A 'ready-to-run' scenario testing capability is needed for tactical supply chain decisions during disruption

Supply chain and procurement teams are under intense pressure for fast decisions

Across industries the current Covid-19 crisis has placed supply chain teams under intense pressure, with critical decisions needed on both the demand and supply sides of the business.

On the supply side the issues faced include:
- raw material shortages because of supplier shutdowns or as a result of spikes in demand
- logistics constraints, initially container shortages and blank sailings
- now extended to widespread lack of airfreight capacity, and the associated skyrocketing rates
- finding and setting up new suppliers as businesses pivot to high demand/high need items such as ventilators and PPE.

On the demand side, two extreme scenarios are playing out:
- For some product ranges, massive lifts in demand either due to surges on basic items, e.g. toilet paper, pasta; or to newly acknowledged essentials such as hand sanitiser.
- For others, a dramatic drop in demand as stay-at-home instructions and economic uncertainty reduce the appetite and ability to spend across many categories.

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Decision making with 'known-unknowns'

Responding to these shifts, many of which are happening simultaneously within a business, requires fast, decisive action. This is not the world of consensus and process, but of strong and confident leadership and decision-making. In the very initial stages (the 'unknown-unknowns' stage) this leadership must rely solely on experience and the facts at hand at that time. But in the next phase, which many of us are in now (where there are more 'known-unknowns'[1]), there is a short period – **days not months** – in which each new situation can be evaluated.

The difficulty in making these evaluations, in an unstable operating environment, is the number of variables that are tough if not impossible to predict. Will the demand surge last two months or six months; will the China supplier be able to return to full production next month or in two months; is a realistic airfreight lead-time 5,10 or 15 days?

Covid-19 is an extreme situation – and most of us, we hope, will never face such a widespread crisis again in our career. But we will almost certainly face aspects of it in the long period of recovery, and later we will typically encounter several more specific and localised events that dramatically impact the supply or demand sides of our business ,e.g., floods, fires, supplier failure, and product recalls to name a few. In all these cases quick decisions will also be needed, and our usual assumptions will not hold.

Scenario planning needed to support tactical decisions during disruption

What this extreme case of disruption has made very clear is that we need tools to help us make fast, sound tactical decisions when it really matters. Although experience and judgement must be used alone when there is no other option, most supply chains are just too complex for this to be enough. The ripple effects, and unintended consequences that lurk below the surface can unravel a best-intentioned response very quickly.

Just as the medical and political response to Covid-19 has been informed by modelling alternative scenarios; any reasonably complex supply chain needs the ability to test options and explore a range of 'best to worst case' assumptions.

In many multi-nationals this capability exists but, in the past, has primarily been used to test strategic scenarios such as how many distribution centres are needed, and where to locate them. These network optimisation models, however, are also the ideal vehicle to test scenarios around how to respond in the short to medium term to supply and logistics constraints, demand shifts, and stock positioning decisions – as well as future-facing scenarios around risk management.

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[1] See the discussion of 'unknown/unknowns' and 'known/unknowns' in: David J. Snowden and Mary E. Boone (2007). *A Leader's Framework for Decision Making*. Harvard Business Review, Vol. 85, No. 11, pp. 69-76

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The problem is that these models are usually updated only semi-regularly, when there is a strategic question to be answered, or for capital planning or budget development.

To have them available for tactical planning when required requires the model(s) that represent the business to be kept updated, and thus in a 'ready-to-run' state. It also means that they need to fully depict the critical parts of the business either in a series of models, or where possible in a single comprehensive model. A large multi-national may require a sourcing and manufacturing model to represent upstream, for example, but several regional or even country-level models to represent downstream from manufacturing to customers. A simpler, national business or predominantly export business may be able to use a comprehensive end-to-end model – which brings the great advantage of being able to capture trade-offs across the full scope of the business.

For those businesses that do not currently use modelling in their strategic (or tactical) decision- making we would say – start thinking about it! If you are struggling to assess the options, or to see the wider impacts of the tactical supply chain decisions you are making, then there is a case for modelling tools and an in-house or easily accessible capability to support them.

Beyond this tactical role, as we move into the recovery stage and need to consider how we should redesign our supply chains to be more resilient, a model can be used to test scenarios and sensitivities around the failure points we have identified, e.g., alternatives to single sourcing; and alternative inventory policies. It is also there to continue to address the classic questions around facilities and investment; as well as the key issue that we must return to, post-disruption: reducing carbon emissions.

In conclusion - we contend that both in peacetime and in war (as we have learnt to think of this current crisis) the ability to test scenarios is a key capability that any reasonably complex supply chain needs to maintain and deploy.

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