Coronavirus Hits Electronics Manufacturing Hard, Companies Are Scrambling

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The electronics manufacturing community is facing a challenge it has never handled before. The human impact of the coronavirus has been profound, with an unprecedented quarantine of 50 million people and hundreds of deaths – the business impact is coming. The extension of the Lunar New Year shutdown has created a backl...
The situation

As of this writing, 2019n-CoV has nearly 31,500 confirmed infections and caused 638 deaths, mostly in China. China is at the heart of the electronics supply chain. According to Ron Keith, Executive Director and Founder of Supply Chain Resources Group, 54% of electronic products (by value) are produced in 2.8M factories across China.

Factories have been shut down as part of the unprecedented extended Lunar New Year which was supposed to end on January 30, and has now been extended until February at the earliest. Manufacturers are planning to open, but have no idea how many of the workers will return. In a normal year, factories typically expect that only 80-85% of the workforce will return after Lunar New Year, as many workers are actually from distant regions of the country. It’s not yet clear how the extended shutdown and complexities the coronavirus will impact staff returning, but rates are expected to be worse than normal. Electronics manufacturing is primarily a manual process. A smart phone or laptop requires hundreds of pairs of human hands to build – and it would be reasonable for a factory worker to not want to risk exposure to hundreds of hands worth of germs. Even if it’s possible to recruit new assembly line operators, they will need to undergo training to be effective, and could take weeks to ramp up.

Plans are shifting

This is “new product development” season, when electronics companies start working to build products they plan to ship for Christmas later this year. While most factories outside of the Wuhan area are currently reporting that they will open sometime between February 10 and February 19, more delays may be mandated.

Even if factories outside of the Wuhan region open up as planned, the United States is not expected to change their travel recommendation for China, likely keeping the team of development engineers that would typically fly to support development builds grounded. As a former Apple engineer myself, this time in the factory is absolutely priceless for learning at the speed that a product development schedule requires. While there are tools that enable engineers to do some of this learning remotely, not all companies have them. If American engineering teams do not have these tools and
That leaves several unappealing choices:

- Delay the schedule for an unknown number of weeks while supply chain issues and travel restrictions abate – but that delay will mean the product launch may also be delayed, at least day-for-day, maybe longer

- Ask the manufacturers to run the builds by themselves – while factory teams are incredibly capable, the design team will miss out on the visceral learning of seeing an assembly line operator struggle to assemble what you designed or how your parts aren’t actually fitting together as intended

- Find an alternative place to build – the manufacturing partner selection process usually takes months, so this is likely to cause delays too unless companies can figure out how to bring their design build in house

Andre Neuman-Loreck, Managing Partner at On Tap Consulting, says electronics companies who had been planning to do prototype builds immediately after Lunar New Year have had to get creative. He has first-hand knowledge of multiple companies deciding to move forward with their builds by sourcing printed circuit boards locally in the United States and trying to make do with 3D printed parts from local suppliers instead of tooled parts from China. One company is even contemplating tearing down earlier prototype units to harvest parts to do their next prototype build rather than waiting for parts from China.

While the last 18 months of tariffs have provided electronics companies with good reason to find alternatives to China, China is still at the core of many supply chains. Keith, who was at Flex, a top electronics manufacturer, during the SARS epidemic described why this experience is so different, “China owns so much more of the upstream supply chain than they did back in 2003. During SARS, planes still flew, factories still opened, and work still got done.”

**The ripple effects**

* Freight*

When you fly United from Shanghai to San Francisco in the spring months, beneath your feet are unreleased phones, next generation home electronics, and perhaps the ne
significantly cheaper, it can take many weeks. Air freight, and even “hand carry”, has always been a tool in a supply chain manager’s toolbox to close gaps in schedules. Given that many commercial airline carriers have suspended flights to China, Neumann-Loreck points out, “Air freight is very tight and getting tighter. Even if you get products built in the factories; getting them shipped to the United States where engineers are waiting to test and validate them will be a problem.”

Run on Local Manufacturing

Since many electronics companies have design teams in the San Francisco Bay Area, many global manufacturers also have local facilities that can support small prototyping runs. Multiple sources have told me that local manufacturers who do final assembly are now at full capacity, and cannot take on additional prototype builds from displaced customers. The no vacancy signs extend as far as Mexico, Neumann-Loreck shared, “Manufacturers in Mexico have told me their phones are ringing off the hook.” I called couple of Bay Area printed circuit board providers and found that they are seeing an uptick in quick-turn orders, though they assured me they can still turn parts in two to three weeks if needed.

Delays

Supply chains are complex, and after decades of lean manufacturing, it’s no longer common for factories to store weeks of parts inventory to feed their assembly lines. Keith shared, “We are already seeing the ramifications of the delay in factories restarting, as Hyundai recently announced it is idling a production facility in Korea for lack of components from factories in China. This same situation is likely to play out thousands of times in dozens of countries over the next 60 days as existing component inventories are depleted and Chinese factories are delayed in their ability to replenish them.”

Jerry Miller, Head of Supply Chain Operations at Particle who was formerly a Global Supply Manager at Apple explains why build delays will be inevitable. “Unless components for the builds were docked before Lunar New Year, the suppliers won’t have the parts to start building when they open up,” he shared. Given how total the shutdown was during Lunar New Year, it will take factories, logistics, and customs offices (needed for most inter-China shipping) some time to come back online. Based on decades of
New product launches

Keith is predicting that delays for new product launches for the Christmas season may already be in store. When factories come online, they “will be pressing very hard to catch up on their ongoing bread and butter production,” as that’s where they make their money. That means they will be deprioritizing the development builds necessary to get products done in time to be under Christmas trees.

Moving Forward

While the manufacturing community awaits the return of our teammates in China, hopefully as soon as next week, there are many hurdles ahead. First, companies are focused on how to keep people safe and healthy. The Chinese government is reportedly requiring factories to provide anti-infection procedures before being allowed to open on February 10. Keith advises that electronics companies should exercise restraint in their requests for information while factories come online, focusing on the core pieces they need: what parts they have and what parts are impacted. Miller suggests looking for alternative or second sources for parts that are currently sourced in China, and particularly those coming from the Wuhan region. Neumann-Loreck warns that companies won’t really know what problems they will need to solve until they start trying to bring up lines – and the sooner those problems can be identified, the sooner the global team can work to fix them.

Manufacturing is an industry composed of problem solvers – and I have no doubt that the coming weeks global teams will come together to work through these new challenges, often in unsung, heroic ways. We’re also very practical people – so I believe leaders will use this ongoing crisis to justify the continued diversification of their supply chains away from any one country, whether that is China or elsewhere. Distributed supply chains provide more flexibility in the face of unforeseeable geopolitical, medical or natural crises, but create their own challenges in keeping everyone on the same page. I am confident that together as an industry, we can solve these problems, and manufacturing will be better for it.
Managing Partner at On Tap Consulting, and Jerry Miller, Senior Manager, Supply Chain Operations at Particle.

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Anna-Katrina Shedletsky

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