Laptop owners the world over are fuming. In a few spectacular cases, so are their laptops. For management, incidents such as the recent laptop battery crisis merely add to the long list of risks embedded in companies' supply chains. Now, besides suppliers filing for bankruptcy, chip manufacturers' production facilities burning to the ground, military coups, or epidemics in the manufacturing countries, there is also the danger that a supplier we have used for years has been supplying us with a component that is liable to explode.

The laptop stories reported in recent months have had to do with faulty batteries. The manufacturers affected include Dell, which has announced plans to recall 4.1 million batteries; Apple, which will replace 1.8 million; Panasonic, with 6,000 batteries recalled and Lenovo, the last one arrived - by now at the crisis, with half a million of batteries to retire. All these batteries have one thing in common: they were all supplied by Sony. The number of fires or explosions reported is actually very small. Dell, the company most affected, acknowledges only six cases in two years. That represents a very small risk of mishap: less than one in a million laptops sold.

Regardless of the frequency, however, incidents such as this are always very damaging to a manufacturer's reputation. And occasionally they may have serious consequences for customers. Because the danger was relatively unknown until quite recently, most users are not prepared for it. They know they may lose the data on their hard drive. But until now they didn't know there was a possibility their laptop might burst into flames on their desk. And this despite the fact that one or two houses burned down in the mid-nineties due to malfunction in a now defunct brand of laptop.

And not just on their desk. Not long ago, a laptop exploded just as its owner was boarding a plane at Los Angeles airport. For those who like to work during the flight it is a major inconvenience to find that laptops are now classified as dangerous luggage and must be checked in, after removing the battery. Which is precisely what some airlines have started to do with certain makes of laptop.

The danger is due to the presence in the lithium ion batteries of tiny metal fragments which in certain circumstances, not already determined, can cause a short circuit, leading to overheating.

To get to the bottom of a problem and deal with it, it is essential to have traceability. In this case, that means knowing exactly which
kinds and which batches of batteries are affected, and when and where they were made. As well as this backward traceability, it is important also to have forward traceability, so as to know which users are likely to be affected. For example, of the 1,500 laptops my company has issued to employees, which have potentially dangerous batteries and who has them? To make things easier, Dell, Apple and Panasonic have published lists of the suspect laptop and battery models on the Internet, along with the terms of their recall programs. For its part, Toshiba offers a software utility that will check whether a laptop is affected by the charging and discharging problems detected recently in 340,000 of its batteries.

Nevertheless, the same thing could happen again tomorrow for a variety of reasons. Besides contamination of the electrolyte leading to short circuits, there may turn out to be a design fault in the batteries or the laptop itself. Errors may be caused by an architecture that has no proper heat dissipation system for the actual load put on the battery; assembly faults such as a loose cover that allows the battery to slip out of position; or even a combination of several factors.

What seems undeniable is that this battery problem gets worse as time goes by, given that the recent incidents have come a year or more after the equipment was sold. To that extent, it is similar in some ways to the problems experienced in the pharmaceutical industry when a medicine that has been in use for several years without any complaints is suddenly found to be lethal for certain patients. In the case of medicines, solid regulatory and supervisory mechanisms are in place, but a 100% reliable system has yet to be found.

Having component manufacture concentrated in countries in Asia may be an added difficulty, and possibly a liability in the future. Before, when battery factories were widely dispersed around the world, the sources of supply were diverse and manufacturers often bought from various suppliers. Now, efforts to optimize the supply chain by outsourcing and offshoring to lower-cost countries have led to a concentration of manufacturing in one region. This increases profitability, but also risk. And the risk is intensified by efforts to maintain profit margins by cutting costs and shortening the time to market of new designs.

So long as this risk remains potential, it is less obvious than the costs. Managers are able to turn a deaf ear to the concerns expressed by their engineers. But when the alarm goes off, the risk turns into a crisis. And the crisis is as glaringly obvious as the blazing laptops. By then, of course, it is too late to stop it.