

Risk Management In the Supply-Chain

The fuel protest of September 2000, quickly followed by the spread of foot and mouth disease throughout the UK early in 2001, illustrated to all that leaner, faster, more efficient supply-chains carry their own risks.

The impact and scale of the disruption to the UK economy caused by these two events came as a wake-up call to government and industry alike. It also provided the impetus for the start of an ongoing programme of research by Cranfield School of Management into the issue of supply-chain vulnerability. Since then the series of terrorist attacks, natural disasters and industrial disputes, not to mention the spectre of war in the Middle East, have provided frequent reminders that supply-chain managers may have to deal with all manner of threats to their supply-chains, as well as the day-to-day risks to the business from more routine supply-chain failures.

The research is backed by several Government departments and funded by the Department for Transport. It aims to investigate the impact of recent events on UK supply-chains and, importantly, to provide practical managerial tool kits to help organisations, large and small, to improve the overall resilience of their supply-chains.

Institute involvement

The Institute of Logistics and Transport, too, is playing an important role in the research programme. This summer, selected ILT members with a specialist interest in supply-chain management were invited to take part in a survey to ascertain their views and experiences on the subject of risk management within their own organisations' supply-chains.

A total of 137 senior supply-chain managers, representing a broad range of companies responded. The best represented sectors were fast moving consumer goods (fmcg) and third-party logistics/consultancy services – 26% and 21% respectively – with non-fmcg manufacturing provided a further 20%. Approximately 9% of respondents came from public sector organisations, including the armed forces. Nearly 40% of respondents spoke for organisations with annual sales/funding of less than £100 million, thus ensuring that the results included the views of smaller organisations as well as the powerful supply-chain 'captains'.

The range of organisations also covered those operating at various positions in the supply-chain. Just over 5% were manufacturers of raw materials/components or subassemblies, 28% manufacturers of finished goods, 40% were retailer or wholesale distributors, the remaining 27% being other service providers. Finally, the sample encompassed organisations with differing operational reach; 45% of the businesses operated either regionally or nationally within the UK, 23% internationally, the remaining 32% were global bodies.

This article provides a summary of the findings of the first half of that survey, dealing with the impact of recent externally induced supply-chain shocks and matters of contingency planning. A future article will report on the findings of the remaining half, which deals with the risk implications of contemporary supply-chain management trends, and looks in more detail at the tools and risk management strategies currently in use.

Impact of Specific Events

Modern commercial supply-chains are, in fact, dynamic networks of interconnected firms and industries. Given that these networks are highly reliant on efficient and reliable transport and communications, respondents were asked to assess the extent to which their operations had been disrupted by each of:

- Y2K-related IT problems
- Fuel protests of September 2000
- Foot and mouth outbreak of 2001
- Recent transportation infrastructure failures – for example, rail disruptions
- Terrorist attacks of 11th September 2001

The study found that, with the exception of Y2K, more than 45% of all respondents registered some impact on their supply-chains from each of these events, see Figure 1, p18. Furthermore, analysis shows that, when the respondents' own organisations were affected by a particular event, their customers and/or suppliers had suffered to a similar degree. This confirmed that supply-chain disruptions

Impact of Specific Events

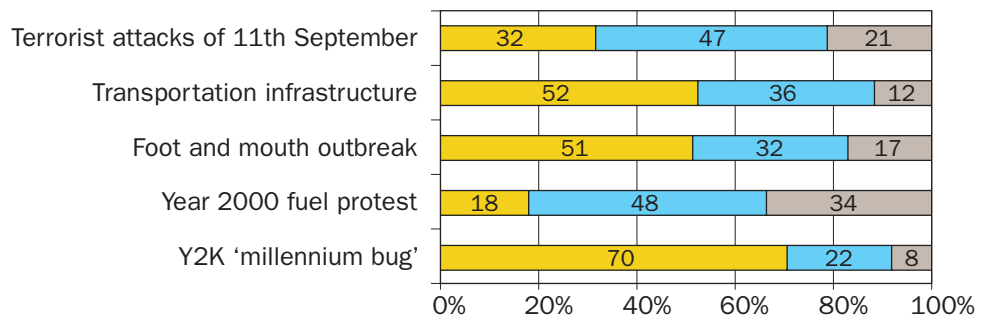


Figure 1 Not at all To a small/moderate effect To a large/great extent

emanating in one part of the supply-chain were rippling through to adjoining firms.

The fuel protests caused the most widespread disruptions, with 82% of respondents reporting some impact, 34% having been affected to a large or great extent. The fuel protests appear to have impacted on every sector. However, overall, retailers and wholesalers reported having been more adversely affected than manufacturers and their suppliers. Next in terms of magnitude and severity was 11th September. Not surprisingly, the terrorist attacks and subsequent closure of North American airspace had a measurably greater impact on those organisations operating global supply-chains than those whose reach was limited to the UK.

Transport infrastructure

Transportation infrastructure failures affected almost 48% of the supply-chains, and 12% significantly so. The impact of the foot and mouth outbreak appears to have been equally widespread though more severe, with 17% of respondents judging their supply-chains to have been either largely or greatly affected. Predictably, most of those reporting severe disruptions were involved in food and grocery processing, logistics and retailing. Respondents from other agriculture-related businesses, the armed forces, transport service and infrastructure providers, and automotive manufacturing also reported being seriously affected.

Having asked how badly the Institute members' organisations were affected by each of the events listed, we also asked to what extent risk management measures had been put in place to address similar occurrences. For three of the five events – fuel protests, livestock diseases and terrorist attacks – significant correlation was found between the severity of the impact on the organisations and the

implementation of relevant supply-chain risk management measures.

For transport infrastructure-related disruptions, those that reported having taken decisive action – around 17% – were almost all logistics and distribution service providers. Fewer organisations had implemented supply-chain risk management measures to deal with the problem of livestock diseases. Those who had – less than 7% – were all drawn from the public sector and food or agriculture-related businesses.

Year 2000

The other event listed in the survey was Y2K. The results confirm that, for the majority of organisations, the widely anticipated IT problems had failed to materialise. This finding is itself in line with the researchers' expectations and the popular perception in industry that Y2K was something of a non-event. It seems that industry was relatively well prepared for Y2K: indeed this survey showed that over 96% of respondents' organisations had taken some kind of preventative measures. Nevertheless, this survey shows that just over 29% of respondents reported some ill effects, with 8% reporting that they had experienced significant supply-chain disruptions from Y2K. More than half of these indicated that adjacent organisations – customers and/or suppliers – were affected. Respondents from the food and grocery sector, specialist logistics providers, local government and the armed forces were amongst those that encountered serious disruptions.

Business Continuity and Risk Management

Earlier research undertaken by Cranfield indicated that the need to become Y2K compliant had prompted some organisations to undertake more comprehensive risk

Scenarios Covered by Formal Business Continuity Planning/Crisis Management Procedures

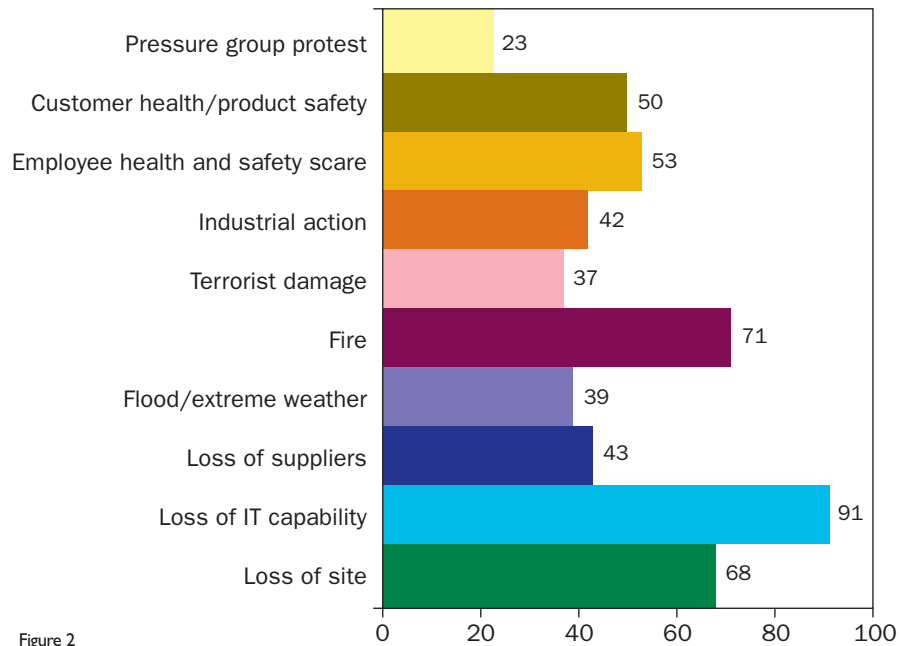


Figure 2

assessment exercises. This had led to revisions of existing crisis management protocols, or extensions of Y2K-induced formal Business Continuity Planning activities, to cover other sources of risk. Consequently, the second theme in the questionnaire investigated the extent to which formal continuity planning/crisis management procedures had been implemented to cover a range of eventualities. The results are summarised in Figure 2. The sources of risk listed were drawn from the Business Continuity literature, but had also been cited by practising supply-chain managers in earlier research as root causes of disruptions to their supply-chains.

The findings showed, once again, that the loss of IT capability led the field, emerging as the most widely catered for threat to business continuity. Over 90% of respondents reported that their organisations had formal contingency plans in place to deal with IT related disruptions. Fire and the more general 'loss of site' followed some way behind. Several respondents were, however, keen to make the point that business continuity planning in their organisations was a single firm rather than supply-chain/network-focused activity; others, that scenario-based planning was not formalised or that business continuity and risk management in general centred round core capabilities or functions:

Our continuity processes are largely internally focused, with little interaction with suppliers. Plans across the business are regularly reviewed and exercised – Large UK Retailer

Few companies play what we call the 'what if' game. We play it with outrageous scenarios but do not formalise our findings so we try it regularly, quite often with different results. This confirms the 'no right answer' school of thought! – Management consultant

We believe that the best approach to business continuity planning is to focus on the capabilities which are lost – how to address them – rather than the scenario which led to that loss of capability. Our business continuity plan, for example, defines our activities in the event of not being able to receive goods at a particular site – whether that situation has arisen through fire, flood industrial action or other causes is not important – Global distributor of components

The main risk for our organisation is for production – not my remit/outside my organisation – Motor industry wholesaler

The survey results themselves lend some support to these individual views. They suggest that information on business continuity planning or crisis management procedures relating to specific scenarios is not widely, or routinely, shared with adjacent parties in the supply-chain. Figure 3 shows that, when asked about specific scenarios, at least 40% of respondents did not know whether their suppliers had any formal continuity planning in place. Knowledge of their customers' arrangements was believed to be little better, see Figure 4.



Percentage of Suppliers Believed to Have Formal Continuity Planning/Procedures in Place

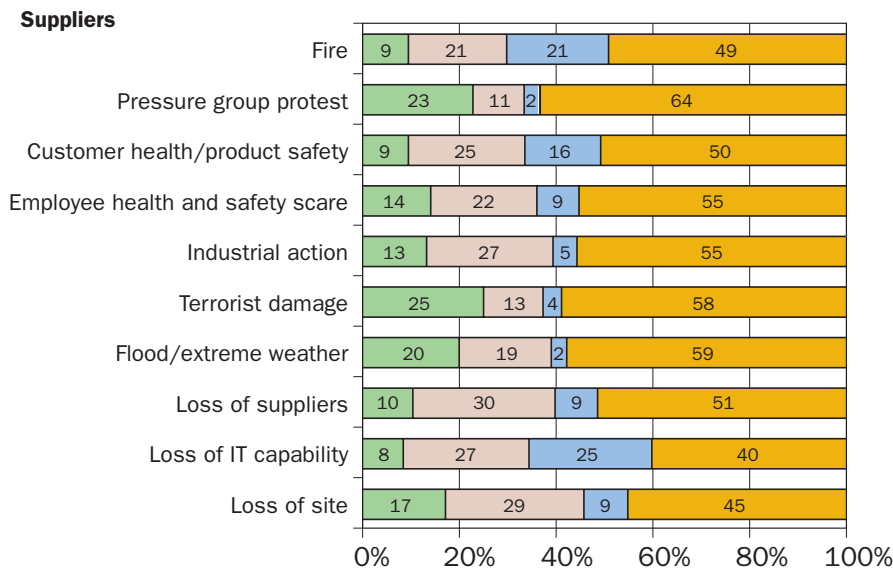


Figure 3 ■ Under 10% ■ 11-50% ■ 51-100% ■ Don't know

This is not to say that some form of joint business continuity, or contingency planning, was not occurring between adjacent parties. Though the practice was far from widespread, 33% of respondents reported that their organisations often, or always, engaged in joint development of continuity planning with their suppliers, see Figure 5, p22, and 38% claimed to be engaging in the same with customers. A higher proportion – half of all respondents – stated that they ensured

communication lines were kept open between organisations in crisis situations. However, the most common form of joint contingency planning was the imposition of contractual obligations on suppliers. The majority of respondents – 85% – off-loaded risks to their suppliers, with 61% saying that this was something they often, or always, did.

Summing Up

At the time, the events featured in this survey all received enormous media coverage – but >>

Percentage of Customers Believed to Have Formal Continuity Planning/Procedures in Place

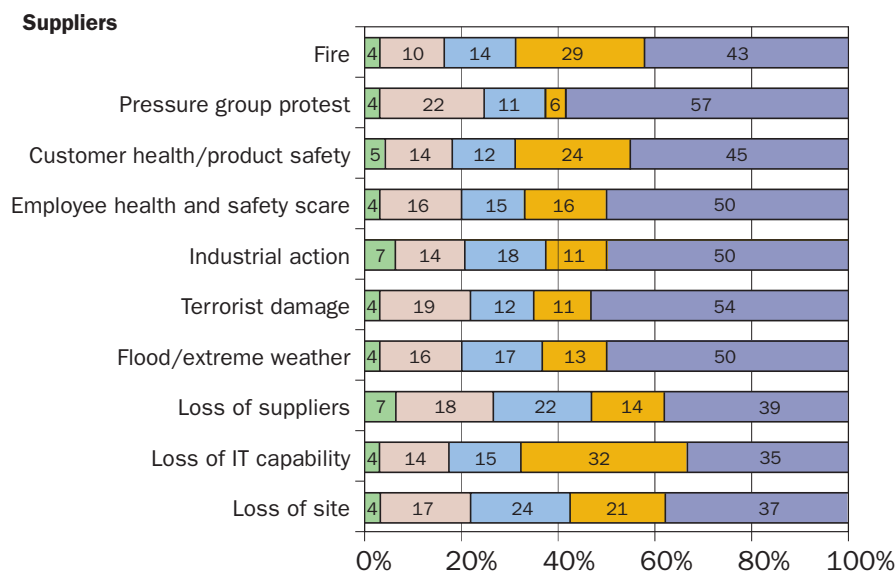


Figure 4 ■ Not Applicable ■ Under 10% ■ 11-50% ■ 51-100% ■ Don't know

