

Opinion

How the Pentagon can get more innovation from universities

By **Jan Kallberg**

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Dr. Chad Hornbuckle, a materials scientist with the U.S. Army Research Laboratory at Aberdeen Proving Ground, Maryland, specializes in atom probe tomography, which analyzes ceramics or metal 1,000 times smaller than a human hair. (David McNally/Army)

There is no alternative way to ensure victory in the future fight than to innovate, implement the advances, and scale innovation. To use Henry Kissinger's words: "The absence of alternatives clears the mind marvelously."

Innovative environments are not created overnight. The establishment of the right culture is based on mutual trust, a trust that allows members to be vulnerable and take chances. Failure is a milestone to success.

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Important characteristics for an innovative environment are competence, expertise, passion and a shared vision. Such an environment is populated with individuals who are in it for the long run and don't quit until they make advances. Individuals who urge success and are determined to work towards excellence are all around us. For the defense establishment, the core challenge is to reassess the provided incentives, so the ambition and intellectual assets are directed to innovation and the future fight.

Edward N. Luttwak noted that strategy only matters if we have the resources to execute the strategy. Embedded in Luttwak's statement is the general condition that if we are unable to identify, understand, incentivize, activate, and utilize our resources, strategy does not matter. This leads to the question: who will be the innovator? How does the Department of Defense create a broad, innovative culture? Is innovation outsourced to thinktanks and experimental labs, or is it dedicated to individuals who become experts in their subfields and drive innovation where they stand? Or are these models running parallel? In general, are we ready to expose ourselves to the vulnerability of failure, and if so, what is an acceptable failure? These are questions that need to be addressed in the process of transformation.

Structural frameworks in place today could hinder innovation. For example, the traditional DOD Defense Officer Personnel Management Act's (DOPMA) personnel model. In theory, it is a form of the assembly line's scientific management, Taylorism, where the officer is processed through the system to the highest level of her/his career potential. In reality, the financial incentives are in favor of following the flowchart for promotion instead of seeking to stay at a point where you are passionate to make an improvement. If a transformation to an innovative culture is to be successful, then the incentives need to be aligned with the overall mission objective.

Another example is government sponsored university research. Even if funds are allocated in the pursuit of mobilizing civilian intellectual torque to ensure innovation that benefits the warfighter, traditional research at a university has little incentive to support the transformation of the Armed Forces. The majority of academia and the overwhelming majority of research universities pursue DOD and government research grant opportunities as an income to gain resources to fund graduate students and facilities. Many of the sponsored research projects are basic research, and the results are made public, which slightly defeats the purpose if you seek an innovative advantage, with limited support to the future fight. Academia can tailor their research to fit the funding opportunity, which is logical from their viewpoint, and often it is a tweak on research they are already doing that can be squeezed into a grant application.

Academics at universities seek tenure, promotion, and leverage in their fields. So government funding becomes a box to check off for tenure, the ability to attract external funding, and support academic career progression. The incentives to support DOD innovation are suppressed by far stronger incentives for the researcher to gain personal career leverage at the university. In the future, it is likely more cost-effective to concentrate DOD-sponsored research projects to those universities that make the investment in time and effort to ensure that their research is DOD relevant, operationally current, and support the warfighter. Those universities that align themselves with the DOD objectives and deliver innovation for the future fight will also have a higher understanding what the future threat landscape looks like. They are more likely to have an interface for quick dissemination of DOD needs. A realignment of incentives for sponsored research at universities creates an opportunity for those ready to support the future fight.

There is a need to look at system level how innovation is incentivized to ensure that resources generate the effects sought. America has talent, ambition, a tradition of fearless engineering, and grit – correct incentives unleash that innovative power.

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