Toward an Innovation Strategy for the US Air Force

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In recent years, the US Air Force has made much of its history of innovation. The phrase, "Every Airman an Innovator" has been a popular mantra, and the tagline on our 70th-anniversary letterhead reads "Breaking Barriers Since 1947." As part of an effort to reinvigorate the Air Force's spirit of innovation, this year the chief of staff has tasked the USAF Blue Horizons fellowship to dig into rapid innovation processes. But no organization can suddenly become innovative overnight, even if it was born from an innovative past. This rule is especially true of an outfit as large and bureaucratic (and autocratic) as a military service. The Air Force needs a bona fide strategy to rebuild its innovative brand during the next several years.

This article proposes the groundwork for such an innovation strategy. The strategy begins with its diagnosis and guiding principles and concludes by suggesting some coherent actions necessary for implementation.[1] The key theme that will unite the elements of this story is that *Airpower is about Airmen, not airplanes* (or satellites or computers). Said another way, innovation is a people problem, not a technology problem. This Air Force innovation strategy, therefore, focuses on the human aspects of this issue, including empowerment, education, and evaluation.

The Crossroads of Strategy and Innovation

An organization cannot simply decide to become innovative. Ideas are only the beginning of innovation, and hard work coupled with organizational change must follow.[2] However, businesses and air forces are purpose-built, and innovation is always at odds with the day-to-day accomplishment of those purposes.[3] So for innovation to take root and thrive in the USAF, it must be intentionally separated from day-to-day mission execution (or the "performance engine"),[4] and the conflict between innovation and mission accomplishment must be understood and addressed. This separate innovation requires a long-term plan or strategy.

Author Richard Rumelt teaches that effective strategies are built on a three-part kernel of a diagnosis, guiding policy, and coherent plan of action.[5] So let's take Rumelt's advice and begin our innovation strategy with a solid diagnosis of our current

situation. Airmen today can easily rattle off names like Billy Mitchell, Curtis E. LeMay, Hoyt S. Vandenberg, and John R. Boyd as great innovators, but the list tends to fade away with Colonel Boyd. Generals now must cast their nets pretty wide to fill their speeches with even the simplest example of our continuing innovative prowess, while corporate technology gurus have key instances at their verbal fingertips. Today, the F-35 is equipped with—by and large—the same types of air-to-air missiles that F-4s carried in Vietnam. Innovation, it seems, became a lost art somewhere along the way.

There are several reasons why innovation became difficult to achieve in the modern Air Force, but I highlight three below. First, we aren't new anymore. We were born as a service to renegade parents like Mitchell, and our first leaders were revolutionaries and mavericks. The Air Force today has evolved, as most organizations inevitably do, into a "performance-engine" culture.[6] As a result, decision making is consolidated at the top and is focused on near-term mission accomplishment. This organizational structure is effective, but doesn't encourage or reward innovation unless it can provide cheap and immediate capabilities. Second, we don't teach innovation well. The Air Force has a formal education system that doesn't deliberately incorporate instruction on creative or critical thinking in a recurring way. Third, our talent management system is incapable of identifying which officers might be exceptional innovators and which might be exceptional performance managers.[7] While several other factors affect our innovation potential (like the relationship between the military and the defense-industrial complex and the role of Congress in the military decision-making process), they are largely outside the direct control of the chief of staff and secretary, so they aren't covered in this article.

What these three factors (empowerment, education, and evaluation) have in common is that they're all human-centric. So if our diagnosis tells us that these areas are critical to rekindling innovation, and that they all center on people, then our guiding principle must likewise be focused on Airmen. In other words, our strategy must develop innova*tors*, not innova*tion*. This idea is consistent with the recent academic conclusion that modern military successes and failures are the results of human factors.[8] It is good, tech-savvy leaders, not simply good technology that will bring victory.

The first two pieces of the kernel for an Air Force innovation strategy are now clear: a focus on the deliberate development of innovative Airmen through organizational empowerment, formal education, and effective evaluation. The third part of Rumelt's strategic kernel, specific and coordinated action, is covered next.

The Innovation Reformation

A strategy without action is meaningless, and innovation without execution goes nowhere. So if innovation is truly an Air Force goal, the service needs to convert the diagnosis and principles discussed above into concrete steps that are within the power of Air Force leaders to affect. This section outlines plans of action for the three critical areas of empowerment, education, and evaluation.

Let's begin with organizational empowerment. The Air Force is undeniably a bureaucracy, but that isn't all bad. Any organization as large as the USAF needs a bureaucratic backbone to function or it disintegrates into chaos. We're also autocratic, which is a necessity for a military service. This autocratic bureaucracy has functioned reasonably well as a performance engine, but it doesn't innovate well (particularly across bureaucratic and security stovepipes). Performance engines like our major commands and line squadrons should be respected, but innovators need to think about organizing and planning very differently than performance engines because innovation is nonroutine and uncertain.[9] The Air Force, therefore, needs to adapt its current organizational structure to allow for the existence of innovation teams that can try and fail quickly.

These innovation teams don't need to be large, permanent or disruptive to the current structures we already have in place. Innovators should be brought together to solve finite problems, empowered to investigate and implement solutions, and then returned to their "day jobs."[10] The process to stand up temporary organizations in the Air Force should be made easier and delegated as low as wing commanders, and temporary hiring authorities should be granted to allow for "outside help" from the civilian world or our joint/interagency partners.[11] An innovation direct reporting unit should also be established to disseminate innovation best practices to these temporary units. Finally, autocratic Air Force leaders must be prepared to not only commission innovation teams but also to buy into their solutions if proven to be effective. If commanders don't implement innovative initiatives because they fear, mistrust, or misunderstand the solution (or its associated technology), any attempt at building a culture of innovators will fail.

A note here is needed on the annual Combat Air Forces Weapons and Tactics (WEPTAC) conference and the new AFWerX organization. While WEPTAC rightfully remains one of the crown jewels of American airpower, the practice of assigning a small group of tactical experts a major war-fighting problem and giving them four days to solve it is not effective. The keys to innovation are the root-cause analysis of the underlying problem and informed, creative thinking to develop targeted solutions. These things cannot be reasonably accomplished in less than a week. A more effective method might be to assign the problem to the team at the 2018 WEPTAC and have an outbrief of the results for the year-long innovation effort at the 2019 conference. AFWerx, on the other hand, offers a promising method of innovating new technologies for the war fighter. But one potential danger with AFWerx is that it becomes (or is perceived as) an alternative to the USAF requirements and acquisition process rather than a supplement to it. This concern should be closely monitored as the AFWerx process takes shape.

The second area for action is innovation education. Critical and creative thought is necessary for innovation, and both of those traits are teachable. Yet, remarkably, the Air Force doesn't deliberately teach these skills at its institutions of higher officer learning in a consistent or coordinated way, which doesn't make any intuitive sense. If you want your officers to know certain things or act in certain ways, you must teach them those things. Moreover, as current cognitive research tells us, you can't just tell them once.[12] The message needs to be interleaved and reinforced over time for it to be retained.[13]

Innovation requires education, and the Air Force has the perfect educational vehicle to reach its entire officer corps at least once or twice in their careers. Air University (AU) offers both correspondence and in-residence programs for captains (Squadron Officer College), majors (Air Command and Staff College) and lieutenant colonels (Air War College). While not all officers will attend all of these schools, most officers will attend one or two if only in correspondence. These schools should have their curriculums modified to include innovation skill sets so that officers are continually infused with an innovation culture at as many opportunities as possible.

In addition to teaching innovation in the formal officer education programs, AU should also target officer accession programs (like the Reserve Officer Training Corps, Officer Training School, and the USAFA), and develop stand-alone courses. AU's new Continuum of Learning program would be an excellent venue for these kinds of opportunities, as would the Air Force's formal enlisted education system. The key is that all these various educational methods must be coherent, and the innovation principles must be sound and consistent (although varied for the audience, so they continue to be value-added as the message is reinforced as Airmen become more senior).

However, despite the best efforts of educators, it's important to note that not everyone can be good at innovation.[14] This brings us to the final point: the Air Force must redesign its evaluation system to allow for even basic talent management. The current Officer Evaluation System consists of two forms: the annual officer performance report (OPR) and the promotion recommendation form (PRF), which aggregates data from the OPRs for review by a promotion board. Both the OPR and PRF are primarily based on a numerical stratification system (that is, Joe is my number 1 of 16 majors). The idea is that a collection of good stratifications over several OPRs will roll up onto a PRF, and a promotion board can get a good sense of how talented an officer is based on consistently strong stratifications (or lack thereof). This idea may seem like a reasonable way to manage a promotion system that processes many thousands of officers on any given board, but it is seriously flawed both quantitatively and qualitatively.

This stratification process is mathematically unsupportable in three ways. First, there is no possible way to compare the relative abilities of one officer ranked third of 82 majors and another ranked second of 23 majors. Who is better, the number three or the number two? Does the bigger denominator matter? What about the following two rankings: first of 37 and first of 12? Is one number one better than the other? There's no statistical method for direct comparison. The second reason this system isn't logical is that it uses objective mathematics to quantify subjective distinctions. As a result, there's no way to tell the relative gap in abilities between the major ranked second of 23 and the one ranked third of 82. Third, this system is susceptible to two known errors in the human brain: the availability heuristic and a phenomenon known as "What You See Is All There Is" or WYSIATI.[15] A common illustrative example is that officers with more direct daily contact with their senior rater are often stratified more favorably than their peers. But how does a wing com-

mander know her executive officer is truly better than the 81 other majors in the wing she doesn't see every day?

These mathematical shortcomings alone are enough to question the effectiveness of this process, but the bigger impact to innovation is the failure of this stratification system to account for any qualitative assessment. To illustrate, consider two majors with strong records with multiple number one/XX stratifications. Are they good? Probably. But what are they good at? Were they number ones because they were excellent technical experts (amazing pilots or engineers, for example), or because they possessed strong leadership talents? How do you know which of these consistent number ones is more articulate or more suitable for attaché duty because of skills in multicultural negotiations? You don't. Our system may tell you who the best seems to be, but it can't tell you what anybody is best at. So who are the best innovators? Who are the best performance managers? Who should I send to which developmental education program to develop those skills? We, collectively, have no idea, so we default to the only measure we have—who's number one?

The USAF needs a new evaluation system that captures the specific talents of our officers and dispenses with an artificial stratification system primarily focused on the promotion process. A talent management system needs to collect data on skill sets, not relative scales of greatness (especially scales with no means of direct comparison). A new system will allow the Air Force to identify innovation leaders, as well as other talents (instructors, joint-minded officers, testers, attachés, and so forth), and place them appropriately rather than randomly.

Three Es toward Innovation

The Air Force realizes that it must, in part, rely on innovation to stay current in an age of rapid obsolescence. However, innovation is a culture that must be built and sustained over time, and it relies on people to make it effective. In the end, airpower is made possible by Airmen, not the airplanes or the systems they operate. Similarly, humans perform the innovation; it is not done by the technology they inspire or adapt. With that in mind, the Air Force must create the conditions necessary for innovators to thrive by reforming three specific areas: organizational empowerment, formal education, and effective evaluation. These "3 Es" are all within the span of control of USAF senior leadership and are necessary and sufficient conditions to reestablish innovation as a core trait of our service. ✪

Notes

1. Richard P. Rumelt, *Good Strategy, Bad Strategy* (New York: Crown Business, 2011), 77.
2. Vijay Govindarajan and Chris Trimble, *The Other Side of Innovation: Solving the Execution Challenge* (Boston, MA: Harvard Business Review Press, 2010), 3.
3. Ibid., 11.
4. Govindarajan and Trimble, *The Other Side of Innovation*, 3.
5. Rumelt, *Good Strategy, Bad Strategy*, 77.
6. Govindarajan and Trimble, *The Other Side of Innovation*, 29–30.
7. Ibid., 51–74.

8. Azriel Lorber, *Misguided Weapons: Technological Failure and Surprise on the Battlefield* (Dulles, VA: Brassey's, 2002), 33–34.
9. Govindarajan and Trimble, *The Other Side of Innovation*, 15.
10. Ibid., 166.
11. Ibid., 53–59.
12. Peter C. Brown, Henry L. Roediger III, and Mark A. McDaniel, *Make it Stick: The Science of Successful Learning* (Cambridge, MA: The Belknap Press, 2014), 63–66.
13. Ibid.
14. Govindarajan and Trimble, *The Other Side of Innovation*, 174.
15. Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus, and Giroux, 2011), 127–36.

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