balance, you must keep moving.

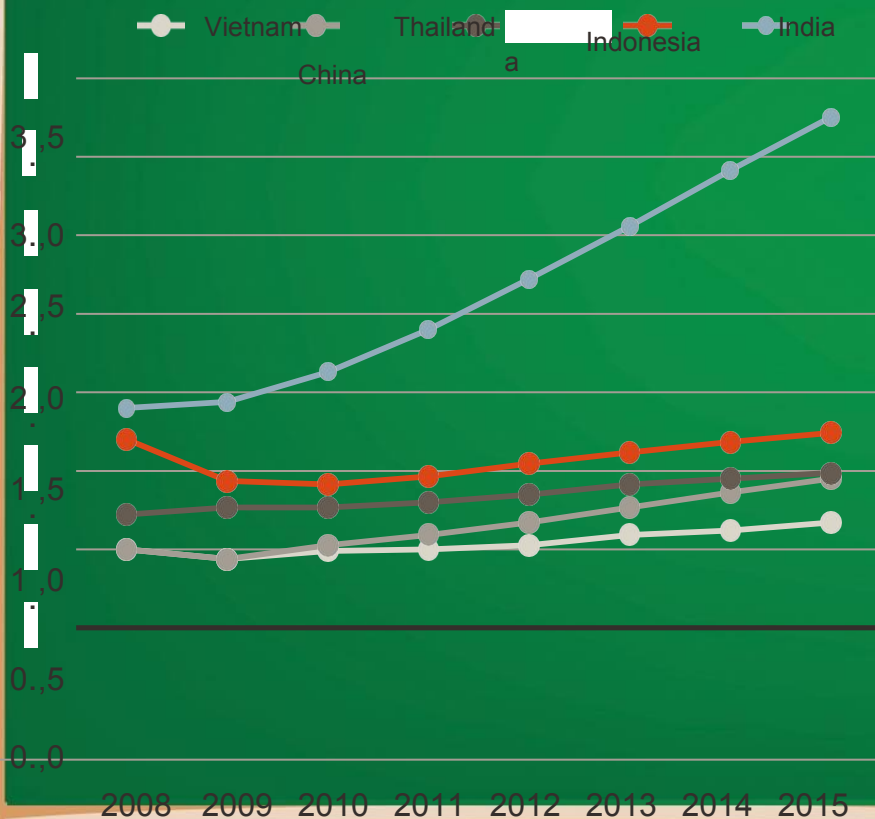
*Albert  
Einstein*

# Move On or Move Home – companies move further out for lower costs

## Drivers and lead indicators

A shortage of skilled labour supply has led to rapid cost inflation – more than 20% year-on-year in some pockets. This trend is expected to continue.

Comparative wage inflation in LCC Asia – \$/hr (2008-2015)



## Impact on supply chains

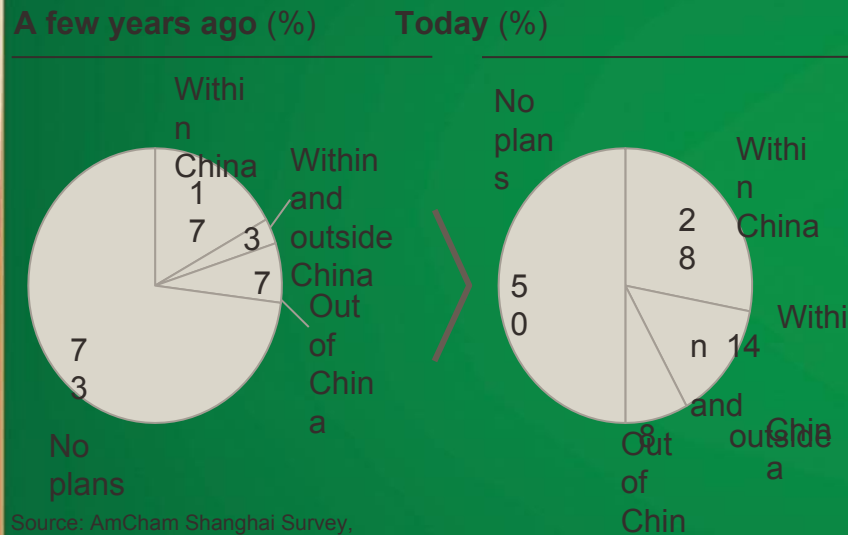
- Companies are considering how to move their facilities and which products or categories where it makes sense:
  - Transparency of the supply chain
  - Sustainability
  - Delivery reliability
  - Time-to-market
  - Culture
- Trends are emerging where companies are considering total landed cost, consisting of:
  - Supply chain downtime costs
  - Logistics costs
  - Duties and taxes
  - Future inflation
  - Infrastructure and capacity
  - Efficiency
- Products and product lines are being designed for modularisation so that they can be moved over time and adjusted to the supply chain strategy

# Move On or Move Home – companies

## Supporting data

Currently, there are still companies that prefer to stay within low-cost countries as the cost of shifting manufacturing and supply chain is too high.

## Plans of relocating within or expanding outside China (% of respondents)



- Increasingly, companies are paying close attention to the landed cost – comprising freight, currency and inflationary costs
- In 2015, Mexico is expected to be 15% cheaper than China compared to being 20-30% more expensive today

Source: BCG and Alix Partners

## Impact on supply chain structure

### Cost impact:

- Material costs
- Labour costs
- Transport logistics
- Customs duties
- Salary costs
- Other fixed costs

### One-off costs:

- Restructuring costs
- Transition costs
- Investments
- Inventory
- Incomes

**Sensitive risks perspectives**

## Green and Sustainable Supply Chains

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Mother nature does not do bailouts.

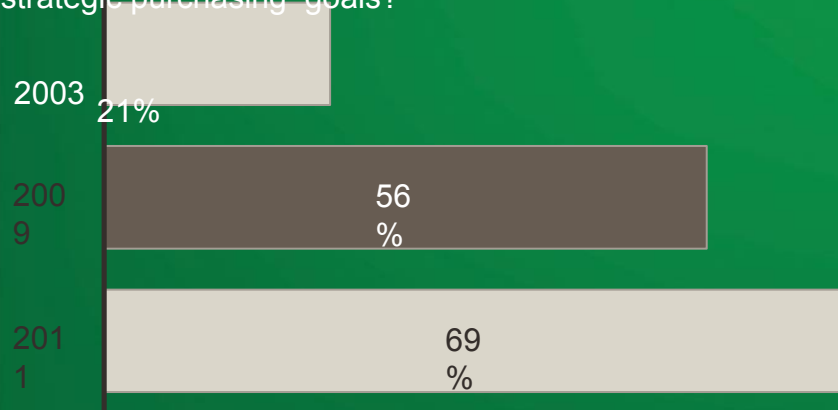
*Al Gore*



## Drivers and lead indicators

- Many western companies seek to benefit from the cost advantages offered in emerging economies in Eastern Europe, Asia and Latin America
- As the cost advantages offered in emerging economies often come along with social and environmental standards below those of western countries, companies face the question of what impact a social and environmental engagement beyond these standards has on their capabilities

**Sustainability as a purchasing goal** (% of respondents) "Is sustainability one of your company's strategic purchasing goals?"



Source: Roland Berger, 2011

## Impact on supply chains

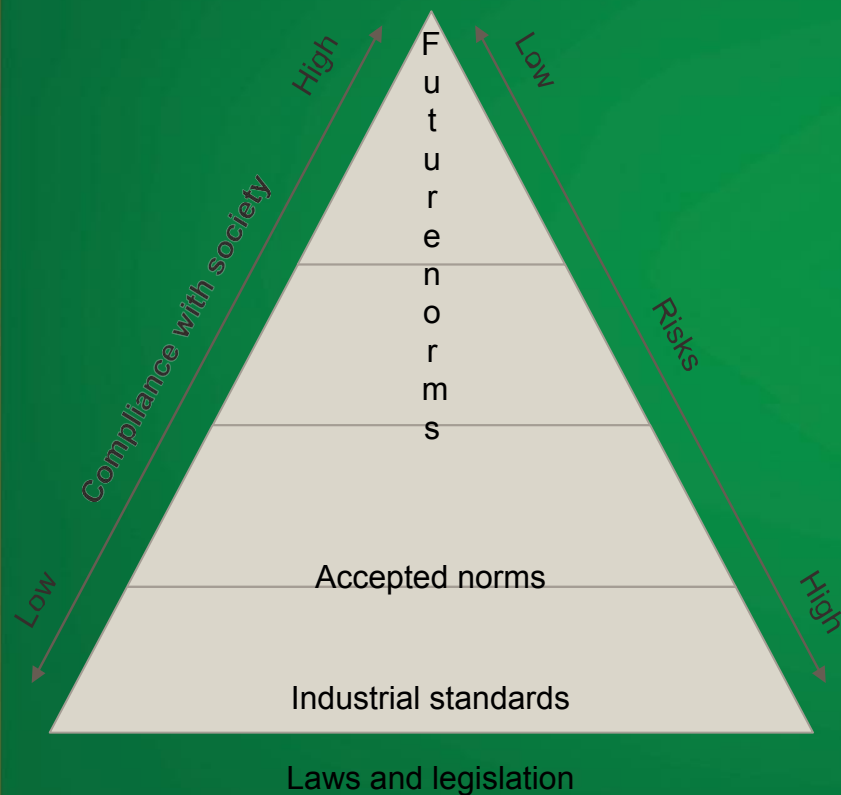
Sustainability will impact supply chains and companies' internal operations differently, but the following are seen as the main changers:

- Closer relationships between the tiers throughout the supply chain to gain transparency of operations
- Use code of conduct towards suppliers to prevent cases that can have a negative impact on the business and, thus, as a risk management tool
- Supply chains are becoming increasingly complex as there are many parameters companies need to be in control of
- Slower supply chains as transportation will slow in order to reduce emissions in the supply chain. This will require re-thinking of the companies' supply chain strategy and set-up. In contrast, supply chains move closer to markets and become more expensive
- Product development will increasingly focus on the ability to re-use scrapped products
- Reverse logistics are becoming a new supply chain
- Sustainability is used as a supply chain strategy to gain customers

# Compliance with society calls for sustainable supply chains

## Supply chain compliance with society

Society demands companies to be pioneers setting new norms for responsible behaviour, and companies comply to reduce the risk of not being the customers' choice



Source: Implement Consulting Group

## Impact on supply chain transparency

Companies are demanded to be proactive, have high standards and be best in class in their value and supply chain within:

### Environmental responsibility:

- Use of resource-efficient production technologies
- Highly effective filtering systems to reduce emissions
- High standards regarding use of environment-friendly and energy-efficient input factors
- Environment-friendly product development through new technologies focusing on the product life cycle, including re-usage of scrapped products

### Social responsibility:

- Compliance with human rights
- Ensure no use of forced labour, child labour and the right to collective bargaining
- Supportive working conditions, attractive staff benefits as well as development programmes
- Stringent monitoring of workplace safety and comprehensive safety training
- Active contribution to local communities, especially with regard to improvement of living conditions (e.g. water supply and educational infrastructure)

# Global Supply Chain Risk Management

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There are risks and costs to action. But they are far less than the long-range risks of comfortable inaction.

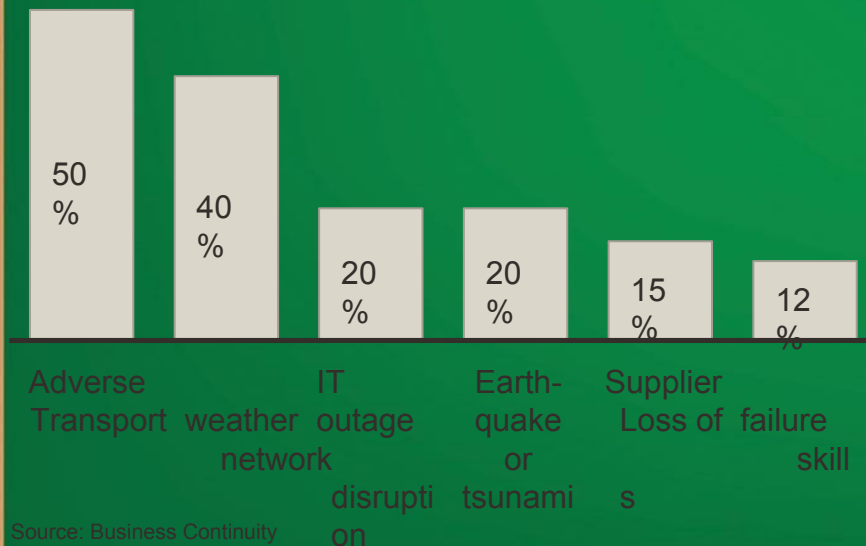
*John F.  
Kennedy*

# Global Supply Chain Risk Management – building a robust supply chain and preparing for disaster

## Drivers and lead indicators

- Just-in-time production
- Lean inventory
- Natural endowment and specialisation among few suppliers
- Sourcing from destinations where governments have major control of resources

## Total factors affecting supply chain: Business Continuity Survey, 2011



Source: Business Continuity Institute

## Impact on supply chains

Mitigation of risks is manifold and, hence, impacts companies and their supply chains in multiple ways:

### Supply chain design:

- Multiple sourcing of key components and service
- Geographically spread supply chains to serve customers
- Increased transportation costs as a consequence of multiple sourcing and geographically spread supply chains
- Longer ramp-up periods to serve the customer leading to higher stocks to prevent production downtime and secure ability to deliver to customers
- Risk of lower quality as an effect of sourcing from a non-qualified supplier to secure supply to customer
- Product development without the usage/consumption of critical resources and products that disturb the supply chain
- Vertical integration of supply chain to secure IPRs

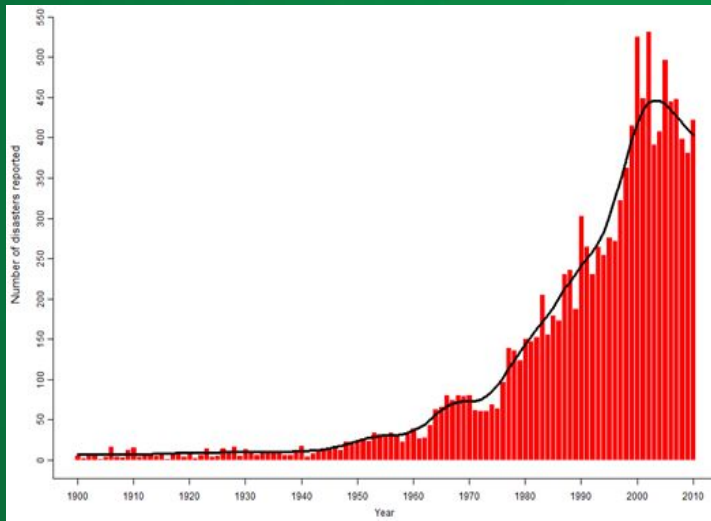


# Disasters affect supply – therefore,

## Natural disasters reported from 1900 to 2010

Recent events that have adversely affected supply chains:

- Japanese earthquake and nuclear accident
- Financial crises and economic uncertainty
- Ash clouds
- Floods in Australia and Southeast Asia



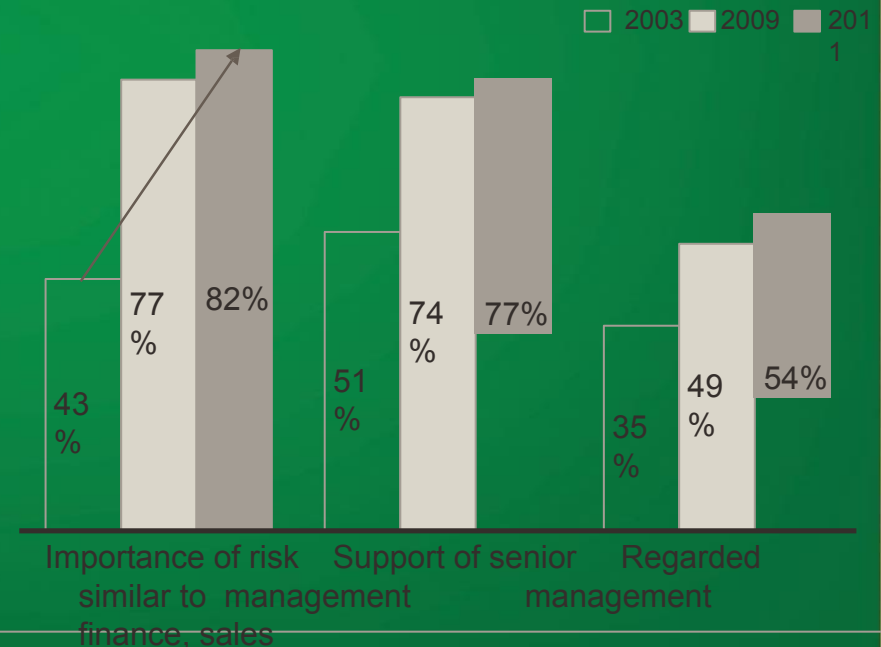
The above figure includes all disasters from 1900 to 2010 which meet at least one of the following criteria: 10 or more people killed, 100 or more people affected, a declaration of a state of emergency by country authorities or an appeal for international assistance by country authorities.

Source: EM-DAT

## Impact on supply chain strategy

- Companies are now working more strategically with risk management and how to prevent downtime in part of the supply chain
- In a survey conducted by Roland Berger, more than 500 CEOs, COOs and purchasing managers were interviewed to understand purchasing trends in 2011

## % of respondents confirming the attributes in their organisation for SCM



# Managing Supply Chain Complexity

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Any intelligent fool can make things bigger and more complex... It takes a touch of genius – and a lot of courage – to move in the opposite direction.

*Albert  
Einstein*

# Managing Supply Chain Complexity – more countries, more customers... more complexity

## Drivers and lead indicators

Increase in customers or customer locations  
Increase in products/ variances offered  
High fluctuations in customer orders  
Increase in strategic suppliers  
Increase in manufacturing facilities  
Increase in distribution facilities/inventory locations

79  
%

67  
%

65  
%

51  
%

47  
%

44  
%

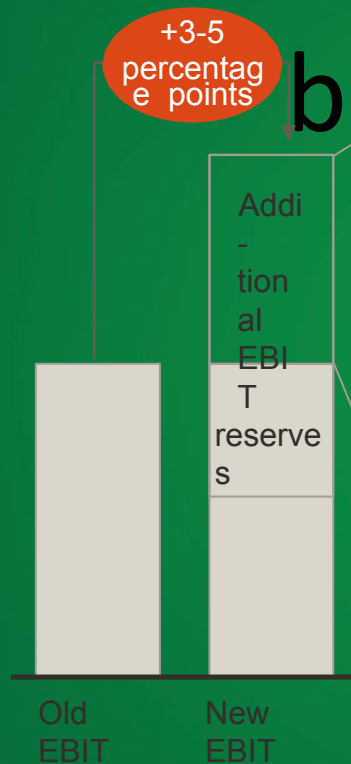
Source: Survey by PwC and PRTM

% of companies responding in the affirmative to the factors driving supply chain complexity in a survey conducted by PwC and PRTM of more than 350 companies across the globe and industries

## Impact on supply chains

- The design of supply chains needs a re-think, starting at the marketplace in order to link customers and suppliers closer to your own business
- Sourcing and distribution will become highly complex to deliver efficiency
- Production planning will become more difficult
- Inventories need to be reduced to reduce costs, but this is challenged by more difficult production planning that will require higher inventories to avoid production stops
- Flexibility is required to cope with demand peaks
- Products need to be customised with regional preferences and assembled as per customer order

# Reduce complexity by rational business behaviour



## Levers to reduce complexity

### Optimise production and logistics

- Shut down locations
- Enhance utilisation
- Avoid investments

### Cut material costs

- Increase economies of scale
- Reduce suppliers, raw materials
- Introduce technology platforms

### Adjust service capacities

- Adjust sales and R&D personnel
- Optimise size of orders
- Reduce unprofitable customers

### Increase margins

- Improve the product mix
- Raise prices
- Eliminate unprofitable products without any replacement

Learn more about how we work with [Supply Chain Management](#)

[Go to Implement Consulting Group's main website](#)

## **Implement Consulting Group P/S**

**Lars S. Feldstedt,**

**Partner** Email:

[lsf@implement.dk](mailto:lsf@implement.dk)

Mobile: +45 2338 0068

**Jan Lythcke-Jørgensen,**

**Partner**

Email:

[jlj@implement.dk](mailto:jlj@implement.dk)

Mobile: +45 2338

0017

**Thomas G. Holm,**

**Partner** Email:

[tho@implement.dk](mailto:tho@implement.dk)

Mobile: +45 5138 7427

