Supply Chain Resilience

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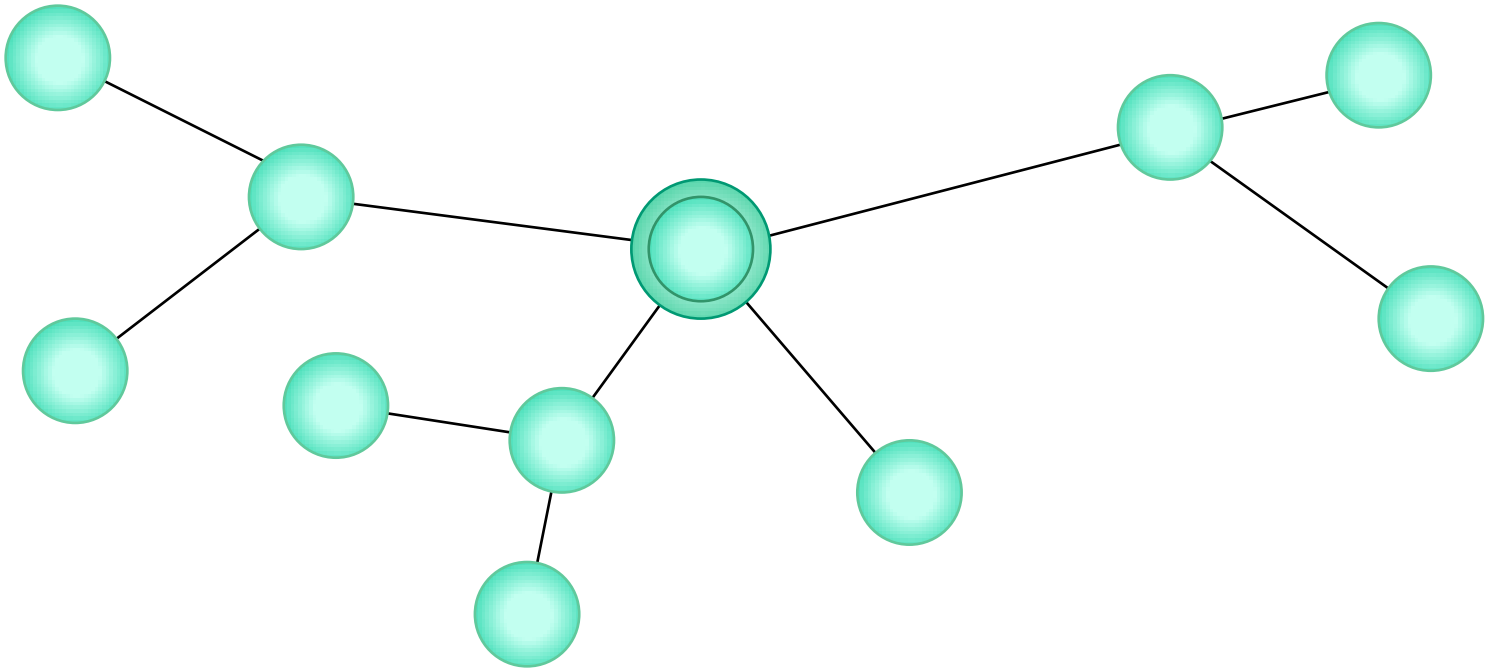
Picture source:
http://images.fineartamerica.com/images-medium-large/circuit-board-technology-setsiri-silapasuwanchai.jpg

Agenda

- Supply chain risk is systemic
- Understanding the sources of supply chain risk
- Managing supply chain risk
- Seeking structural flexibility
- Developing a resilient supply chain

There are two generic categories of supply chain risk

- Supply chains comprise nodes and links



- Nodes – organisational risk
- Links – network risk

Supply chain risk is systemic

- The biggest risk to business continuity may lie outside the company in the wider supply chain
- The complexity and inter-connectedness of modern supply chains increases their vulnerability to disruption
- Environmental risks are outside our control, but systemic risk is created through our own decisions

Picture source: http://www.stern.nyu.edu/cons/groups/content/documents/webasset/con_032689.jpg

Supply Chain Risk Management

"The identification and management of risks within the supply chain and risks external to it through a coordinated approach amongst supply chain members to reduce supply chain vulnerability as a whole".

"Avoiding the loss of customer confidence and the erosion of shareholder value resulting from supply chain disruption."

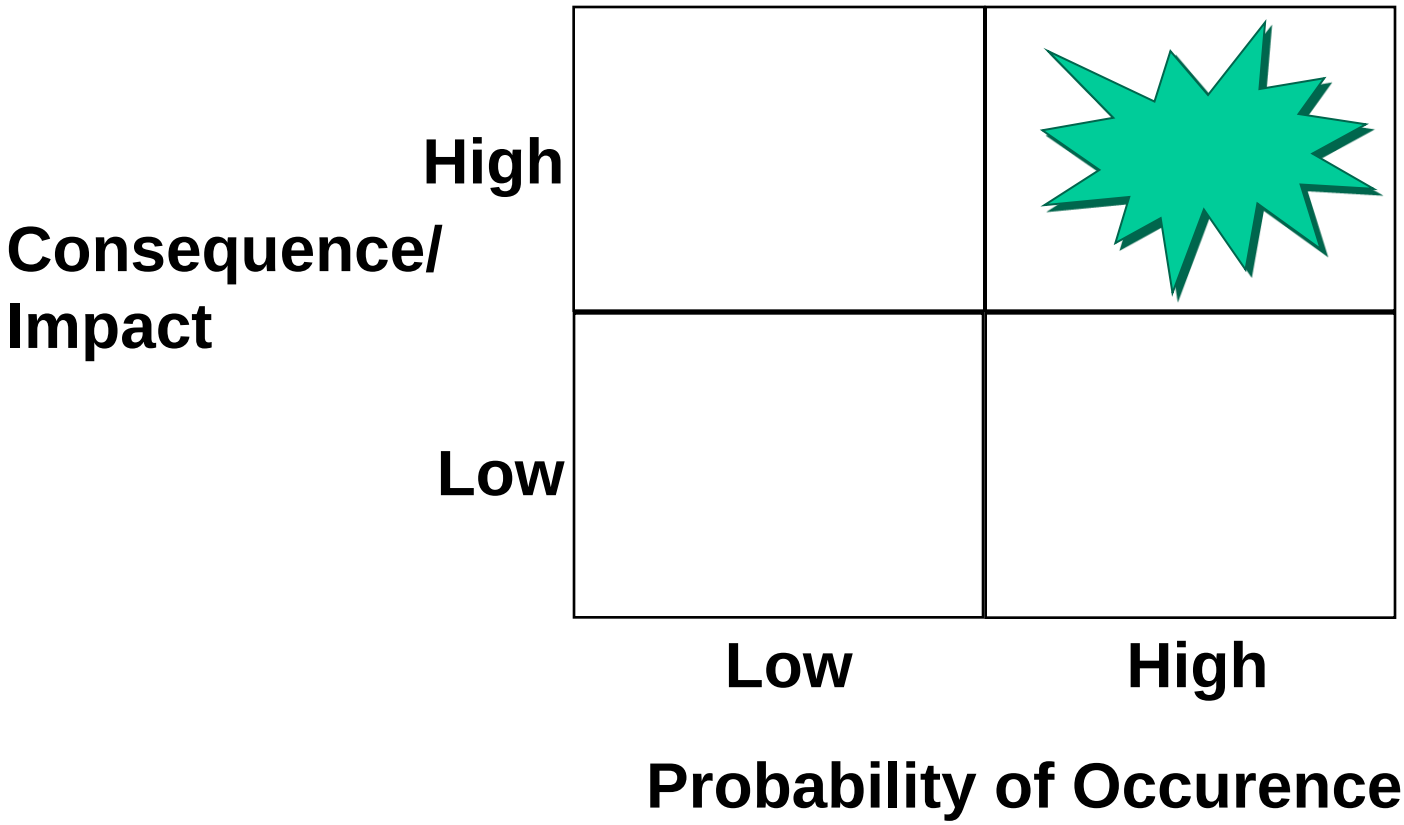
Picture source: http://programsuccess.files.wordpress.com/2011/04/risk_2.jpg

Why are today's supply chains so vulnerable?

- Widespread adoption of 'lean' practices
- The move to off-shore manufacturing and sourcing
- Out-sourcing and reduction in the supplier base
- Global consolidation of suppliers
- Centralised production and distribution

All of which combine to make supply chains vulnerable to disruption

The risk management challenge



- Where can we reduce the probability?
- How can we reduce the consequence?

Creating a supplier risk profile

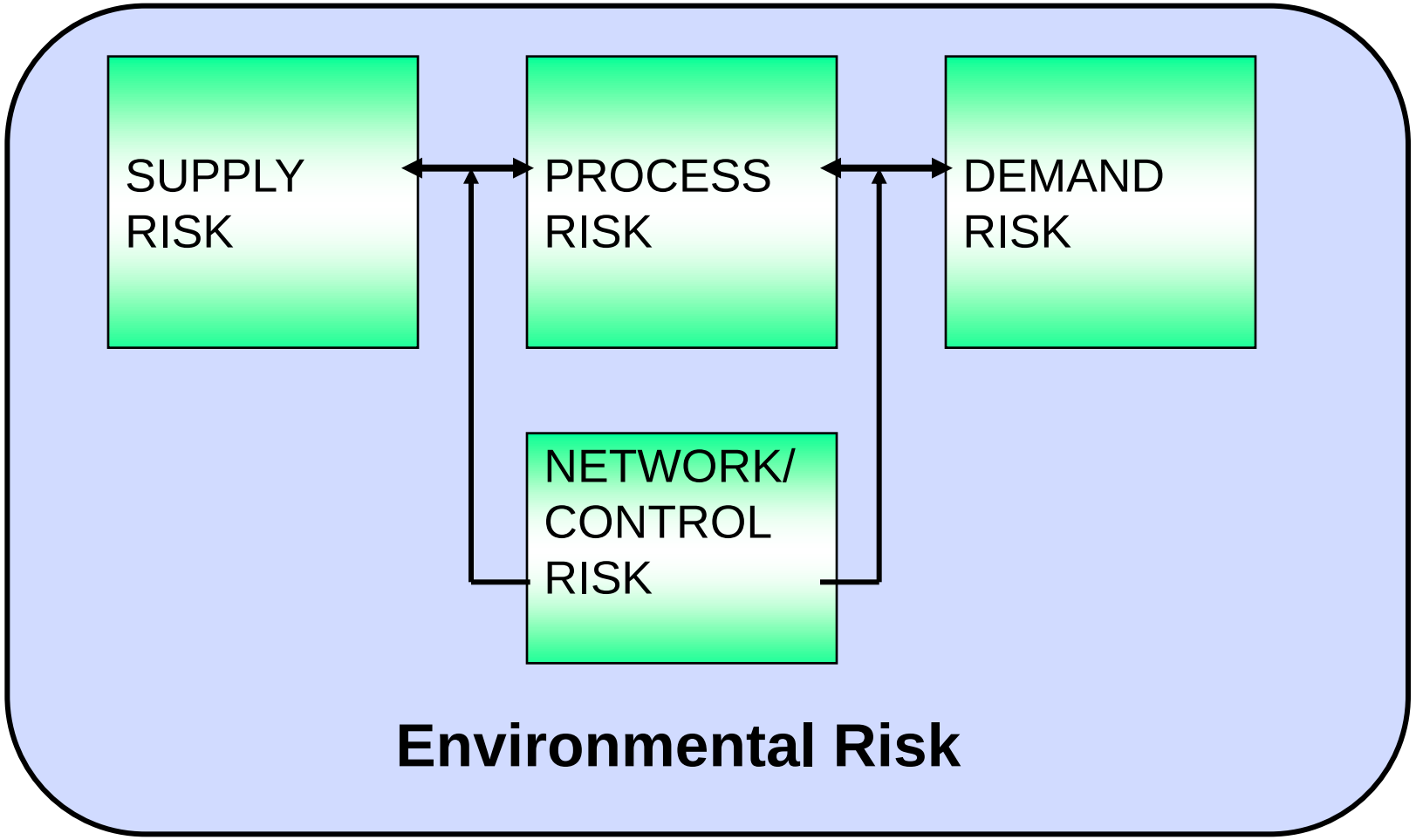
For each category of supplier (strategic, tactical/core and transactional) a systematic review of risk should be conducted.

Strategic suppliers
Because the business is so dependent for its own survival on these suppliers it is vital that it understands their risk profiles and regularly reviews them. High levels of transparency are essential.

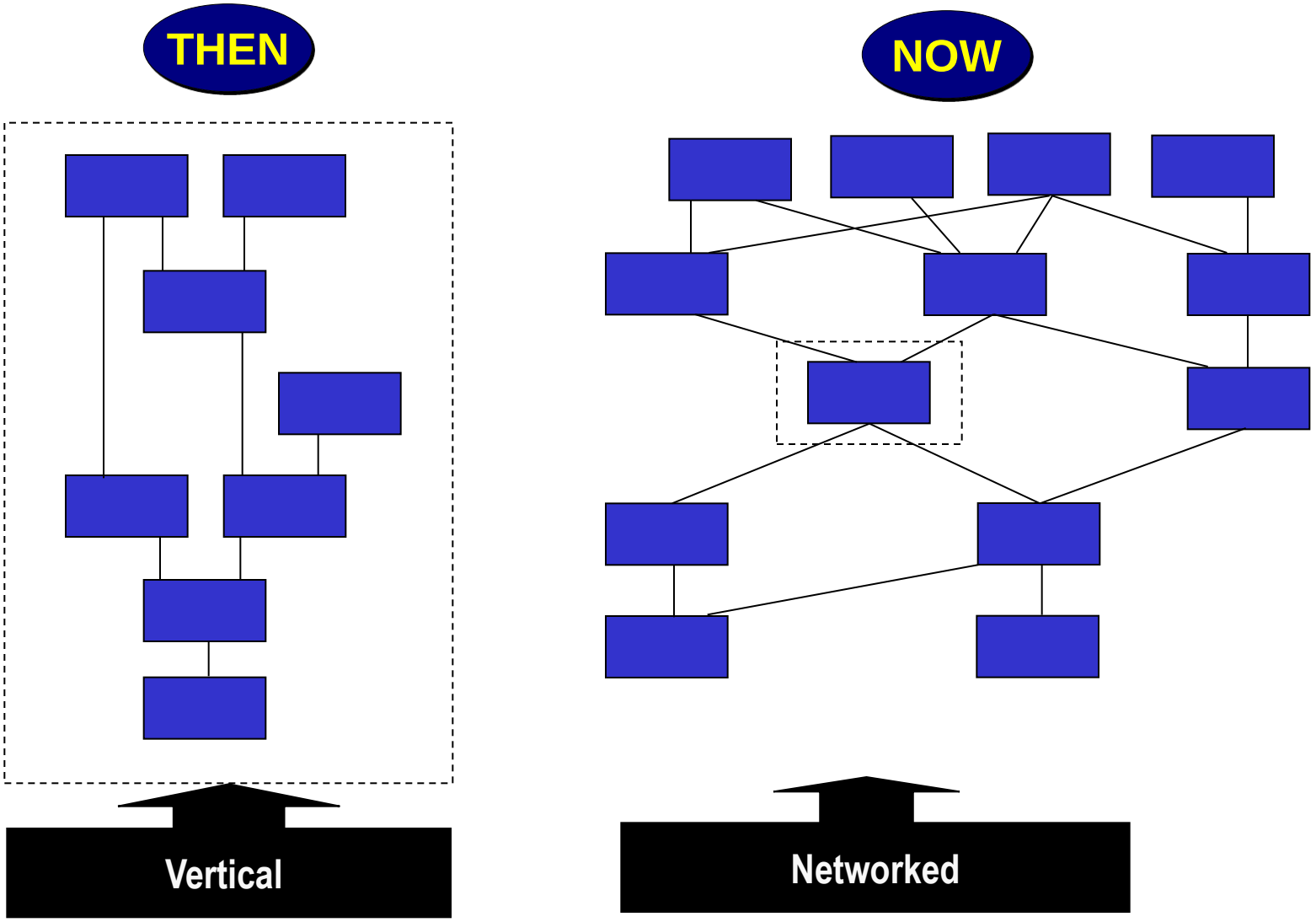
Tactical/Core suppliers
The business will be relying on these suppliers to provide a highly reliable performance – be it on-time delivery, operating and regulatory conformance etc. It is important therefore to monitor performance levels on an on-going basis.

Transactional suppliers
Because the likelihood is that these transactional suppliers will be more numerous than the other two categories, it is suggested that supplier risk monitoring be confined to some basic metrics on an exception-reporting basis e.g. price and delivery.

Location of risk in the supply chain

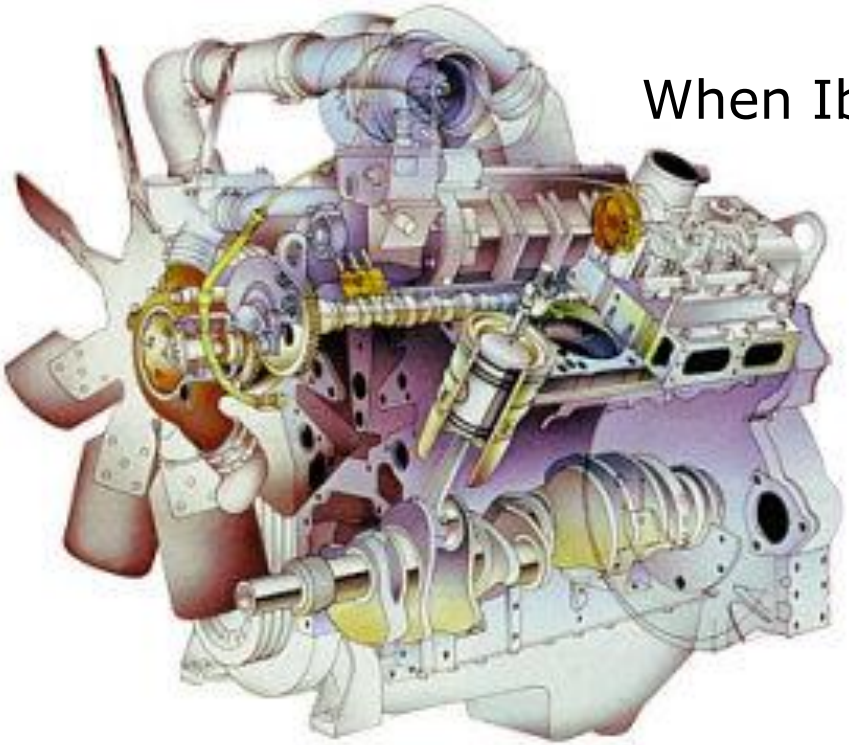


Risk in the Supply Chain: Where is the weakest link?



Risk can lie beyond the first tier supplier

"Automotive companies that produce diesel engines rely heavily on a ceramic particulate filter that Is supplied by only two companies in the world : Ibiden Co. Ltd and NGK Insulators Ltd., both headquartered in Japan.



When Ibiden experienced quality problems in early 2005, Ford Motor Co. and PSA Peugeot Citroen were unable to produce thousands of vehicles."

Source : Pil & Holweg, 2006

Picture source: http://www.bodycotemetallurgicalcoatings.com/media/10179/car%20engine.bmp

Look beyond tier-one suppliers

"Following the shut-down of Dell's American assembly line within days of the September 1999 earthquake in Taiwan the company set out to understand why this had happened.

To do this Dell studied where their tier-one suppliers did their shopping and this in turn soon yielded the first important answer – the Taiwan Semiconductor Manufacturing Corporation (TSMC). Dell's executives realised that they were in fact buying hundreds of millions of dollars of chips each year from TSMC indirectly."

Abridged from Lynn, B.C.,
End of the Line

Picture source: http://www.digitallifeplus.com/wp-content/uploads/2013/04/foxconn-assembly-line.jpg

Toyota: Don't Lean too far!

A victim of its own success, lack of visibility of potential risks in 2nd & 3rd tier suppliers, it failed to control the complex extended enterprise it came to depend on!

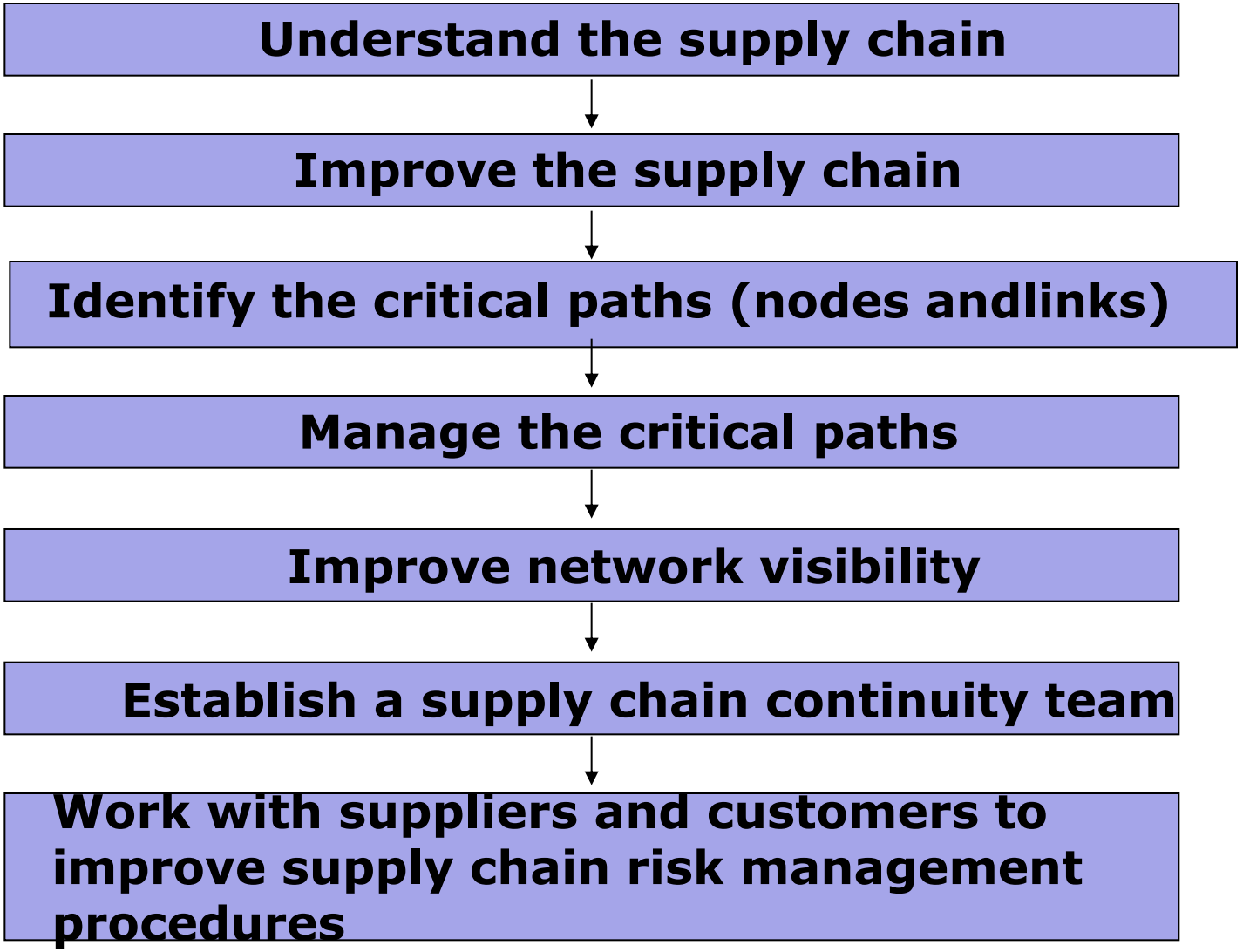
"Fire in small German town could curb world car production"

- Fire at Evonik Industries in Marl (NRW) closed down the chemical factory on 31st March 2012
- 3 weeks later execs from the world's biggest auto-makers and their suppliers meet
  - Car braking and fuel systems depend on resin PA-12
  - PA-12 is made out of a chemical: cyclododecatriene (CDT)
- This factory was responsible for at least 30% or the worlds supply
  - Spokesperson: "a significant portion of the global production capacity" had been compromised
  - "extremely serious…significant concern over the potential for production disruptions in the component industry, with obvious knock-on effects"

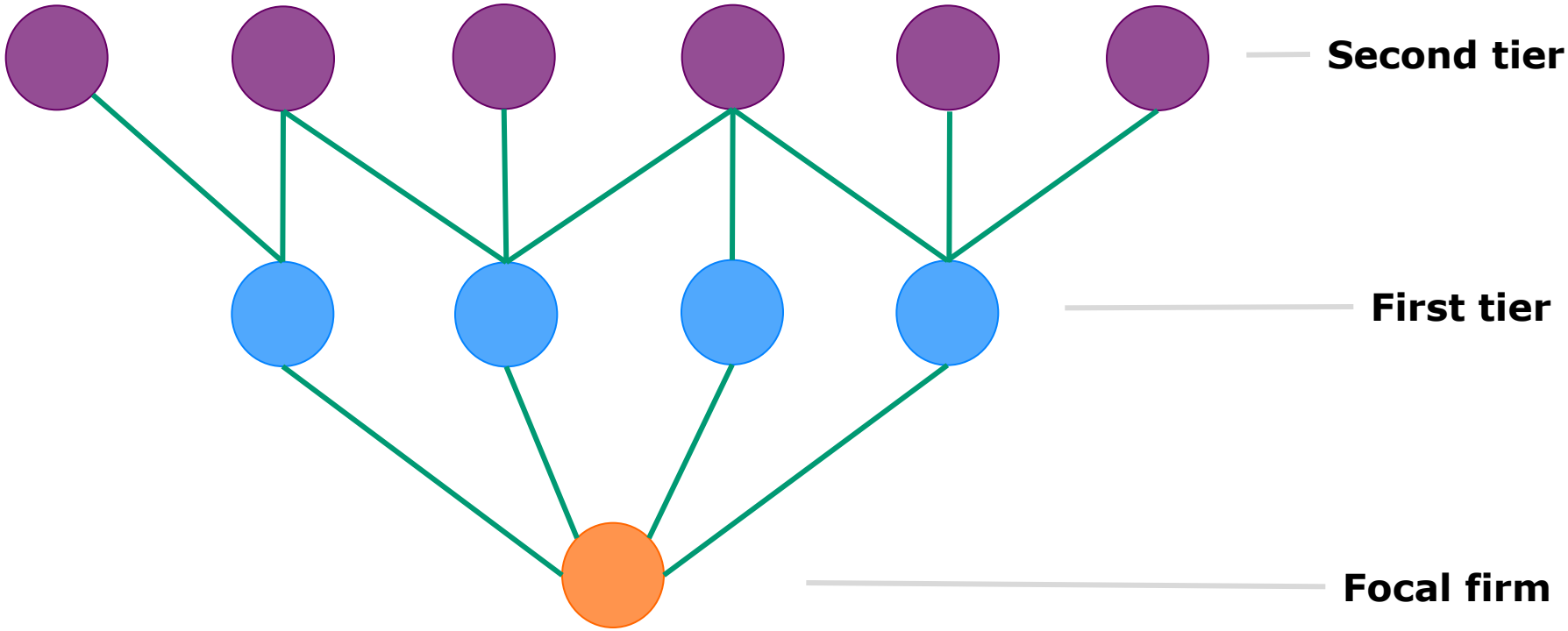
Source: BBC News 03/04/2012

Picture sources: http://www.volvoclub.org.uk/history/production.shtml, http://www.guardian.co.uk/business/2011/may/12/manufacturing-data-disappoints

The supply chain risk management process



Mapping the supply chain



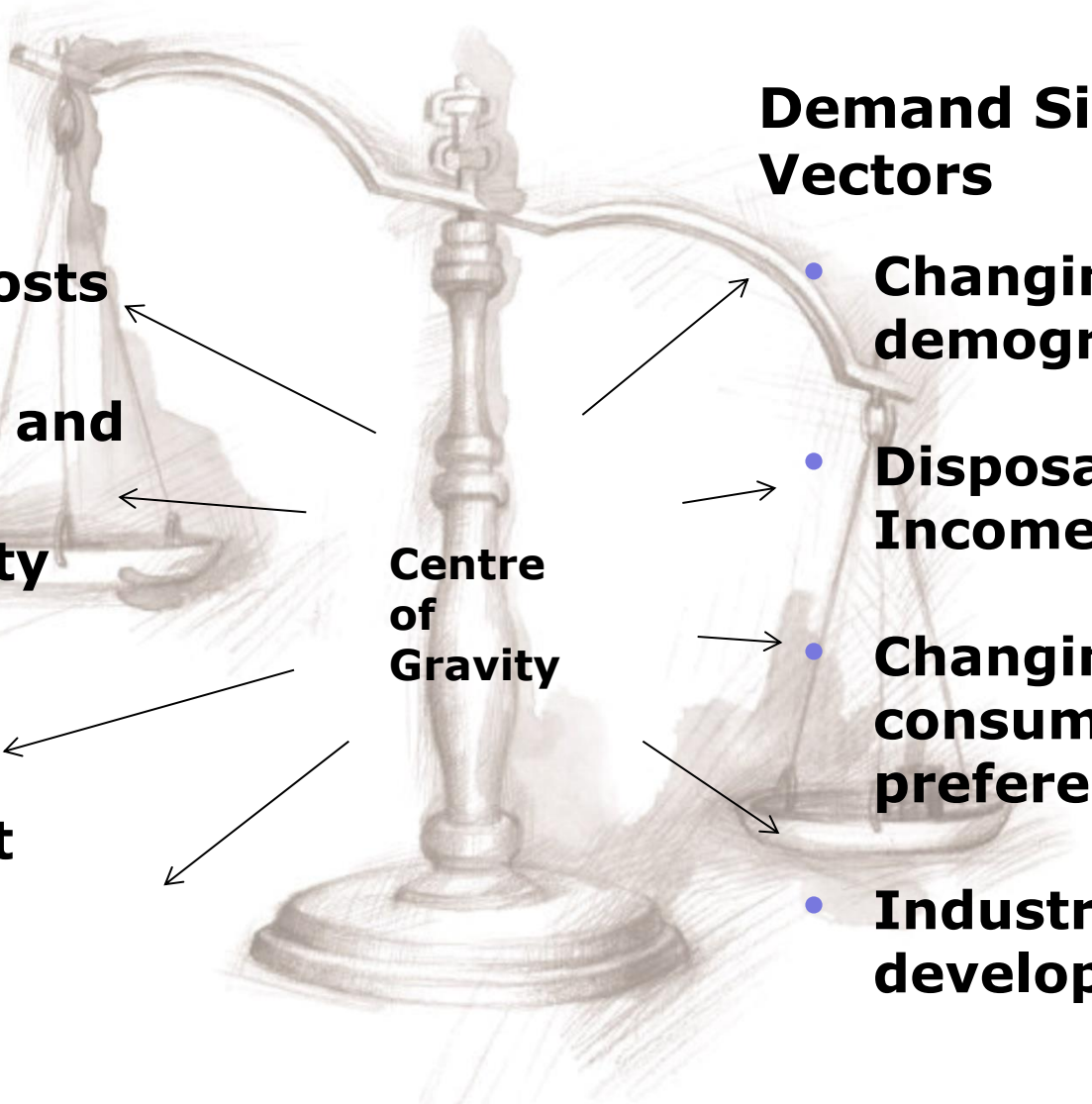
Identify the critical path(s)

Critical paths are characterised by:-

- long lead-times
- no short-term alternative source of supply
- bottlenecks
- high levels of identifiable risk (i.e. supply, demand, process, control and environmental risk)

Picture source: http://entarcousa.com/wp-content/uploads/2011/03/cause.png

The Supply Chain's Centre of Gravity is Shifting



Supply Side Vectors

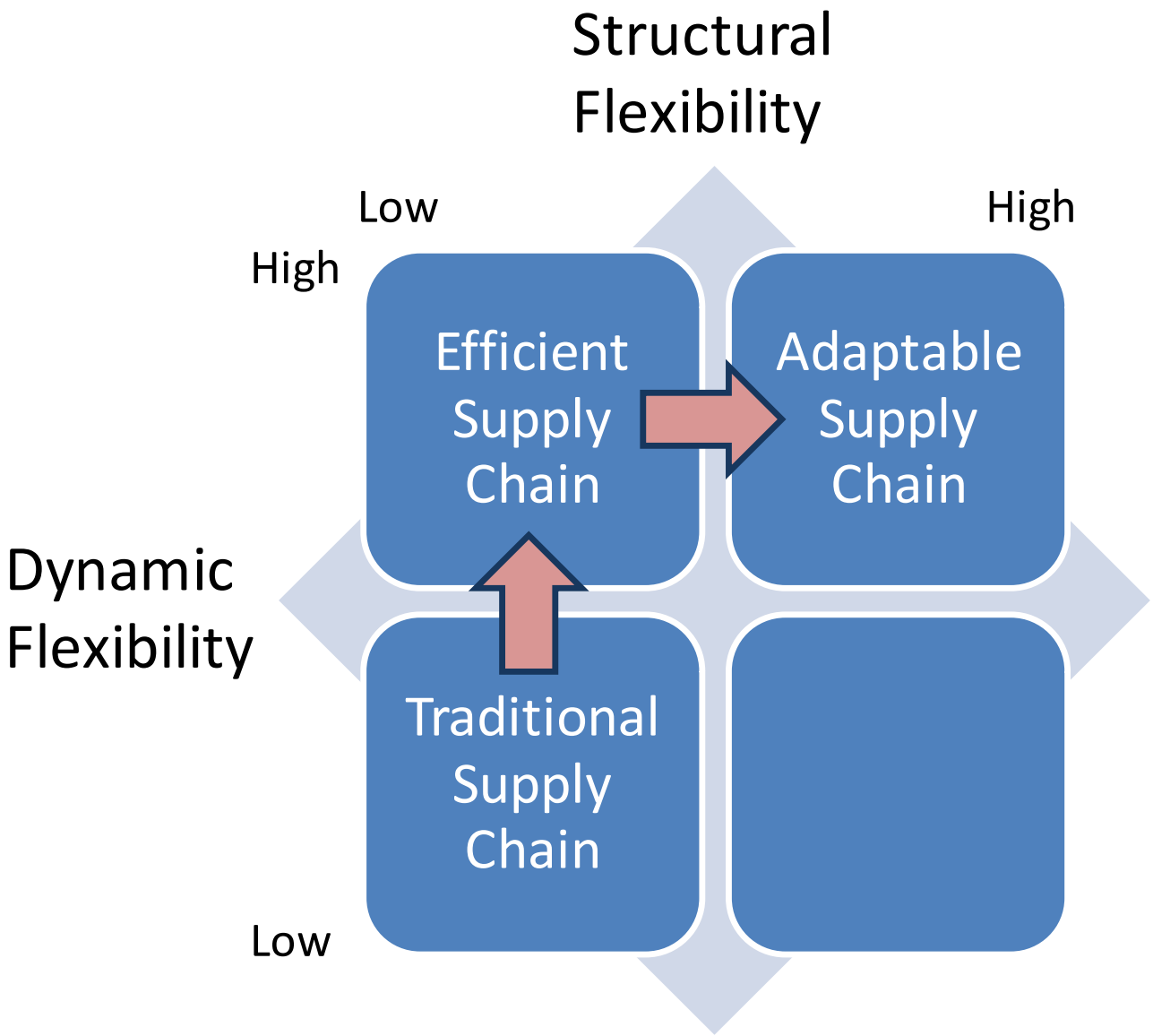
- Labour Costs
- Materials and resource availability
- Skills
- Transport Costs

Demand Side Vectors

- Changing demographics
- Disposable Income
- Changing consumer preferences
- Industry development

Picture source: http-//www.troyrawlings.com/images/scales_20of_20justice.jpg

Moving from dynamic to structural flexibility



What is structural flexibility?

In conditions of increased supply and demand uncertainty the ability to rapidly adopt or re-configure the supply chain becomes critical.

Structural flexibility implies a willingness to invest in solutions that maximise responsiveness rather than minimise cost.

Picture source: http://www.inhabitat.com/wp-content/uploads/twirlingtower1.jpg

Key enablers of structural flexibility

- Visibility and information sharing
- Access to capacity and assets
- Access to knowledge and talent
- Inter-operability of processes
- Network orchestration

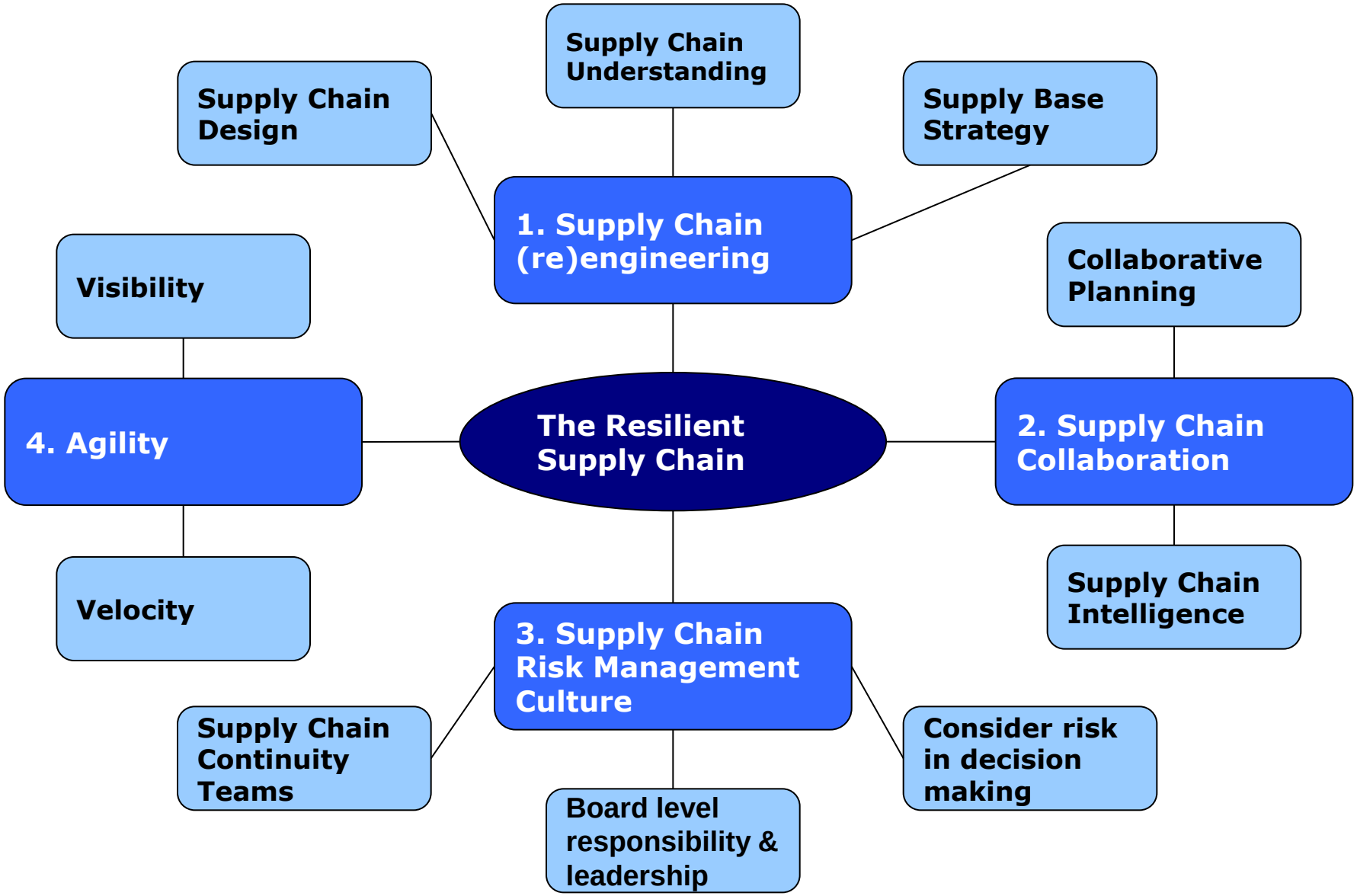
Picture source: http://blog.srssoft.com/2011/08/hies-and-information-sharing-physicians-feel-the-pressure/

Keeping the options open

- The best decision are those that keep the most options open
- Supply chain real options include: the option to expand or contract; the option to abandon; the option to switch and the option to defer decision
- Real options enable the business to take advantage of the 'upside' of risk

Picture source:
http://www2.skandia.co.uk/Images/Informer%20assets/Informer%20graphic%202011/October_2011/Keep-your-options-open-178x178pixels.jpg

Creating a Resilient Supply Chain : Strategic Approaches



Addressing Risk and Volatility in a Globalised Environment

- Demand risks
- Supply risks
- Operational risks
- Geopolitical risks
- Financial risks
- Technology risks
- Commodity risks
- Environmental & Sustainability risks

Turning risk & volatility into opportunities

- Understand the supply chain, what drives non value and customer value
- Continuous improvement of the supply chain
- Understand the sources of complexity
- Manage the bottlenecks
- Improve network visibility
- Shorten lead-times
- Focus on relationship management

Source: ***Bloomberg,*** **Image:** ***www.world-geographics.com***

Thank you

For further information…

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