

Senate Armed Services Committee Hearing: Defense Innovation and Acquisition Reform

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Chairman Wicker, Ranking Member Reed, and Members of the Committee: It is an honor to address opportunities and challenges in Defense Innovation and Acquisition Reform. Today, we might discuss bureaucratic labyrinths, contracting wizardry, or appropriator obstinance. However, make no mistake, the purpose of this discussion is to advance America's ability to create controlled violence that strikes fear in the heart of the enemy to avoid war, deterring aggression, all while minimizing the risk to human life and reducing consumption of taxpayer treasure. Unfortunately, recent examples of enemy aggression, in some cases protracted aggression, suggests that America's military and industrial strength to deter and defeat, has grossly eroded, potentially to its lowest point since World War II. The FORGED Act could reverse this trend.

The term forge has personal meaning to me on my journey in defense innovation. I grew up on a family farm pulling forged plows at a time when America's share of manufacturing was triple that of China. By the time I started dropping forged bombs from my F-16 as fighter pilot, the U.S. and China were at parity. As we sit here today considering the FORGED Act, China's share of global manufacturing more than doubles that of the U.S. A nation that does not manufacture technology cannot maintain an enduring lead in that technology sector. Reversing the decline of American manufacturing to support national security is what led me to Divergent, where founders and inventors Kevin and Lukas Czingler have truly revolutionized the factory.

Mobilizing Dual-Use Manufacturing for DoD

Divergent is doing something that has not been done in decades. Transforming a car factory into a weapons factory. The difference is that the agility of their 700 patent AI-driven factory of the future operating at scale today makes this transformation seamless and it happens daily. The digital design toolset, unmatched metallic 3D print speed, and fixtureless assembly has been radically reducing development time, assembly time, weight, part count, labor, tooling, and cost for the world's top auto manufacturers like Aston Martin, Bugatti, and McLaren as well as for our own hyper car, the Czingler 21C, the world's fastest production car on the road with the world's highest power density engine, all made in America. The agility of this AI factory is now giving us an opportunity to quickly pivot into aerospace and defense. Right now, we literally are

printing hyper car frames in the morning and cruise missiles in the afternoon. We are in agreements with most of the defense primes and many startups, delivering capabilities for air, land, sea, and space during all phases of the life cycle (RDT&E, Procurement, Sustainment). The capital efficiency that comes from this agility can reduce taxpayer burden, increase warfighting capability, and quickly rebuild U.S. global manufacturing advantage.

How can the FORGED Act unlock capabilities like Divergent's Adaptive Production System and so many other critical technologies to regain U.S. national security advantage?

1. Turn America's software advantage into a hardware manufacturing advantage.
2. Build on innovation successes to rapidly field a hedge portfolio of software-driven hardware.
3. Use DoD as an incubator to scale a new civil reserve manufacturing network model.

Use America's Software Advantage for a Hardware Advantage

I have had the chance to work in some of the world's most innovative organizations: DARPA, Strategic Capabilities Office, Air Force Rapid Capabilities Office, White House Office of Science and Technology Policy. I led classified flight test, Joint Staff air and space requirements, and AFWERX where we funded thousands of startups with billions of dollars. Throughout my career, I have seen the military value in adopting commercial technologies at pace. However, I believe the concept that the U.S. can simply be an "idea factory" while outsourcing manufacturing for short-term financial gain has proved short-sighted. Provisions in the FORGED Act could reverse that trend. The United States has purged jobs, eroded our capacity to turn ideas into hardware and - some might even suggest - undermined the American spirit of building. We have lost our hardware advantage. One result of that is an erosion of our military advantage. That could change if the U.S. can turn our software advantage into a hardware advantage with a fully digital adaptive production system, driven by advances in artificial intelligence.

Scale Innovation Successes

To effectively leverage and scale America's innovation ecosystem, DoD must build on successes in innovation. Work has been done first through Innovation 1.0 launching the conversation with the establishment of In-Q-Tel, DIU, and SOFWERX. Innovation 2.0 advanced thousands of contracts per year with Army Futures, Task Force 59, and AFWERX. Innovation 3.0, advanced capability with Chairman Calvert's hedge portfolio, the Office of Strategic Capital, and DIU leveraging flexible funding traded for transparency, loans for deep tech, and funding Replicator. Given complexity and cost, scaling quantities of legacy systems will not be possible in a relevant timeline. The urgency for deterrence has led some to suggest a need to field small, low-cost mass, or a hedge force to augment the legacy force. These acquisition reforms have enabled DoD to mobilize incredible entrepreneurs across America to build that force, but it still is not clear that

DoD has established the right structure to scale these successes. Talent management will be critical to the restructuring.

Civil Reserve Manufacturing Network

While a hedge portfolio is necessary, if America goes to war tonight it will fight with the multi-trillion-dollar legacy portfolio it has purchased over recent decades. Unfortunately, the offshoring of manufacturing has created a crisis, as many industrial base companies that were once the backbone of weapons system sustainment – and local economies – have gone bankrupt leaving the legacy portfolio without parts. Every year taxpayers buy billions of dollars of weapons that are only used during war. It seems that there needs to be a clearer understanding that the factory is the weapon, and if we might need more factories for sustainment and war we should be buying that capacity now. However, to be affordable and useful into the future, those factories must be incredibly agile so they can pivot to different types of production during different phases. This industrial resiliency and fiscal responsibility is only possible if we can turn America's software advantage into a hardware advantage and create an agile civil reserve manufacturing network of distributed factories. Many provisions of the FORGED Act could enable a future with a digital adaptive production system that, on one hand, is capable of surging to build a hedge force, sustaining a legacy force, or if peace is secure, produce commercial goods. This is possible today with AI-driven manufacturing. DoD has an opportunity to lead the way – driving adoption of dual-use technology and with it a resurgence in US manufacturing, while reducing taxpayer burden for defense. If we miss this opportunity, however, there is a very high risk that in less than four years China will have consumed this market in the same way it consumed the global small drone market and many others. We will all be measured by the effort we took to avoid that potential tragic future.

Forging Ahead

The term “forge” is fitting to express the gravity of this moment. The act of forging has literally defined entire eras in civilization going back to the bronze age, as societies used the process to turn ideas into hardware, often the hardware necessary to deter and defeat enemies. To this day, forging remains core to building weapons of war. It is worth noting that, today, China's share of the global forging market eclipses that of the U.S. The title FORGED Act is appropriate to communicate the national security emergency we face as a result of America's eroded capacity to turn ideas into hardware. Fortunately, visionaries mobilized a whole-of-nation effort before we entered World War II. That mobilization led to victory on the battlefield, and that scale of mobilization is needed again. The state of manufacturing and national security is troubling, but I am optimistic because I believe the ingredients are present for a generational shift in manufacturing and defense innovation that could be more notable than going from the stone age to the bronze age. I am confident America will forge that peaceful and prosperous era together. It starts today!