



A Bottom-Up, Innovative Approach for Delivering **What We Need Now**

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HAVE YOU EVER WATCHED THE TV PROGRAM “SHARK TANK”? COMPETING ENTREPRENEURS typically have noticed a problem and developed a solution for it for which they seek investment backing. However, most large institutions, such as the Department of Defense (DoD), default to a solution-centric innovation approach that starts by finding a new technology (the solution) and then seeks out a problem it can solve. This approach helps management, but it doesn’t encourage an environment that harnesses the true power of innovation.

It also doesn’t take advantage of our front-line employees, who have a unique advantage in innovation—the persistent interaction with our biggest problems. We need to give them the freedom and encouragement to build solutions from the problem out—i.e., a problem-centric approach.

The problem-centric approach is better suited to develop fresh ideas. These bottom-up innovators have the advantage of building problem-centric solutions, experimenting, and developing new concepts—something advocated by the major textbooks on innovation. These innovators combine a deep understanding of the problem—i.e., the needs of the user. Only then do they start developing a solution, typically with small, incremental experimentation. These innovators most often have autonomy but few resources. They must persevere through countless experiments and failures. The idea is to fail fast, learn, and iterate—unlocking the power of innovation. Despite these challenges, bottom-up innovation can give the Armed Forces a powerful weapon in the fight to deliver new capabilities faster.

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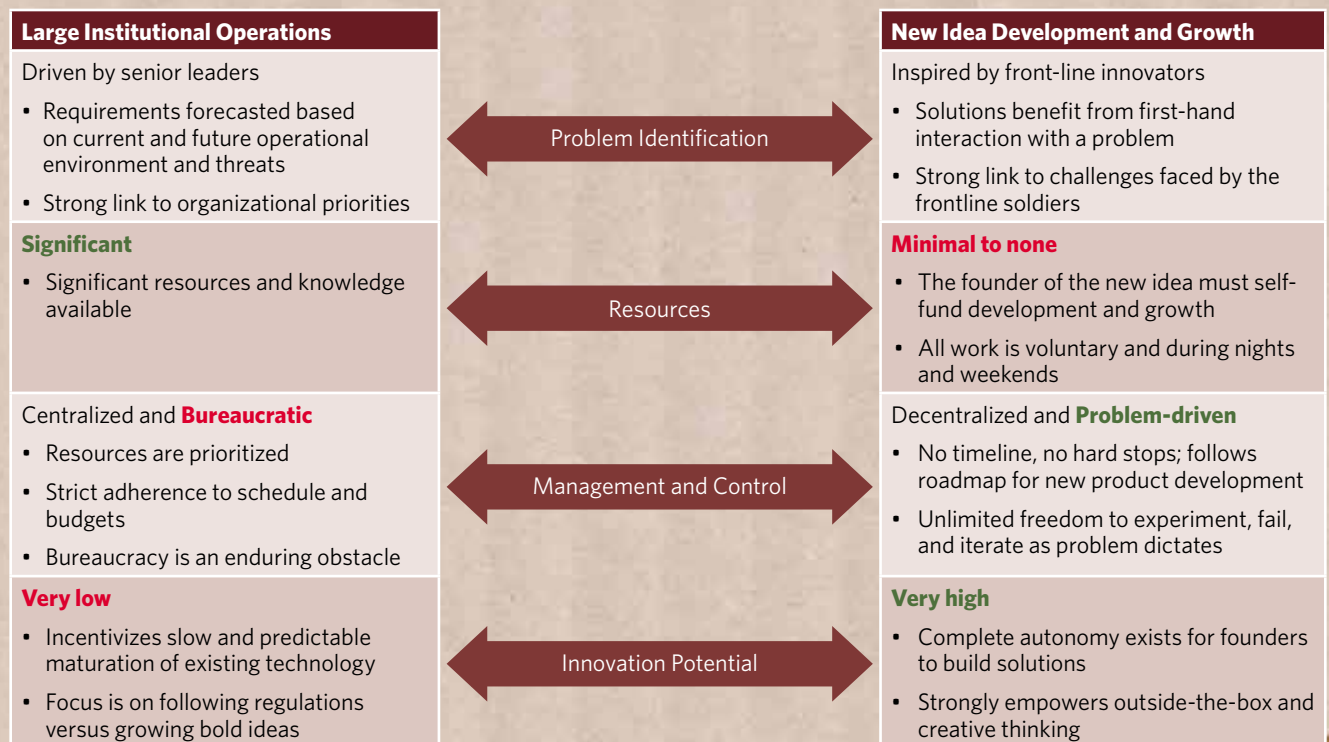
The DoD has a vast talent pool of bottom-up innovators—soldiers, sailors, airmen and Marines. In October 2018, SFC Arlondo Sutton’s homemade recruiting video “Enlisted” went viral with more than 3 million views. His recognized problem was how to connect with the typical high-school student. As an experienced Army recruiter, he noticed that students rarely are seen without a cellphone in their hands and headphones glued to their ears. If he could just get into their phones, he could connect.

He was right! As he explains, “After the video, my phone rang every 3 minutes for 2 weeks. Parents wanted me to talk with their kids. Soldiers were sending their friends to me. This was happening in my whole recruiting office.” Problem recognized. Innovative solution produced! Now it needed to be scaled up.

Senior leadership at the U.S. Army Recruiting Command (USAREC) invited Sutton to meet with a social media team that helped create a nationally distributed video. The result? Sutton’s recruiting region, including Atlanta and surrounding areas, received at least a 5 percent increase in recruits—unprecedented numbers in recent years. Sutton’s journey, facilitated by USA Recruiting leadership, characterizes a new way to deliver capabilities and offers great potential. The question is, how do we make this the rule rather than the exception? How do we encourage behavior like Sutton’s?

Bottom-up innovation within the DoD faces a key challenge (Figure 1). Two conflicting and polarizing concepts must be able to coexist peacefully and productively. The DoD is a large organization, able to leverage vast resources yet

Figure 1. Innovation in Large Organizations: Two Polarizing Notions Must Work Together



Source of figures: W. Brandon Schreiner.

Our front-line innovators do not seek financial rewards or personal gain. They are intrinsically motivated by the three most powerful aspects of motivation, according to behavioral scientist Dan Pink—autonomy, mastery, and purpose.

sometimes slowed by bureaucratic regulations and statutes. A “startup” mindset to explore new problem-centric ideas, like Sutton’s, generally is more compatible with a small, agile environment with a less hierarchical structure. In order to innovate at the organizational level, bottom-up innovators and top-down leaders need each other equally. Neither can succeed alone.

Senior leaders tend to default to the solution-centric innovation approach. Even the DoD’s main innovation forums—such as Defense Innovation Unit (DIU), xTechSearch, and the annual Innovation Summit take this approach. Our defense contractors also favor it. There are good reasons to adopt a solution-centric approach. It facilitates management and resourcing efforts, which are of paramount importance to synchronizing with prioritized requirements, whether on materiel or non-materiel solutions. However, this environment stifles out-of-the-box innovation. This solution-centric approach—highly susceptible to mission creep, risk aversion, and impossibly long timelines—lies at the heart of our largest ever innovation failures, including the commercial failures Webvan, (the first) Iridium, Better Places, and defense systems, such as the Army’s Future Combat System.

Recent DoD acquisition reform—designed to deliver capabilities at the speed of relevance—focuses more on avoiding the solution-centric pitfalls than on unlocking innovation. Middle Tier Acquisition, Other Transaction Authorities, and the delegation of milestone decision authorities are designed to counter bureaucratic influences. The Army Futures Command was created to streamline requirements identification and the subsequent capability and/or materiel development processes. While these top-down efforts can accelerate change and speed delivery of new capabilities, their power lies in applying management principles, rather than in fostering entrepreneurial innovation. While those efforts are great and necessary, we need to do more to harness the bottom-up innovation of our front-line innovators to solve today’s problems.

Front-line innovators can decipher their own problems and create solutions based on their experience, passions, and talents. They compensate for their lack of resources with

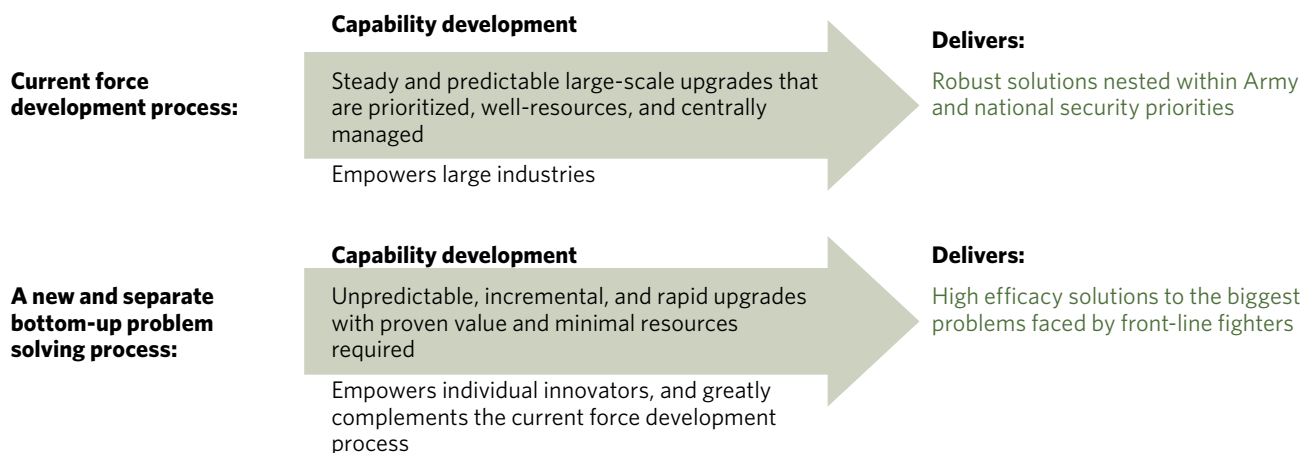
creativity, the ability to stretch a budget, and old-fashioned hard work. If we can harness the power of bottom-up innovators, as the U.S. Army Recruiting Command did with SFC Sutton, we will bring to bear a powerful, complementary weapon in the fight to deliver capabilities faster. So how do we encourage the unleashing of this potential?

Motivating this talent pool can be a simple matter. In fact, some brigade commanders already do so with competitive, innovation programs that are known colloquially as “Shark Tank.” The Army’s 3rd Brigade of the 101st Air Assault Division encourages its soldiers to attack the problems they can see from their foxholes, and invites them to present their ideas in a Shark Tank-style forum to a panel of brigade leaders. The participation of these soldier innovators has been extensive and impressive. For example, soldiers delivered a \$20 fishing pole that outperformed a \$1,127 Army-issued high frequency antennae. Also, soldiers developed a simple motor pool phone app that was significantly better than the Army solution in providing a high-fidelity operating picture of unit equipment readiness. One howitzer platoon leader developed a business case for producing sockets with 3D printing that could save the Army a fortune and then partnered with Vanderbilt University for prototyping.

Every major DoD organization should host Shark Tank-style events routinely. These Shark Tank-style competitions, importantly, encourage more than sharing lessons learned, or science experiments with “potential,” or concepts that are merely “good ideas.” These competitions are not forums for sales pitches. The winners hold a tangible solution that is ready now and has been proven to be invaluable. Such a solution is needed now—including elements such as a viral recruiting campaign or a phone app that greatly increases operational readiness.

Shark Tank-style competitions motivate our front-line innovators to develop and experiment with their ideas, turning them into solutions ready for DoD implementation and scaling. Like the investor “sharks” on the TV reality show, senior leaders will benefit their organizations greatly as they evaluate the well-curated ideas from front-line operators/innovators on a full spectrum of operational problems.

Figure 2. Innovation Competitions to Leverage Army Strengths



Senior leaders can then scale the winning solutions across the Force.

We need to understand that entrepreneurship and failure go together. For every 100 front-line innovators, perhaps only one will emerge with a proven solution, usually after spending considerable time and energy. This involves a painstaking commitment backed by a lifetime of garnering the requisite skills, hands-on experience with the problem in question, and almost always some good luck. The viral status of the Sutton solution was no mistake or a matter of chance. It was a culmination of his efforts. It provides a classic example of what innovators call the 10-year overnight success.

These front-line operators must be encouraged to continue innovating. Our front-line innovators do not seek financial rewards or personal gain. They are intrinsically motivated by the three most powerful aspects of motivation, according to behavioral scientist Dan Pink—autonomy, mastery, and purpose. They have the ability to experiment according to their own desires and timelines (autonomy), the ability to become really good at their craft, solving problems relevant to their job (mastery), and the anticipation of improving operational readiness (purpose).

Although Sutton didn't have the opportunity to present his idea in a "Shark Tank"-type competition, let's assume for a moment that he did. He would have explained his business plan, his path to growth and concept to scale, and some ideas on how the Army could incorporate his solution to maximize its benefit. Senior leaders then could have evaluated these important factors from a broad Army viewpoint.

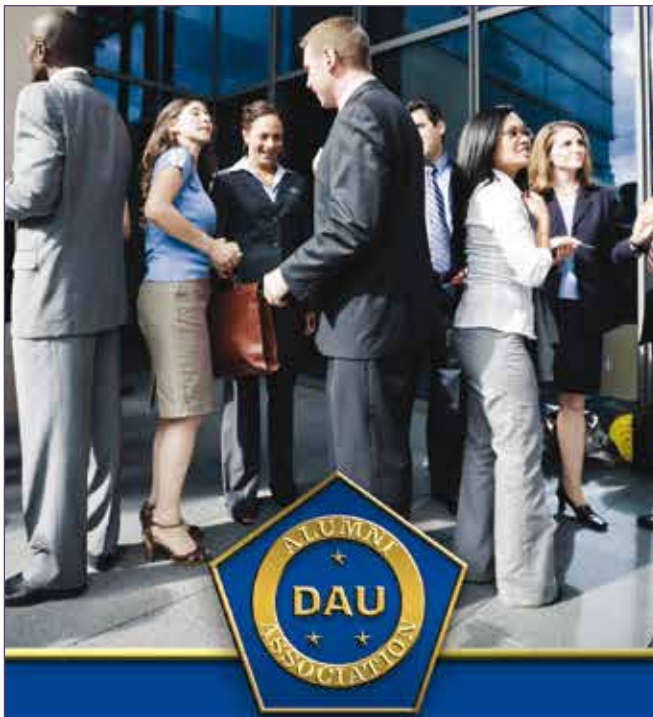
Ultimately, Sutton may not get all he envisioned. However, what started with a single hypothesis and persevered

through countless iterative experiments created a tangible and actionable plan. The Army got a significant benefit, a new capability—for free—and the potential for every recruiter in the Army to have his or her phone ring nonstop for weeks.

Since Sutton is the innovative spirit and brains behind the concept, he would lead the effort, with senior leaders providing him with the resources and time to produce an Army, and perhaps DoD-wide, improvement to recruiting practices. The Shark Tank method would accelerate the pairing of agile innovators with senior leaders and their access to organizational resources, thereby combining the strengths of our large organizations with the talents of our front-line innovators.

When scaling up solutions, care is needed so that the process isn't hindered by top-down guidance, as every solution must be highly tailored. Sutton would benefit from access to, and decision authority with, media teams through a temporary assignment to a marketing office, or a paid sabbatical to allow him to focus his time and energy. The motor pool app may need help in creating an online training video ensuring cybersecurity. When possible, the idea's founder should drive the path to scale, using the feedback and support of vested senior leaders to support the big picture.

This new undertaking with front-line entrepreneurs and their senior leader coaches should remain mostly outside our current acquisition and force development process. Our current capability development mechanisms will remain geared to top-down guidance and nest requirement identification and solution-centric efforts, guided by the necessary acquisition laws and regulations. These bottom-up innovations should complement the top-down, solution-centric innovations (Figure 2).



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This complimentary approach offers many benefits. Every new wave of recruits and graduates brings fresh intimacy and familiarity with cutting-edge technology, as recruits embrace 3D printing, advanced robotics, virtual reality (VR), artificial intelligence (AI), and more. While these bottom-up innovations initially may seem small, one should consider the sheer number of bottom-up solutions available from tapping into the largest innovator talent-pool in history—our own workforce. The repeating rifle invented by Benjamin Tyler Henry during the Civil War did not change the bullet, but it did increase the rapidity of firing bullets. Similarly, as demonstrated by the 3rd Brigade, we can expect our front-line innovators to produce a dizzying array of innovative leaps, ultimately multiplying battlefield lethality and effectiveness. Across the DoD, the focus from senior leaders to front-line operators should be to learn more and become smarter about delivering capabilities.

Six weeks after the “Enlisted” video went viral, Sutton produced another video that was well-received. He then was invited to appear on a prominent television talk show. Bottom line: Innovators innovate and continued successes will follow innovation. After one mechanized unit adopts a new motor pool app and demonstrates its value, other mechanized forces will scramble to do the same, incrementally improving the app along the way. Countless other functions—including reporting, training, routine administration, personnel accountability, and much more—would be served best by solutions developed by front-line operators, perhaps using new VR and AI solutions.

Modernization priorities will benefit. For example, the Army’s Long Range Precision Fires can concentrate fully on technological challenges because, in the background, howitzer-maintenance platoon innovators have the power, authority, and encouragement to tackle and solve problems tangential to or closely related to this solution-centric priority.

In conclusion, the digital age with its superior commercial technology has given our national security mission unique and unprecedented challenges that require faster delivery of superior capabilities at the speed of relevance. The exponential advancement of technology has steadily eroded our military advantage against our near-peers, and now even our most rudimentary adversaries can gain access to weapons of mass destruction. We have the ability to do so much more than just streamline regulations and resist bureaucracy. “How can we improve our current processes” is not the only question we should ask. We must pursue other options in the fight to deliver capabilities faster.

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