**From panic to dispassionate rationality - Organizational responses in procurement after the initial COVID-19 pandemic peak**

**Abstract**

Lockdowns and social distancing from the COVID19 crisis took many by surprise. Panic grew about the implications. Supply chains became center stage. We consider decision making in large multinational companies and whether COVID19 responses focused on crisis management or a strategic, rational decision-making approach. Chief procurement officers from 22 multinational companies responsible for supply, production or distribution in front-line industrial sectors effected by COVID19 informed this study. We propose a reconceptualization of supply chain management with a framework of crisis severity and progression. The framework helps decision makers balance conservative status quo responses with innovative responses that may be gamechangers.

Keywords: Crisis management, supply chain management, globalization, COVID-19, procurement, decision making

**Introduction**

For most people outside China, the early days of the Covid19 crisis in 2020 seemed far away. Even when the first cases were confirmed in Thailand, Japan, and Singapore, it remained a distant problem for the rest of the world. Shortly thereafter, the contagion skyrocketed in Italy, Switzerland, and France, urging governments to impose lockdowns. The evidence began to accumulate that this crisis would span the globe. The official designation as a pandemic was inevitable and panic grew about the immediate and long-term implications. Dependencies on specific materials and their focused producers became apparent. The political and societal debates raised concerns about the inability of nations to deal with such crises. The spotlight fell on state-of-the-art supply chains, once seen as smoothly efficient and effective, now seen as undermining sovereignty (Gereffi, 2020).

Several months later, with infection numbers sufficiently down to allow an easing of lockdown measures but with the threat of a new strong increase in cases, the question about the consequences appeared in a ‘new’ light. During the lockdown crisis peak, the broad consensus was that nothing will be as before. As lockdown measures eased, many constituencies pressed for a return back to the old, familiar normal. Many executives and analysts seem to have returned to a dispassionate rationality of normalcy—a more ‘cool head’—shying away from the revolutionary ideas and recommendations developed during the pandemic’s first peak.

In this paper we join the conversations (Gurbuz and Ozkan, 2020; Ishida, 2020; Xu *et al.*, 2020) considering whether the COVID19 pandemic crisis will result in limited economic and management changes, as has happened in previous crises such as the Fukushima disaster or the global financial crisis, or whether we will see an evolution—or revolution—in the behavior of focal companies and the operation of supply chains.

We are especially interested in decision making. At the end of the 1970s, when concern was rising about the consequences of increasing carbon dioxide emissions on the environment and society, Michael Glantz, a political scientist at Boulder, Colorado, reflected on the decision making process of politicians (Glantz, 1979). He argued that in general, decision making swung between ‘crisis management’ and ‘muddling through’. In ‘crisis management’, the time to act is short, the stakes high, the impacts severe; for ‘muddling through’, the opposite is true. Glantz called for a special type of decision making that combined the positive aspects of ‘crisis management’ with more ‘cautious decision making’.

Companies are not governments, chief procurement officers (CPOs) are not politicians. But companies and CPOs share some of the pressures felt by governments and politicians. CPOs may not be hostage to the electoral cycle, but to shareholders, board rooms, and other executive officers; or simply to their traditional aspirations and mandates. The crisis has made them increasingly accountable for the impact of their actions—and the actions of their suppliers—on society and the corporation. The threat of pandemic-induced systemic shocks compete for attention in a time and resource constrained operating environment.

Based on interviews with senior executives in the procurement functions of multinational corporations, we introduce **a framework of perceived severity and expected progression of crises** that organizations can apply to better inform their decision making when assessing the possibility of returning to a pre-crisis normal against the need to temporarily, incrementally, or disruptively innovate their supply chain strategy, practices, or behavior. Our framework can guide companies to develop strategies to ‘effectively manage’ as opposed to ‘muddling through’ and ‘crisis manage’.

**Context**

During the first peak of the pandemic, academics and industry analysts based proposals for change on the short-comings of supply chains. Notions of lean, resiliency and localisation were spotlighted. Some of the proposals would disrupt business as usual; others were incremental, more closely resembling extended or elaborated strategies (Suresh *et al.*, 2020.

For many businesses, the strategies of zero inventory and lean operations were par-for-the-course. In the past, high competition leading to an overzealous pursuit of efficiency in the supply chain helped to reduce costs, especially purchasing costs, but eliminated slack in the system. The way organizations applied this operational strategy was to reduce working capital, all too often without the requisite improvement in operations. Agility and flexibility lost out as philosophies of serving customers the best way (Stölzle *et al.*, 2014). This led to both global and local supply chains becoming more fragile and brittle, which became exposed with COVID19 (Kobrin, 2020).

Concerns over the resiliency of international supply chains have long been recognised, especially in the context of disruptive global events (Jüttner and Maklan, 2011). Global supply chains have to navigate a variety of bureaucratic regulatory obstacles. Relying on a single country or location is risky, especially in the short term. Yet, the pandemic showed that when multiple locations in the world shut down, it is even more difficult to maintain global sourcing (Pettit *et al.*, 2019).

Strategies of greater localization, insourcing and reshoring were raised as a response to COVID (Frikkee, 2020; Lin and Lanng, 2020). Yet, shifting to localization is not always the best solution (Bamber *et al.*, 2020). Not all materials and products are or can be made available locally. Localization can be supported by disruptive (and potentially more sustainable) technological solutions; particularly additive manufacturing (Yueh, 2020; Choong et al., 2020). 3D printing received significant attention during the initial spike of the pandemic for printing protective and medical equipment and components, for offering closer proximity to markets and consumers, and for companies’ in-house assembly and production facilities.

Not all proposed remedies were disruptive. Some resembled the amplification of long-term strategies. Sarkis *et al.* (2020a, b) point to the potential benefits of sustainable supply chain management for mitigating pandemic impacts. Contemporary industry analyses pointed to how ‘sustainable’ organizations—especially those organisations with good stakeholder relations—had performed better in the early months of the crisis (MacDonald and MacLennan, 2020; Hildebrand et al, 2020). Nonetheless, some sustainability and supply chain practices were compromised by COVID19. Reuse and recycling practices were affected, for example, by disruption of municipal collection and recycling services (Sharma et al., 2020) and limited access to secondary resources such as scrap metals, aluminum, or cardboard (Harper and Smale, 2020).

These early insights suggested that a combination of new and existing (but extended) strategies could be used by companies considering not going back to business as usual. These strategies represented opportunities for companies to build competitiveness in normal times, to engage in activities that will be valuable during times of future crises, and to shift toward more sustainable systems of consumption and production. After the flurry of prescriptions and pronouncements that followed the emergence of the pandemic, it is timely to assess the extent to which COVID19 affected decision making and organizational supply chain strategy, companies’ definitions and alignment of objectives (Siebert, Brandenburg and Siebert, 2020), practices, and behavior and, crucially, whether these changes are viewed as temporary or permanent.

**Research method**

To explore the practitioner perceptions of these challenges and their actual or intended organizational responses, in August and September 2020 we conducted 24 interviews (from 22 companies) with senior executives (typically the CPO) of multinational companies responsible for supply, production or distribution in the food, consumer goods and health care sectors—all sectors that were in the frontline of COVID19 impacts. Companies interviewed operate in several parts of the world; most being headquartered in Europe, with a few in North America. All interviewees were located in Europe, and almost all of them worked from home at the time of the interview.

Fifteen interviews were conducted through Zoom and lasted between 30 minutes and one hour. Nine interviewees responded in writing and answered follow-up questions. To control for social desirability bias, our questions avoided mention of the strategies and behaviors described above. Instead, we used open questions about their actions and decision-making processes following the emergence of COVID19. The interview questions appear in Appendix 1.

The authors either took part in or watched or listened to all videos and recordings of the interviews. Each author made separate notes on the key themes that emerged from the interviews before coming together to agree on dominant themes. The dominant themes and subsequent analysis were fed back to the interviewees for comment. For example, at a virtual meeting of the International Forum on Sustainable Value Chains Conference Board’s Procurement Leadership Council, organizations who participated in the study were present to offer reflections on initial insights from the findings.

**Findings**

The CPOs we spoke with had relatively recent experience of significant crisis shocks—the 2008 financial crisis and the 2011 Fukushima nuclear disaster, to name but two. The threat of a pandemic had been recognized—it was on the radar—but it was considered one of those high-impact-low-probability events that were “too big to prepare for”, and which it was thought would equally impact everyone. COVID19 was exceptional not only in terms of its breadth and depth of impact—it delivered “a punch in the face” as one interviewee stated—but it brought to bear non-uniform challenges for companies and their supply chains, especially in terms of its nature and timing. Some companies had to deal with the consequences of significantly reduced demand (including sectors for automotive parts, sporting goods, hospitality, and hair care services); others had to cope with meeting increased demand (including sectors for cleaning products, food products, and adhesive for packaging).

These demand fluctuations exerted pressure on contracts and inventories. The timing of disruption followed the contagion as it spread from East to West, and Global North to Global South, with additional sporadic impacts at the local level. Weaknesses experienced early on by some companies with suppliers in China became strengths as China stabilized and other parts of the world suffered. These early disruptions afforded some companies a learning opportunity.

The biggest difference between COVID19 and other crises was a broad-based workforce lockdown and social distancing. Protecting employees became the top priority. Those who could, were instructed to work at home; which was especially true for many procurement officers and their reports. Travel bans ensued. Office meetings were drastically reduced and, in some cases, stopped. Instead, new communication technologies were quickly ramped up or commissioned.

For CPOs, the consequences were both internal, within their own company, and at farms, factories and distributors across the supply chain. The impact was felt at different times in diverse regions of the world. The ability to support suppliers and sub-suppliers in conveying the relevance of their activities for the wider production and consumption system, and arguing for exemptions from the government lockdown order, became an important organizational offering for our interviewed companies.

As executives reflected on their experience of dealing with these challenges, a number of common issues and concerns were repeatedly raised. Next, we recount these issues, with examples and observations from executives. The findings we present below are not meant to be exhaustive, but to represent dominant themes emerging from our discussions with the CPOs.

***Sustainability remained core****:*

Whilst COVID19 captured the attention of executives, and dominated crisis management activities in the short-term, it did not derail long-term sustainability strategies. For one company, for example, sustainability offers opportunities to reduce waste, doing things differently, re-inventing products, services and the value proposition; and importantly offers a long-term visionary perspective. Their perspective was clear—decisions should not be made in the short-term with respect to a financial calendar; senior executives have a responsibility for a broad and strategic long-term view. This CPO stipulated that the company has for over a decade invested in a sustainable supply chain; because of an extended “*spring clean*” over this period, the company had been left with key partners with whom trust and good relations prevailed. He summed up how this strategy had paid off in the COVID crisis: “*when we have really been tested—left, right and center—everything works*”.

For some companies, COVID did present a short-term conflict with their sustainability policies. Interviewees from companies involved in circular practices—such as reprocessing, remanufacturing, reclamation—relayed anecdotes about short-term compromises. For example, the CPO from a leading metals recycling company mentioned their concerns with recycling and collection. Smelters—whose processes are distanced by the nature of their processes—continued primary production, which, combined with lower demand from the automotive and aerospace industry, meant that primary material was more widely available and less expensive, compromising circular and sustainability practices.

Some of the changes stimulated by the COVID shock affected indirect procurement and sustainability performance. For many companies, air travel constitutes a significant portion of total organizational greenhouse gas emissions. Many CPOs and staff in procurement and other departments who customarily fly internationally had to adjust quickly to the new normal of conducting their business from home or the office (if it remained open). Few lamented the change and, interestingly, no-one advocated a shift back.

In response, changed work practices included virtual supplier visits and the use of 3D cameras. New hybrid procurement practices included “*central remotely working buyers for negotiations*” and “*local supplier relationship managers*”. These practices decentralized procurement control to regional offices. Executives believed some of these new practices will remain part of standard operating procedures. Some also believed there will be new processes to schedule supplier visits, such as visits prioritized for relationship building rather than auditing and compliance evaluation. “*Now that we know it works, why would senior management let go of the realized savings from low travel?*”, expressed one CPO. This same CPO stipulated that if physical travel to suppliers was to occur it would be to those companies that they have had little contact with previously—potentially strengthening their supply-base further.

Executives were cognizant and stalwart in not deviating from long-term sustainability strategies. In their view, this approach fits the institutional narrative from their own companies, industry trade association policies, and political interventions of ‘building back better’ after COVID. They made reference to government bailouts linked to environmental conditions, and new initiatives such as the European Commission’s European Green Deal, and industry’s role therein.

***Long standing routines were overturned...some changes will stick***

Interviewees were in no doubt that COVID19 exerted a jolt that centered on the procurement functions of companies. New ways of working—under the umbrella of ‘crisis management’—were introduced.

CPOs referred to the introduction of new, faster decision-making processes. More intra- and inter-organizational collaboration. Unable to “*trust the numbers*”—for example, the output of internal systems to forecast demand and designed to operate in a regular working environment—a number of CPOs and their teams became less conservative and risk-averse when addressing uncertainties.

One CPO recalled how—amongst other changes introduced to guarantee supply and meet significantly increased demand—two-year product tests were replaced by tests providing results in days. These efforts enhanced agility of their operations and decisions.

Although analysts and scholars castigated lean practices for causing supply chain fragility, CPOs identified a number of lean practices that actually helped increase capacity and agility. Examples included simplified packaging, a smaller product portfolio and offerings, and reduced complexity of ingredients with a focus on fewer inputs.

Another CPO pointed to innovations such as digital technology, 3D cameras, and acceptance tests, introduced with the intention of avoiding physical meetings.

These changes in practices —re-evaluation of product portfolios; reduction of complexity and some product deletion; faster decision making; more acceptance of risk; embracing digital technology—were considered not only for the short run, but as potential long-term routines. In this regard, the COVID crisis amplified and accelerated change, especially with respect to tools and techniques that improve reliable and relevant data exchange across the supply chain.

CPOs were not blind to the future risks these changes may bring. The now dominant use of home office has changed working patterns and use of office spaces (Read, 2021). Virtual meetings have changed the nature of human interaction in the workplace. The inability to learn by seeing—looking over each other shoulders to learn or practice by imitation—may lead to more formal and centralized structures and routines. Many CPOs lamented the potential loss of a close corporate culture caused by remote forms of organization, though some appreciated that this shift allows the organization to better adapt to today’s reality.

Other changes were thought likely to be more transient. Collaboration between companies with similar supply needs — a coopetition and horizontally collaborative effort — may in hindsight be seen as an “*emergency”* measure. CPOs expressed the view that in times of crisis, society becomes more important with companies coming to each others’ aid. Examples include sharing material stock, expertise, or forming trouble-shooting inter-organizational task forces—such as jointly screening the global market for alternative sources and establishing joint logistics solutions.

Some contradictory beliefs arose related to the benefits of greater inventories. For some CPOs, COVID made more prominent the weaknesses of ‘lean’ stock levels. There was a need to “*pivot back: [some] stock is healthy, play more safe*”. Other CPOs acknowledged that inventories had been built up during the crisis, for example buying warehouse capacity for storing their own products or ingredients, and financially supporting suppliers to increase their stock levels (“*invest to guarantee supply*”), though, again, this was thought to be temporary.

For organizations facing significant demand decreases, the question was how to deter the inflow of goods, reduce inventory, and master cash flow—all the while contemplating how to ramp up to pre-COVID levels once demand bounces back. For these companies, the idea of replacing stock with real-time data became core. Their concerns about the supply chain focused on ensuring supplier survival while the crisis persists, maintaining the required capacities, and keeping sourcing quantities allocated to them.

***The importance of procurement and supplier relationships was accentuated:***

Central to all long-term organizational strategies is the importance of good supplier relations. The crisis, according to one CPO, put the spotlight on the procurement function, offering an “*opportunity to shine*”: supply chain management recast as a value contributor rather than a cost center, with cost reduction as the sole goal. For some organizations it reinforced procurement as a strategic player; although cost savings as a goal was not abrogated.

COVID served as a reminder of the benefits of greater “*intimacy*” with suppliers. Many CPOs felt that their close procurement relationships, based on shared values and nurtured over many years—sometimes with long-standing procurement teams—provided supply availability and security during the crisis. Some CPOs also attributed this strength to the relational aspects of their supplier engagement towards mutual commitment; meanwhile others focused on remaining a highly trustworthy partner to suppliers by reliably complying with contracts.

We observed variations in organizational responses. Some companies facing sharp reductions in demand reported fewer supplier concerns. They reduced, stopped, or delayed orders and stopped payments, putting suppliers into existential distress. Other companies, as mentioned, responded to the contrary; some CPOs felt they would emerge stronger from the crisis because of the exceptional support shown to suppliers. This supplier support included financial assistance—with loans, quick payment of invoices or future orders, frequent communication to address immediate challenges, and lobbying national governments to keep suppliers open.

Transparency within the supply chain was mentioned as highly important for early identification of problems and quick remedy, but also from the perspective of risk management. For one CPO, transparency was key as “*continuous, intensive communication with customers and suppliers helped the company cope with fluctuating demand*”.

Similar to previous crises, the pandemic showed a need to understand and see supply chain relationships beyond first-tier suppliers. One important reason for this visibility deeper into the supply chain was to identify, anticipate and solve supply shortages as early as possible. Especially for the supply chains of more essential products. Not only was it important to understand locations and relationships, but also dependence and risk, deeper into their supply chains. Many CPOs traditionally fear the complexity of upstream supply chains and prefer to leave the responsibility for managing sub-suppliers to their direct suppliers. Among those companies engaging the deeper upstream in their supply chains, the use of new tools and technologies, for example artificial intelligence (AI)-enabled information systems and blockchain technologies, that offer close to real-time data and information about suppliers is becoming critical.

***Localization of supply was spotlighted, but dependence remains key****:*

As previously noted, calls were made early in the COVID pandemic for supply chains and sources to be closer to key customers; greater localization, insourcing and reshoring were all emphasized. During the COVID-19 lockdowns, localization was a temporary solution to restrictions on cross-border transport of products by customs and border protection agencies and transportation capacity bottlenecks.

By September 2020, the spotlight had moved away from localization. COVID had revealed weaknesses in supply chains, but not about localization per se, but rather the need for agility in supply chains. Sourcing challenges were overwhelmingly considered in terms of reducing “*over-dependence*”. Multiple sourcing had been a long-term strategy for many of our respondents and the benefits of this policy became conspicuous after the crisis hit. For example, one CPO used the strategy of having at least three suppliers for key products to ensure availability and security of supply during the crisis. For others, the event served as a sharp reminder of the risk associated with over-reliance on single-source supply. Where possible a switch to multiple sourcing from geographically dispersed locations became a strategic priority.

This multi-sourcing objective became possible only for a segment of the procurement portfolio. In some cases, companies face technological challenges that make the operation of two or more geographically distant production facilities financially unattractive. Other limitations to multi-sourcing include reliance on supplier innovations or intellectual property rights, with many sourcing engineered-to-order goods that have gone through cumbersome approval processes or even government approval processes. Some CPOs indicated that the production of some material is highly concentrated with few remaining alternatives—making multi-sourcing infeasible, if not impossible.

It was recognized that localization can support reduction in critical dependencies. For a couple CPOs from different industries, the benefits of combining a local-for-local principle (i.e. manufacturing close to customers, keeping supply chains short and less susceptible to risk) with an international production network (e.g. one lead plant and several production plants) and standardized products, were reinforced during the pandemic. This dual network design—a *glocalization*—for a product supply chain helped them to build supply chain resilience as the COVID contagion spread.

For another CPO, ongoing efforts to procure from closer proximity suppliers were not about price or nationalism, but more about something practical: “*it is about distance and speed of delivery and responsiveness*”.

**Analysis**

We now return to the original research question of whether the disruptive prescriptions and pronouncements aired in the immediate peak of the pandemic maintained momentum as the situation evolved. How has decision making in procurement been affected? Do Glantz’s observations of ‘crisis management’ and ‘muddling through’ persist, albeit with a new crisis and different central actor?

The initial expectations in this study were to observe crisis management dominating organizational decision making in response to COVID19. In fact, what we observe is more nuanced. Examples of crisis management did exist: a number of CPOs explained how their company had established task forces to make daily adjustments, often superseding entrenched organizational practices.

But our findings—contrary to notions of panic at times of crisis and ‘muddling through’ in more normal times—show us:

1. Crisis decision making remained under the umbrella of long-term objectives, such as the use sustainability policy and establishing trusted supply chain relations; and
2. Decision making based on these long-term objectives over the past decade had had a significant effect on how organizations were affected by the crisis.

The central role played by long-term sustainability strategies is not necessarily a surprising finding. As one CPO put it, the long-term, sustainable strategy perspective is a rational one; one likely to be supported by CEOs and CFOs in normal times. What is interesting was that a sustainability strategy was considered to provide a cogent contributor to overall strategic guidance during the COVID crisis. Whether this observation holds for non-European headquartered companies requires a more thorough investigation and evaluation.

CPOs, given their executive level positions, should be able to articulate the benefits of multi-year plans. A number of executives discussed how this perspective was still not universal, with one pointing to a “*CPO toolbox*” that “*does not equip them to make the long-term argument persuasively”*.

We heard appeals for change from among the CPOs to substitute the traditional *procurement optimizers* paradigm (with a focus on short-term or business and financial—procurement price and total cost) improvement with a more thoughtful strategic *value creation* paradigm. They felt the semantic and policy shift should focus on value contribution to the company, and its products or services. They also felt that there was a need for integrating a broader value to and from suppliers, society, the natural environment, and communities.

This philosophical perspective does not imply a reduction in the importance of managing cost. What it does show are the many potential contributions from suppliers and other stakeholders which fall under broader contributions that are unrecognized by most companies today. It points to an urgent need for strategically evaluating the profound potential for transformation in supply chains. For example, technological developments—such as 3D printing and digitalization innovations—have the potential to make the traditional singular cost contribution of suppliers and some with intermediary roles such as warehousing and distribution services relatively obsolete.

Some thought leaders amongst our CPO sample have been leveraging this crisis to further establish future-oriented strategic developments and perspectives for their companies. Specifically, one example was the supply chain-wide alignment of key values and norms; another CPO initiative was the diffusion of socially aspirational circular economy and sustainability perspectives along the supply chain. Innovations to support such initiatives would be undertaken by the suppliers but stimulated by the focal company. This undertaking in part required placing a burden of responsibility for socially beneficial innovation and broader value contribution on suppliers and downstream customers.

The crisis also offered additional learning opportunities. Companies were able to look beyond some outdated practices; not just changes to strategic outlook. Some of these changes are likely to remain. For example, while companies remain committed to source the *best* commercial offer available, what is considered *best* may be indelibly changed. Going forward, a *best* value contribution is likely to pay greater attention to supplier agility, supply or distribution risk, and sustainability performance aspects.

***Conceptualizing effective procurement strategy to better withstand crises and beyond***

A revised—more rigorous—approach to supply chain management that emerged in our interviews has lessons that resonate beyond the current crisis. Just as important as the ability to identify emerging problems in the supply chain, the ability to respond appropriately—ranging from simple fixes to substantial organizational or strategic supply chain designs—is paramount. This response will depend on the perceived severity and expected progression of the external shock.

We conceptualize strategic and operational decision-making underpinning this response within a 2x2 framework—see Figure 1.

We observed two levels of supply disruptions. The predominant view is that the progression is a spike that eventually returns to the pre-crisis norm, with the biggest challenge being a temporary, geo-politically motivated trade restriction. The alternative view is that the crisis is expected to lead to lasting change in decision making and other organizational routines. While some routines and organizational elements may return to the pre-crisis norm, others are expected to diverge further from the pre-crisis status quo. This transformation affects work processes and decision making of focal companies and their supply chain, and other stakeholders such as end consumers and governmental actors.



**Figure 1:** A framework for evaluating response and managing in crisis situations.

We found evidence of this effect among interviewee responses. Many CPOs felt that individuals and consumers would be slow to change beliefs; behaviors were thought to be sticky. The lower row of the framework in Figure 1 reflects their perspective. Other CPOs felt that the crisis will result in lasting outcomes—in particular about the effect of remote work and the rapid adoption of new technologies. The views of this group may be characterized by strategic and operational decision making along the top row of the framework.

Some CPOs strongly believed that their current approaches were sufficient to meet the challenges faced, and that their company’s financial stability could overcome the crisis. This positions them on the left side of the framework, where little impact is perceived to occur. None of the CPOs we spoke with considered the crisis as life threatening for their companies, but many raised profound concerns about the wider economy and, in particular, the financial security of their suppliers. Others expected the changes stimulated by the crisis to persist. While their organizations remained financially and commercially sound at present, this group of CPOs were of the opinion that these changes could threaten the long-term survival of the company. This group of CPOs appear on the right-hand side of the framework.

Initially we viewed the x-axis as representing the perceived severity of the crisis. After reflecting on the findings, some observations reveal nuances that could redefine this axis. Once CPOs realized that both long term and short-term changes are likely to persist at some level, they switched from a ‘problems severity’ perspective to a ‘realizing opportunities offered’ perspective of the crisis. Top management discovered potential new business opportunities from the crisis. This shift in perspective is similar to the aphorism of “*don’t work harder, work smarter*” at the company level. Examples include financial investments in expanding product lines, new efficient routines, and purchasing companies that could expand their future portfolios.

In summary, our framework helps companies effectively manage crises depending on their evaluation of severity (opportunity) and progression. It avoids—or at least lessens the need for—the conventional response of ‘crisis management’ when an external shock hits and avoids ‘muddling through’ when times are normal, offering a tool to support strategy. Companies can use our framework alongside scenario analysis or other foresight tools to plan for uncertain future crises.

For some crises, the response of many companies may be to remain in the top left quadrant, unable or unwilling to take actions and implement step-changes in their operations, or in the bottom right quadrant, making quick temporary changes. These offer learning and market exploitation opportunities. Our analysis suggests that the spoils are likely to go to those companies who are able to consider the more transformative strategies of the top right quadrant. Here, the following strategies for procurement and supply chain management merit consideration:

* fundamental re-evaluation of dependencies in supply chains, and a more nuanced perspective of what determines dependence such as greater *glocalization* efforts;
* mutual care and value creation in business partner relationships, resulting in a larger set of evaluation, selection and decision criteria beyond price comparisons and reductions;
* supporting more dynamic practices in procurement and in the wider company, with a further transition to organizing as an agile company and supply chain;
* fast transformation to digital working environments and industry 4.0, thus adding to new ways of working and greater acceptance to adopting technology for further digitalization; and
* profound revisions of corporate strategy towards sustainability and long-termism, also resulting in a broader strategic set of criteria in decision making.

**Conclusion**

Although not a black swan event per se, the COVID pandemic surprised companies with profound challenges: massive lockdowns and the need for people to distance. This new, largely unknown situation—garnished with fear and political agendas and seasoned with lack of data and fitting models—allowed for more radical, disruptive ideas to be heard in the discourse during the early days of the crisis.

History tells us that crises have often catalyzed change. The central question is: are the changes to society, business or environment caused by the COVID crisis comprehensive enough to clear the way for profound change in supply chains and organizations? The COVID crisis brought with it substantial uncertainties and heightened risk. This volatile environment contributed to a context in which transformative ideas—for a short time at least—became debated in the mainstream. In the months that followed, we seem to have moved from a situation of panic to *dispassionate rationality*.

The question remains, do existing tools and techniques enable executives to effectively manage decision making in times of crisis?

It appears, on the outside and after our evaluation of CPOs, that the panic was larger in society and government than in business. Many globally linked companies had received very early warning signs out of China and took corrective action. The panic during the peak of lockdowns was limited to a few territories. The immediate transformation to virtual communication and remote work went relatively smoothly; with minor hiccups, such as having enough electronic communication equipment for work-from-home offices. For some companies, this situation implies a move ‘back to the old normal’ after a short period of ‘crisis management’. In the absence of a more strategic approach, this threatens to leave companies with no option but to ‘muddle through’ once the crisis is over; until the next crisis arrives.

We found many CPOs from our sample of companies were motivated to leave the COVID crisis with a better company. They challenged their existing core assumptions and practices, deepened status-quo assessments of their supply chains, and looked for alignment and synergy with larger developments in industry sectors, society, and politics—not in a panic mode but with a rational approach, consistent with their long-term objectives and supported by technological developments, and aspiring profound changes.

A few CPOs went further. They switched their perspective from initially reactively dealing with the COVID crisis to identifying and realizing new business opportunities. Again, this was not about panic but rational and strict business logic. They fully appreciated the necessary interaction with multiple and varied stakeholders, including governments proposing economic development or recovery plans. These companies realized value added contributions and innovations from suppliers and sub-suppliers. They understood that for their own benefit they needed greater engagement with their supply chain. As one CPO said, “*You cannot outsource responsibility*”.

It could be that we are about to witness massive strategic action by companies in their upstream supply chains—not because of the COVID pandemic, but substantially boosted by it. If these strategies are replicated across the various sectors we spoke to, future value chain characteristics could look very different.

A ‘cool head’—rather than panic—characterized the responses of these companies. Their seemingly dispassionate rationality built on many years--sometimes over a decade—of decision making couched in long-term strategies. In our case, these long-term strategies foregrounded sustainability and procurement based on trust and shared values. Their approach was also consistent with societal and political pressures. Plans for trillion dollar/Euro stimulus packages mobilized by governments to reignite the economy while directing it to future, more sustainable, economic concepts—such as the circular economy—fueled senior management level discussion in our case. These were powerful antecedents that allowed these companies to more effectively manage supply chains in times of crisis.

Our framework captures the different approaches to COVID19 encountered by chief procurement officers. We highlight key opportunities for procurement and supply chain management. We argue, however, that the framework resonates more widely and has broader, strategic relevance. It is intended to facilitate executive level decision making by offering a tool to consider—in advance—strategies that can help companies more effectively and proactively manage future crises. We expect the framework will help decision makers develop a balance between conservative responses that maintain the status quo with innovative responses that change the rules of the game.

Our framework centers on perceptions of crisis severity and progression. We encourage decision makers to consider the opportunities as well as the threats associated with the severity of the crisis. In this way, our framework can facilitate a move toward the type of ‘cautious decision making’ that Glantz called for more than forty years ago.

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**Appendix 1: Interview questions**

1) What were / are the major impacts of the COVID19 pandemic on your supply chain and production network?

2) Which causes of these impacts do you expect to continue? Which ones will return to pre-pandemic normal? How quickly?

3) What elements of your current supply chain and production network structure turned out to be obstacles to resilience, or quick remedies?

4) What elements of your current management objectives and policies turned out to be major obstacles to resilience, or quick remedies?

5) Which strategies do you currently discuss with the executive management level to update your sourcing, production and distribution strategies?

6) How do you consider governments' economic recovery plans and economic strategies (i.e. European Green Deal) as well as other stakeholder interests in these discussions?

7) Do you prepare to make major changes to the location of your own production and that of suppliers and sub-suppliers?

8) Will your performance objectives change? Which ones are likely to be most central—post-pandemic?

9) What are the major tensions in the decision processes to develop and implement the above changes? (if one is planned)?

10) What's different for COVID19 compared to prior global crises, like Fukushima in 2011 or the the Financial crisis of 2008? And how do you think your organisation’s response to future climate related crises will compare to the COVID19 response?

Note that a Participation Information Sheet and Consent Form was created for the interviewees. These are available on request from the corresponding author.