



# Interesting times

Dr Helen Peck, Senior Research Fellow, Cranfield Centre for Logistics and Supply Chain Management, outline supply chains and risk management...

**T**here is an old Chinese curse which goes: ‘May you live in interesting times.’ For logistics and supply chain specialists, these are already interesting times. Over recent years, there have been suggestions that supply chains were becoming ‘more brittle’, but the problem received little attention in academic or even professional circles before the advent of Y2K, fuel protests and, of course, the terrorist attacks of September 11<sup>th</sup>. Given that supply chain disruptions do represent a real and present danger to business continuity, and to economic health, why has so little attention been paid to this issue before now?

Recently completed research, sponsored by the Department for Transport, found that, although supply chain managers recognised that there was a problem, they were struggling to find ways to identify, assess and manage the risks. Getting to grips with the scope and nature of supply chain risk is therefore the first hurdle that organisations must overcome. The first step is to recognise that supply chains are not simply linear chains or engineered processes, although contemporary supply chain management techniques tend to adopt engineering derived, process-based perspectives. The second is that, in the developed western world, supply chains are unlikely to be one firm concerns. There was a time – not so long ago – when the largest corporations were single, vertically integrated businesses operating for the mostly local for local supply chains. This is also no longer the case. Today’s supply chains involve value adding processes (workflows and accompanying information) that pass through and between increasingly complex, often global, networks that link organisations, industries and economies.

Geopolitical changes, moving hand in hand with the deregulation of trade, first set the ball rolling. They have made global sourcing and supply a reality, and continue to reshape supply chain networks. It was the arrival of Japanese automotive assemblers and their ‘extended enterprises’ more than 20 years ago that demonstrated the power of lean manufacturing techniques and benefits of JIT delivery. Total quality cultures, collaborative working practices and automated information flows were essential facilitators for the relentless removal of all forms of waste – including time, capacity and inventory – from core business processes.

These principles provided the template for efficient demand driven supply chain management as we know it today. The identification of industry relevant critical success factors and associated KPIs are essential elements in the formula; they provide a framework for change management and process improvements. They also shape the way supply chain managers view risk. Sources of risk become anything that might compromise the predictability of process outcomes and the achievement of performance targets. Risk management focuses on the elimination of that uncertainty.

The Cranfield research found that, although some supply chain disruptions were own goals, due to poor implementation of the basic principles of good supply chain management, many others were not. They were the result of well meaning and apparently logical strategic decisions made by others elsewhere in the organisation, by powerful customers or suppliers, governments or regulators. Often, these measures produced unforeseen consequences which disrupted the supply chains and compromised the efforts of supply chain managers to achieve performance targets.

Information sharing and supply chain monitoring, via ever better technological ‘solutions’, is widely seen as the route to effective supply chain risk management, technology being the enabler of better supply chain visibility, greater velocity and more effective process control. Those organisations that have the resources and the will to invest in these essential facilitators can indeed reap the benefits of ‘the substitution of information for inventory’ and thus move ever closer towards the theoretical goal of a ‘stockless’, ‘risk-free’ supply chain. The logic is seductive and the technological possibilities so appealing that it is easy to overlook the fact that information is not inventory. Ownership of goods can be transferred instantaneously from one party to another, regardless of distance; the goods themselves cannot. Technology can do wonderful things, but ‘beam me up Scottie’ is not yet one of them. This seemingly obvious oversight caught out countless dot-com start-ups and the hard nosed venture capitalists who financed them – specialists in commercial risk assessment.



It's a mistake that is all too easy for business strategists and their corporate risk managers to repeat.

Corporate risk management is in the ascendancy, largely due to increased regulatory requirements imposed by stock exchanges. Nevertheless, interviews with managers from leading organisations, representing many sectors of industry, suggested that corporate risk management programmes remain firmly fixed on activities that reside within the legally defined boundaries of that organisation. They rarely considered hazards lurking in the wider supply chain networks. Moreover, where unacceptably high levels of risk were identified internally, the tendency was to outsource the activities concerned to a supplier, thus transferring responsibility for management of that risk (but not its consequences).

From a corporate commercial risk management perspective, the practice of passing risk on to adjacent parties in the supply chain makes good sense. It is entirely consistent with the prevailing strategic logic of specialisation around core competencies. In the strategic management terms, risk is accepted as an inevitable part of business life. High risk 'big bets' are often deemed to be a necessary part of maintaining those all important core competencies, but high levels of risk attached to non-core competencies tend to be much less acceptable. Outsourcing is therefore widely recognised as a risk avoidance or risk reduction measure. This is where transport and distribution may well lose out again. Few of the giant, vertically integrated corporations of yesteryear saw transport and distribution as a core competence. More often than not, it was a cost centre that manufacturers and, increasingly, powerful retailers were all too happy to remove from their balance sheets. As a result, logistics, along with IT, were high on the list of activities sold off or outsourced to specialist suppliers. These activities, though not seen as core to the organisations they supported, nevertheless form the backbone of supply chain management.

Taking yet another perspective on the issue, the DfT funded research also approached the supply chain vulnerability from a business continuity perspective. Y2K put a supercharger behind the business continuity industry and highlighted how technology dependent our society had become. Yet, a survey of general managers and senior supply chain professionals showed that business continuity management, as it is currently implemented, also reflects an IT bias and a single firm/core competence focus. Efforts here tend to concentrate on the avoidance of business interruption from IT systems failures or contingency planning for the loss of a facility due to fire, flood or denial

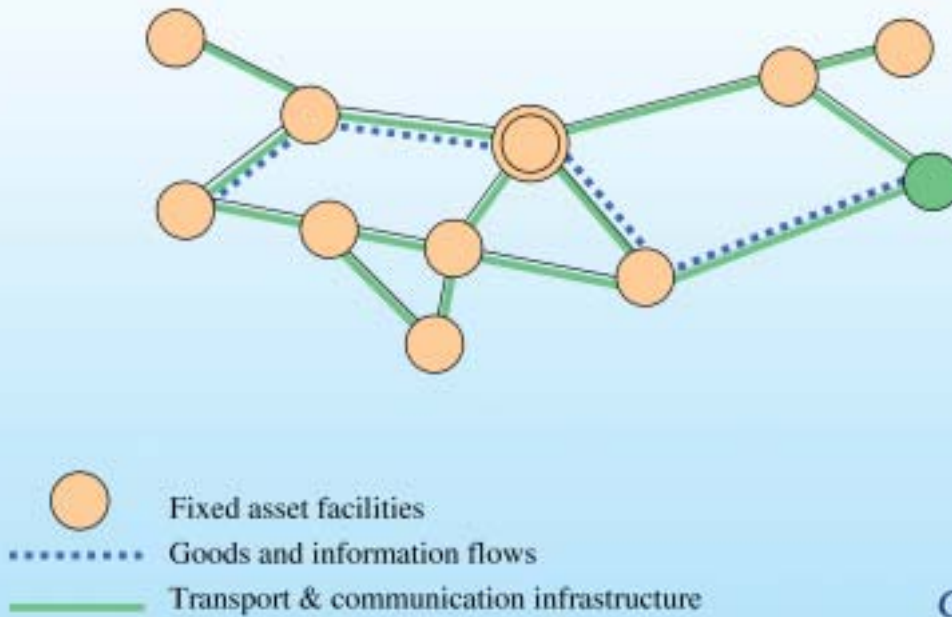
of access. Both are very valid perspectives. Increasing dependence on communication and information technology, not least with the growth in e-business, means that keeping the information/communication systems working is more essential than ever, while the pressure to lean out surplus capacity in pursuit of better asset utilisation and lower unit costs has encouraged the consolidation and centralisation of manufacturing and distribution sites. Fewer facilities with higher throughput can mean bigger disruptions if use is impaired in any way.

However, consolidation also means that the distance between manufacturing retail or distribution sites is likely to be further than before. From a lean end-to-end process perspective, the downside is that it may well extend the overall lead times – unless faster (more expensive) modes of transport are employed instead. The agile networks producing high value, high fashion, short life-cycle apparel have tended to take this option, allowing the well organised to benefit from low labour costs in low cost manufacturing regions. Outsourcing the work to indigenous suppliers in developing regions reduces corporate financial risk, in that investment is low, and the local supplier can buffer its partner against political and economic uncertainty. The trade-off is the surrender of direct control of those activities and that element of the value adding process by the outsourcing company...and its supply chain managers. The development of better event management and asset tracking systems promises to go some way towards improving visibility of orders and goods in transit. But again, visibility does not guarantee availability.

Low cost labour and cheap transport makes globe spanning supply chains an economically attractive proposition, but also increases the transport component in the overall mix. The uncertainty over oil prices in the lead up to the last Gulf War sent a shudder through industry. Oil prices aside, transport availability, and the quality and capacity of the



## Supply chains comprise nodes and links



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transport and communication infrastructure is also becoming more critical than ever. The transport systems are already showing signs of stress. Here in the UK, hauliers are all too familiar with the problems of driver shortages and traffic congestion. In international shipping, demand is outstripping supply and costs are rising fast. With more and more manufacturers jumping aboard a slow boat to China, things may well get worse before they get better. Added to this, port and airport congestion is rising too, and new security measures are also increasing the pressure...and the delays. Once again, technological solutions are seen as the way forward. Paperless systems are supposed to improve the efficiency of security vetting, allowing shipments to be expedited through the networks, provided, that is, that shippers use approved ports of departure, and that air and sea comply with minimum lead times, and assuming that sufficient Customs personnel are available to check the data. None of this is good news for flexible, quick response logistics or indeed those industries that must manage strong seasonal surges on short forecast horizons.

Last but not least, there are lessons to be learned about infrastructure inter-dependencies. The operation of the transport system is increasingly dependent on reliable communication infrastructures, which are themselves dependent on reliable power supplies. Last year, Heathrow ground to a halt when a localised power cut knocked out British Airways' baggage handling system. A similar loss of power could take out port or airport freight security systems, with equally chaotic effects. In July last year, one of the world's leading management consultancies published an article pointing out that electricity distributors around

the world are investing unnecessarily in improving the reliability of the infrastructure. They argued that, in countries where power cuts were relatively rare, distributors with an excellent or normal reliability record could reduce the reliability of their services – particularly to domestic customers. Furthermore, the consultants advised the distributors to consider lobbying their regulators to relax standards, which would allow them to shift their priorities to cutting costs and improving services that customers valued most – such as more frequent billing. Remember last summer's blackouts in North America, Europe and London? In the UK, it is well-known that competitive pressures amongst power suppliers have already led to a situation where the country no longer has sufficient generating capacity readily available to meet demand during a cold winter. This all sounds very gloomy, but portents are not good. Without a greater appreciation of how commercial pressures, public policy and everyday supply chain management relate to one another, it seems that we are all destined to live in interesting times.

'Creating Resilient Supply Chains: A Practical Guide' and 'Understanding Supply Chain Risk: A Self-assessment Workbook' are available free of charge, courtesy of the UK Department for Transport, at: [www.som.cranfield.ac.uk/som/scr](http://www.som.cranfield.ac.uk/som/scr)



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