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Nothing left in the tank: The state of the Pentagon's supply chain

By: Andrew Gonzalez and Stephen Rodriguez 📅 17 hours ago

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Since the end of the Cold War, when America faced its last superpower competitor, military leaders had little reason to be seriously worried when a portion of the nation's planes, tanks and ships were unusable. The military's operational missions in Iraq, Afghanistan and elsewhere could largely be executed with materials on hand and the support of contractors. Today, one of the most concerning questions facing the U.S. Department of Defense is a crisis in readiness when measured against the near-term threat of China, which is already on a de facto industrial war footing.

The lack of spare parts, in particular, has created this crisis in readiness. And a key driver for the scarcity of components and parts is that many are sole-sourced.

This is an issue for U.S. combat readiness, surge capacity and the ability to remain in a protracted, high-intensity fight (<https://warontherocks.com/2020/08/strengthening-industrial-base-decision-making-for-precision-guided-munitions/>). Sole-source differs from single-source in that the former has no competition and thus has a de facto monopoly on a single node in the supply chain (<http://blog.libertyelectronics.com/blog/single-source-procurement>). Single-source can involve multiple manufacturers that system integrators select for their products. This provides much-needed redundancy to the system integrator as well as helping them avoid the dreaded "vendor lock." It also offers a better value to the U.S. government customer who realizes savings through the associated supplier competition.

Sole-sourcing has become the standard (<https://www.ncmahq.org/news/magazine-details/alone-again-naturally-how-to-properly-justify-sole-source-awards>), making the DoD vulnerable to global and local supply shortages, which in turn drives down readiness and leaves our military without the ability to quickly replace equipment losses due to enemy activity.

There are understandable reasons for this practice. Major weapons systems such as the Ford-class aircraft carrier, the F-35 Joint Strike Fighter and the M1A3 main battle tank are highly complex (<https://www.pogo.org/investigation/2020/07/spare-us-the-f-35-parts-mismanagement/>). The components sourced from manufacturers that are integrated into these systems must be held to a high standard of quality with little margin of error. The specialized nature of the industry, particularly in the aerospace sector, makes it difficult for new entrants to the market, as the existing dominant vendors can outprice the competition due to their scale.

Another barrier to entry is the limited size of "mil spec" parts. The DoD may not buy enough parts to support more than one firm operating in a niche market.

The 2019 Industrial Capabilities Report (<https://www.businessdefense.gov/Portals/51/Documents/Resources/2018%20AIC%20RTC%2005-23-2019%20-%20Public%20Release.pdf?ver=2019-06-07-111121-457>) is an excellent reference document that lays out many of these critical issues in the DoD supply chain. These include a heavy reliance on foreign suppliers of machine tools with a one- to three-year procurement lag, the lack of large, single-pour aluminum and magnesium sand castings for aircraft, and only two domestic suppliers of solid-rocket motors.

What happens if those tools stop arriving? How is the Air Force supposed to replace aircraft lost in combat quickly? What rockets are supposed to usher new constellations of satellites into low Earth orbit to replace those lost in an anti-satellite attack?



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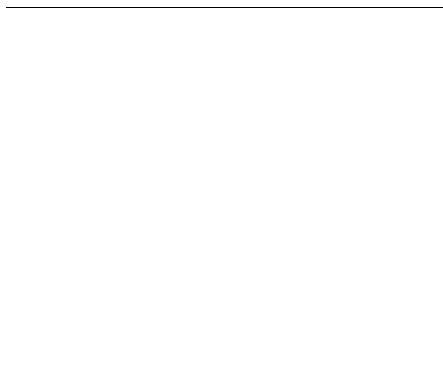
The U.S. has allowed itself to wander into this precarious situation as a result of episodic budget cuts, massive industry consolidation and 20 years of low-intensity conflict in the Middle East. Fortunately, there are solutions the DoD might consider to incentivize industry to provide surge capacity.

Current contracts for system integrators do not have strong enough requirements (<https://warontherocks.com/2017/12/hedging-bets-reviving-defense-industrial-surge-capacity/>) for there to be surge capability in either the contract duration or the product life cycle. These contract options must have greater thresholds for surge capacity if a sole-source supplier is being used. In single-source cases, the supplier network must be diversified and bolstered with government investment. Contracts should also heavily emphasize the adoption of emerging technologies to cut costs where the research and development timeline to develop them internally is too long. This is especially true for additive manufacturing contractors (<https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/March-April-2021/Bachmann-Mobilization/linkId/113670010/>), whose early promise offer crucial resilience to the spare parts supply chain.

The DoD should also focus its industrial policy on discouraging corporate consolidation and emphasize diversifying its supply chain and component contractor base in particular. The DoD should also invest in new and modernized infrastructure for there to be a more capable and resilient domestic manufacturing base. A good place to start would be with the aerospace supply chain, which, as a recent Government Accountability Office report pointed out, is facing a crisis in spare parts.

Some degree of inefficiency must be allowable for the U.S. government to maintain idling plants, accept early technology failure from commercial suppliers and refine contracting practices. Placing a policy premium on surge capacity will drive these reforms. Failing to do so maintains the status quo, where we are stuck with fewer and fewer exquisite platforms that can't maintain readiness or quickly be replaced.

The defense-industrial base supply chain is barely able to keep pace today, in peacetime. Failure to act, well intentioned or not, is a de jure policy itself. The result will mean an American defeat, particularly in operational conflict scenarios in the Baltics or Taiwan, where the enemy can flow and reinforce its forces quickly. Surge capacity is needed, and the effectiveness of suppliers to meet DoD demands take precedence over the efficiency by which the supplier can do so.



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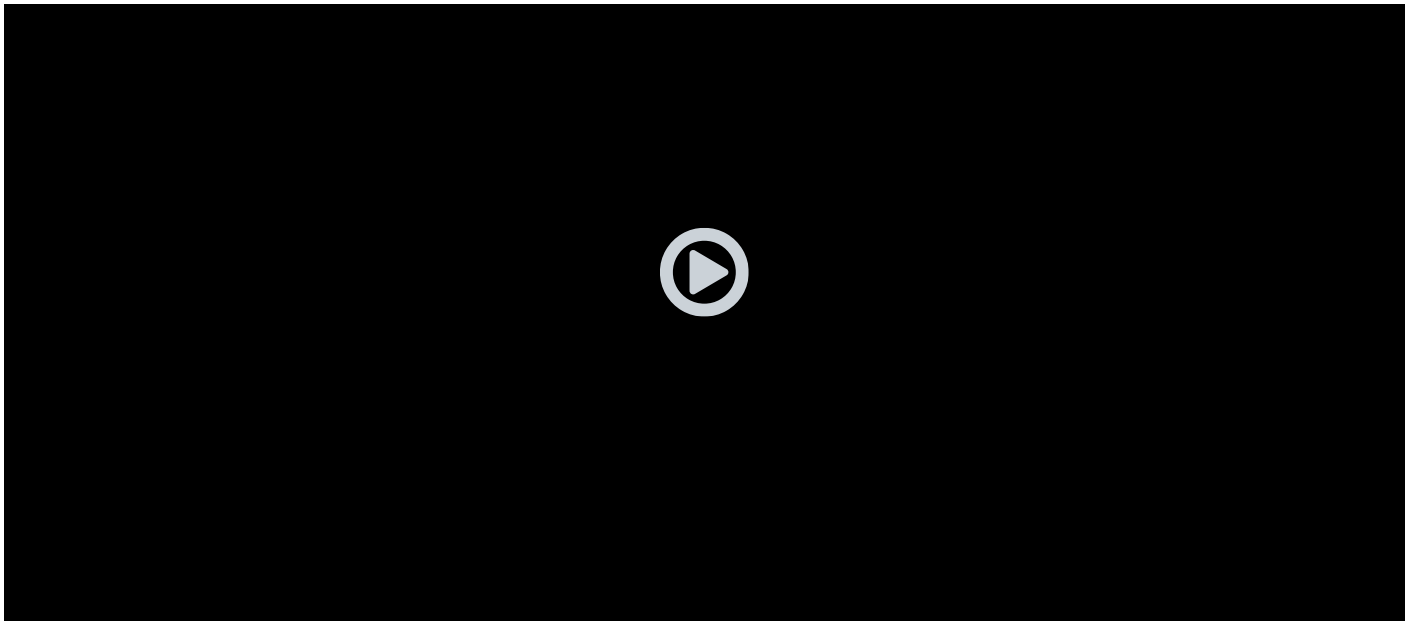
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