

The ABC's of SCM Fundamentals of Supply Chain Management – *Resilience*

The Wake-Up Call(s)

There are signs and portents everywhere – and seemingly all the time. Terrorist attacks, natural disasters, armed conflict, ethnic violence. Floods, famines, hurricanes, tsunamis, typhoons. Have we reached the prophesied End Times? Probably not. But, like everything else in the 21st century, the pace, scale, and intensity of supply chain interruptions are on the rise.

And, we can no longer afford the luxury of 19th - even 20th – century responses. Supply chains, for all classes of commodity, material, and product, are too competitive, too global, and too necessary for social and business survival. Food must get to hungry people, and clothing to those without. Goods must be produced, and must reach their markets, and the myriad of business enterprises involved must keep operating. And paying their employees, so that they, in turn, can continue to buy what supply chains are bringing to them.



These parlous conditions have drawn the spotlight of attention to how enterprises – and their supply chains – can be resilient in overcoming catastrophic situations. Truth to tell, and as we will presently discover, there's principally a difference in degree between an organization being flexible (see Supply Chain Flexibility) and being resilient. But 9/11, Katrina, and other events are forcing us to focus on resilience – the capability of bouncing back from major events.

Dr. Yossi Sheffi of MIT has led the most comprehensive research on this topic. In a miracle of timing, his book, *The Resilient Enterprise*, the product of a three-year research project at MIT's Center for Transportation and Logistics, was published in the wake of the US's most horrific hurricane season in memory. Yossi has rightfully captured the attention of business leaders, who have quickly come to grasp how critical supply chain operations are to business resilience.

We Know How To Plan For Hurricanes, Don't We?

One would think so. But, this isn't really about hurricanes; they merely served as the latest – and highly powerful – reminders of the importance of resilience. "Plan" – one of the widely unpopular "P" words - is the operative word here. Resilience isn't simply about working hard and getting things back in order after an event. It is about planning. And relationships. And attitude. And selectivity. (See Supply Chain Relationships and Supply Chain Planning.) Let's explore some new views of vulnerability and how to prepare for an unknown – but surely challenging – set of calamities.

Scope and Range

First, it's important to know that the situations and events that can cripple vulnerable organizations aren't limited to natural disasters and terrorism. And, they certainly aren't confined to the internal workings of a company. Some examples might include: the failure – operational or financial – of a supplier, new competition, quality failures, product tampering (internal or external), theft, unintended

consequences (such as chemical or drug interactions), financial irregularities, technology change, and/or the loss of a dominant customer or channel.

Further, disruptions aren't confined to supply chain operations, although supply chain execution can be a part of the mitigation or solution. The PR disaster, and loss of customer confidence, that relate to product tampering may have nothing to do with supply chain failure or collapse, for example, but rely on reverse logistics as an immediate step in minimizing the prospects of further occurrence.

Facing the Future Before It Has Been Defined

A key – maybe *the* key – to being positioned for organizational resiliency is to take an organized – and rigorous – approach to enumerating enterprise vulnerabilities and the related possibilities for disruption. These may be categorized in vulnerability realms of hazard, operations, strategic, and financial.

For those inclined to think in terms of how to react to bad news, wake up! Another dreaded “P” word, *proaction* is a large part of what resilience is all about.

The resulting vulnerability mapping needs to consider, as well, whether the potentials are internally or externally generated. Disruptions may originate in a number of organizational geographies:

- In supply, where all the disasters one might imagine can occur, or where something as mundane as a lack of capacity for either growth or response can bring down a supply chain;
- In demand, where such things as fuel prices can collapse consumer interest in SUV's, where Wal-Mart can decide to not renew a decade-long product relationship, or where an airline's bankruptcy results in canceling an order for dozens of multi, multi-million dollar planes; or
- In internal operations, in which the entire range of calamities, including the effects of hacking into information and communications systems, can cripple immediate operations, and generate stress, panic, or both throughout supply chain relationships.

Getting A Grip On The Possibilities

In any case, the prospects and potentials are overwhelming. Scores – even hundreds - of show-stoppers can appear on the resilience/vulnerability radar screen. How to grapple with them?

The venerable Johari window comes in to play at this point, as vulnerabilities may be placed in one of four boxes aligned along axes of probability, from low to high, and impacts, from light to severe. For global enterprises, this exercise can become incredibly complex, as process and flow relationships are built into the evaluation.

What this all comes down to is a set of simple, but profound, issues of: what can go wrong, what are the chances of it/them happening, and how much devastation they can wreak.

What To Do About Them

From a managerial perspective, these translate into actionable efforts to identify focus areas or events, and then to plan – here's that “P” word, again – both how to prevent identifiable disruptions and how to reduce their impacts and recover from them.

Both elements are vital to resilience. Some events, such as monsoons, are not preventable, but the workarounds and alternative sources are necessary ingredients in mitigation. The likelihood of a calamitous fire may be reduced through a number of actions, but the bypass/recovery paths still need to be defined.

Interestingly, the MIT research has shown that, while the likelihood of a specific event in a specific location may be rare, the chances for that event to occur *somewhere* in the supply chain is relatively high. Extending that notion, the probability of some major event, somewhere in the chain, is extremely high, and warrants – even demands – the prudent exercise of resilience planning throughout the company.



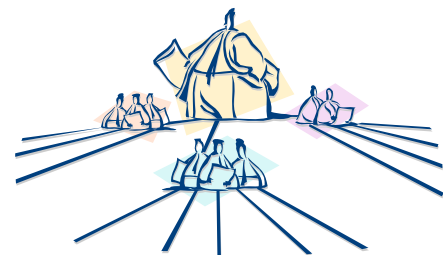
Not so amazingly, failure to prepare for even low-probability events, failing to address conditions that might mitigate possibilities and/or consequences, actually raises the probability of calamitous outcomes.

Some Tactics and Techniques

Here's where the intense application of otherwise general flexibility and resilience solutions comes into play. The categories of flexibility are simple enough to state, but can be complex and fragile in their execution, particularly when one is contemplating life and death, and corporate survival and failure, issues.

A key action, beyond knowing how to identify, evaluate, and plan for threats, involves building processes and triggers to help in identifying incipient disruptive events. Programmatic initiatives to assist in prevention and recovery include:

- Interchangeability – of plants, of people, of parts, and of processes. This allows seamless re-routing to operations unaffected by a disruptive event, without the need to redesign, or otherwise overcome, non-standard parts and/or operations.
- Redundancy – in capacity, in power backup, in information processing, in employee skills, in inventory stocks. This allows re-routing orders, processes, materials, and people to points of either need or of available capacity, in the maintenance of supply chain execution
- Postponement – the deferral of final manufacturing/shipping steps for mass customization solutions. This permits shifts of production, for example, to an unaffected facility, needing only the parts/labels that are customer/market/country-specific to be moved to the “new” producing location.
- Strategic supply management – finding the right (resilience) balance among tactics of multiple sourcing, single-sourcing, and intimate supplier relationships to provide options in overcoming disruption. The key to making this work lies in the quality of communications and working relationships among the supply chain partners involved. Some of the related solutions are programmatic (e.g., supplier-level contingency and business continuity planning); others are motivational (e.g., rallying ‘round the flag in times of turmoil and distress).
- Customer relations management – the ability to protect key customers from the worst effects of the event, the quality of public and private communications regarding consequences and next steps, and demonstrated commitment to helping customers recover when they have been



affected. This relies on the pre-existence (yet another alarming “P” word) of strong, organization-wide, relationships. After the catastrophe is not the time to start on building them.

- Collaborating for security, through links with supply chain partners, within industry groups, with government agencies (notably in C-TPAT) – all of these offering both domestic and international opportunities.

All of these require the foundation of a culture of flexibility to be believable at the outset, not to mention effective in their execution. So, all of the rah-rah talk about doing the right things for the right reasons turns out to have business relevance and bottom-line payoff. Who’d have thunk it?

Organizational Implications

Does all, this mean that a company needs to have a CRO, a Chief Resilience Officer? Dr. Sheffi contends that resilient enterprises seem to have resilient qualities built into their DNA – that the culture breeds and promotes resilience. We lean in that direction, and certainly think that adding another position to the executive infrastructure is likely a poor way to attack the resilience issue. However, it does seem that whomever leads supply chain management is in a logical position to lead conscious efforts in the realm of planning for resilience.

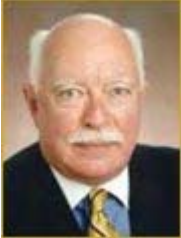
In Summary

In just a few short years, resilience, once the burden of an unlucky few, has become a fundamental requirement for business survival in a complicated, interdependent, and dangerous world. On the bright side: getting good at the components of resilience also means being good at the things that can make a positive competitive difference. Catastrophic events, managed well, can give an enterprise a very public chance to shine in front of its very best customers. And, how many opportunities does one get to advance the cause of “customers for life?”



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This article is summarized in DC Velocity's Monthly Basic Training Series.



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