

Beyond the pandemic: Learn from the survival of the fittest firms

October 15 2020, by Dr. Jag Srai



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Panic buying of toilet roll, pasta, paracetamol and flour. An upturn in sales of household cleaning products, homeware, seeds, even jigsaws.

It's not hard to pinpoint examples of the changes we've seen in retail during the pandemic, or to imagine what this means for the shops, suppliers, distributors and manufacturers involved.

The pandemic has sent a shockwave across all manufacturing sectors,

with [firms](#) thrown into chaos by unstable supply chains, and overwhelmed with demand they cannot meet or products they cannot shift. It's normal to have disruption at times, but the effects of the pandemic have caused fractures at multiple points and it's been very difficult for firms to anticipate where these failures will be.

Perhaps unsurprisingly, the changes forced by the crisis are also liberating some firms to experiment with new ways to keep making products. Transitions in business and operational models that would normally take five to ten years have been happening in just five months. In some respects, we are witnessing an evolutionary shock to manufacturing—an 'Operational Darwinism' – which will see some firms survive better than others.

The question is: do firms return to business as usual when the crisis eases or do they examine what worked (and what didn't) during this period of mass experimentation at scale?

Winning the race for survival in manufacturing

During the pandemic, my team at Cambridge's Institute for Manufacturing has been working with the Advanced Manufacturing and Production community at the World Economic Forum to distill what we can learn from recent months.

We've consulted and collaborated with senior executives from discrete assembly manufacturing companies, process manufacturing industries, financial services and the software sector to hear about their experiences and explore what this means for the future of manufacturing.

Many digital platform businesses, particularly e-retailers like Amazon and Alibaba have done very well as they are able to utilize their operating models to more easily 'flex' supply and demand.

The home-furnishings sector that includes companies like IKEA have also benefitted from an uplift in demand, while others such as Unilever will see some sectors grow rapidly (cleaning products, for example) at the expense of others (food service, due to a slowdown in the hospitality sector). And of course the healthcare sector has witnessed growth across the board but demand surges will have compromised service levels.

Firms that have struggled with the extended disruptions are those that are asset and/or inventory-intensive involving multi-tier supply chains, and particularly those where consumer purchases can be postponed (as in the car industry) or have been impacted by a severe drop in demand (aerospace).

We've asked whether the resilience of some firms has only been achieved through super-human 'crisis' efforts, or whether they have innovated. We've looked at the role of advanced manufacturing (such as 3-D printing and [digital technologies](#)) in shaping new operating and business models. And we've asked: what are the models that will be worth keeping when the crisis is over?

A series of White Papers will come from the work—the first of which looks at the underlying reasons for sinking, swimming or surfing.

We found four main reasons for failure among firms during the crisis:

- having rigid, unreliable information systems that are slow to pick up trends,
- encountering difficulties in dealing with imbalances between demand and supply,
- being unable to flex human resources to deal with widespread infections and furloughs among workers,
- having capital and liquidity constraints.

And several factors that have helped firms thrive:

- using digitalised technology to organize capacity of supply chains,
- using digitalised technology to go from fast prototyping to commercialisation,
- repurposing manufacturing capabilities to respond to shortages—3-D printing of ventilator parts are a good example,
- managing remote team working and infrastructure to reduce the need for personal interaction,
- reassuring suppliers through guarantees of capital.

Where should we go from here?

More recently we've been considering what this all means for how firms might evolve their business and operational models. We've come up with six suggestions based on the evidence we've collected in recent months.

- **Adapt flexibly to meet the requirements of highly volatile markets.** Some firms will have to cope with demand surges, others with a fall in consumer purchasing, and so being able to 'flex' in managing cash flow, repurposing assets and using alternative supply sources will be vital. In particular, a flexible workforce will be crucial to enabling resilience over the next six to twelve months.
- **Be watchful for new opportunities.** Product shortages in unfamiliar markets are opportunities to diversify. New R&D and technology projects will be the foundation of future growth as well as more resilient business models. These will involve investments in digital product design, digital production and digital fulfillment.
- **Innovate business and operating models to make it easier to adapt to rapid change.** Some of the firms that have been most

successful in surviving the pandemic (to date) are those that were quickly able to change supply and demand flows, often by using advanced technologies such as digitalisation of supply chains, digital platforms and reconfigurable manufacturing.

- **Incubate new public–private partnerships.** These will help to inform the next generation of industrial policies to build resilience. For instance, partnerships between government and industry will be essential for sustaining healthcare and food supply. Working together will provide the best solutions for contingency planning, such as strategic stockpiling and protecting supply chains.
- **Collaborate across the global manufacturing community.** Leveraging global know-how and best practice will be important for the adoption of advanced manufacturing and digital technologies. From our [case studies](#) we are seeing the emergence of new operating and business models as firms build partnerships within and across sector supply chains, through pre-competitive collaborations.
- **Think broadly and strategically.** The impact of the pandemic is just one of the challenges the manufacturing industry will face. Others include trade discontinuities, such as those resulting from Brexit, US–China trade tensions, food insecurity and the impact on the planet of unsustainable consumption of natural resources.

What's next?

The future belongs to those who are able to manage uncertainty and innovate rapidly.

Firms best-positioned to adapt quickly to fragmenting supply chains or the expansion/disappearance of product demand are those that can swiftly leverage information.

Digital information is key. Whether firms are using it to connect supply and demand fluidly or to digitally link design and operations all the way to the factory floor, they will be better able to anticipate and deal with uncertainty at short notice.

What comes next will depend on how quickly and how well firms can implement digital technologies across product design, production and fulfillment. Although the benefits might not be felt for some time, what we've learned from the pandemic is that the work towards these forms of advanced manufacturing must start today.

More information: Winning the race for survival: How advanced manufacturing technologies are driving business-model innovation: [www3.weforum.org/docs/WEF Winn ... or Survival 2020.pdf](http://www3.weforum.org/docs/WEF_Winn...or_Survival_2020.pdf)

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