# **Tactical Innovation** The Key to Executing Continuous Transformation

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The outcome of war is ultimately decided by the soldiers on the front lines of the battlefield. These young men and women have the most intimate knowledge of the problems they face and often have the best ideas to solve them. However, these soldiers are also the furthest removed from the resources and expertise required to bring these ideas to life. This separation prevents the Army from executing user-centric design, resulting in long development and fielding timelines for requirements largely developed by every stakeholder but the end user. Nations that can close this gap between the innovative soldiers on the front lines and the resources to develop solutions to the complex problems of combat win wars. Tactical innovation is the Army's effort to close this gap by employing methods to solve problems at the edge and subsequently disseminate or expand those solutions throughout the Army. These solutions are not limited to traditional hardware solutions; they span technology, people, processes, and policy.

In response to the accelerating pace of battlefield innovation, the Army is formalizing three modernization processes, which are collectively referred to as "continuous transformation."<sup>1</sup> "Transformation in contact" is an effort to deliver novel capabilities for experimentation to deployed Army units. "Deliberate transformation" focuses on efforts in the two-to-seven-year time frame.<sup>2</sup> "Concepts-driven transformation" consists of efforts that inform the Army of 2030 and beyond. While these top-down processes seek to accelerate the traditional Army acquisition time frame, they do not fully acknowledge the driving force behind the evolving nature of warfare: bottom-up innovation.<sup>3</sup>

Over thirty operational Army units have independently established innovation cells and, through partnerships with Army Futures Command (AFC) organizations, have harnessed end-user solutions and rapidly integrated them into tactical operations. These units have repeatedly demonstrated an ability



1st Lt. Brenden Shutt, assigned to the Marne Innovation Center, 3rd Infantry Division (3ID), carries the Long Range Artillery Tactical Network, which allows leadership real-time visibility of dismounted soldier movements, at the National Training Center, Fort Irwin, California, 18 July 2024. The Marne Innovation Center focuses on increasing efficiency through data and improving the capabilities of 3ID. (Photo by Spc. Rebeca Soria, U.S. Army)

to identify capability gaps, rapidly prototype solutions, and implement the operational prototypes in a matter of days to months.

This article provides recommendations to Army senior leaders for formalizing "tactical innovation" and to unit leaders at every echelon to conduct tactical innovation in their formations. If adopted, these recommendations will accelerate the Army's response to evolving battlefield technology while empowering its most valuable asset—its people.

### Tactical Innovation and Continuous Transformation

**Continuous Transformation:** We will transform iteratively and continuously to become leaner, more mobile, lower signature and, most importantly, more lethal. We will integrate technology faster, pushing new, cost-effective technologies into our operational units as soon as they are useful. We want our tactical units to innovate, test ideas, fail fast, and adapt. The best ideas often come from the bottom up.

- "Message to the Army Team," 2023<sup>4</sup>

Tactical innovation, as defined in this article, is the process by which operational Army units leverage innovative methodologies to develop solutions to their problems at the edge, and the corresponding efforts to share or scale those solutions across the rest of the Army. There are many approaches to tactical innovation, but it has most commonly materialized as a makerspace at an operational unit jointly staffed by soldiers and AFC representatives. These initiatives strengthen collaboration among the Army research, development, and acquisition workforce and the operational Army while contributing to each phase of continuous transformation.

To enable transformation in contact, tactical innovation programs train soldiers to be innovative problem solvers who are capable of rapidly scoping, adopting, or developing solutions at the edge. To effectively integrate new technologies in the zero-to-two-year time frame, operational units must evolve their culture to embrace edge experimentation and development. Generational models of training cannot keep pace with rapidly shifting battlefield realities. Tactical innovation initiatives drive cultural change from the bottom up and set conditions for rapid technology acquisition. For instance, tactical innovation teams from the 82nd Airborne Division (82ABN) began training soldiers on small unmanned aircraft system (sUAS) operations using commercial gaming simulators well before receiving the RQ-28. A year before the human-machine integration platoon concept was published, soldiers from the 3rd Infantry Division (3ID) effectively employed tethered UAS on armored vehicles at the National Training Center. A formation trained, equipped, and empowered to innovate is also better able to solve complex problems when they are forward and detached from the traditional resources of the Army at large.

Tactical innovation complements deliberate transformation by pairing the right innovative soldiers with developers earlier than traditional feedback processes, de-risking development programs. Current rules regarding soldier touch points and the test schedule and review committee necessitate an eighteen-monthto-two-year lead time to coordinate operational unit feedback with development programs. Tactical innovation labs drastically cut into this timeline by integrating experimentation into existing training and inviting stakeholders to engage in these meaningful touchpoints with soldiers early and often in the development process. This de-risks development programs by ensuring products meet the end user's needs and speeds up delivery by facilitating agile design. Additionally, traditional processes do not guarantee that the soldiers involved in touchpoints are subject-matter experts or the soldiers who can provide meaningful feedback. Tactical innovation teams track institutional Army development programs, commercial technology developments, and talent within their formations, enabling them to pair the right soldier with the right product to provide actionable feedback earlier and more frequently. The Combat Capabilities Development Command (DEVCOM) Army Research Laboratory credited early and ongoing operational user feedback on the TRV-150 for accelerating the program by a year and a half.<sup>5</sup>

Lastly, concepts-driven transformation benefits from tactical innovation by leveraging the intellectual capital of junior soldiers and officers and their connections with local resources, academic partners, and industry.<sup>6</sup> Less than a year after establishing the Army Artificial Intelligence Task Force, a lieutenant in the 25th Infantry Division patented a helicopter flight feedback device powered by a convolutional

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The 3rd Infantry Division held its official grand opening 18 May 2023 for the Marne Innovation Center, a collaboration between the Civil-Military Innovation Institute and the U.S. Army Combat Capabilities Development Command's Design, Innovation, Research, and Technology lab at Fort Stewart, Georgia. (Photo courtesy of the 3rd Infantry Division)

neural network. Research projects under the Catalyst-Pathfinder program have led to artificial intelligence (AI) applications for acoustic detection of enemy sUAS, edge-translation of radio communications, and rapid targeting recommendations from disparate intelligence sources. While many view AI as a conceptual capability, tactical innovation teams actively employ these algorithms and other cutting-edge technology in training and operations, informing future requirements and best practices.

#### **Current State of Tactical Innovation**

As of April 2024, over thirty operational Army units have established tactical innovation cells, including all four Army corps, two Army Service component commands, six active-duty Army divisions, multiple special operations commands, the National Guard Bureau, the Joint Readiness Training Center, the U.S. Military Academy, and nearly twenty-five brigade combat teams and specialized brigades. These efforts vary from assigning a single innovation officer to focus on the effort all the way to creating robust makerspaces or software development cells.

The rise of tactical innovation cells in operational units began in 2017, following the publication of two documents. The first, *Army Innovation Strategy*, 2017– 2021, consolidated innovation definitions and identified areas for improvement, recommendations, and measurable key performance indicators to assess Army units' adoption of innovative methods and culture.<sup>7</sup> The *Army Innovation Strategy* has not been updated since its initial release.

The second document, "Innovation in the Army Needs to Come from the Top Down and the Ground Up," was written by Col. John Cogbill for Army AL&T Magazine.<sup>8</sup> Cogbill, then a 101st Airborne Division brigade commander, created an innovation cell in his brigade, sending officers to the Stanford Ignite program and investing in prototyping equipment. This led to the creation of EagleWerx, a mak-

erspace located on Fort Campbell, Kentucky, which is equipped with 3D printers, CNC machines, and engineering stations. EagleWerx allows soldiers to present problems, develop solutions, and share lessons learned.<sup>9</sup> Notably, EagleWerx partnered with the DEVCOM Army Research Laboratory to provide soldiers access to subject-matter experts and align tactical innovation with official research and development programs.

In 2021, Congress funded DEVCOM Catalyst-Pathfinder, which pairs tactical problems with university and small-business partners.<sup>10</sup> Catalyst-Pathfinder expanded the EagleWerx model to divisions such as the 82ABN's Airborne Innovation Lab and 3ID's Marne Innovation Center.<sup>11</sup>

Other organizations without Catalyst-Pathfinder funding soon created innovation cells tailored to their mission set and available skills. For example, the 25th Infantry Division's Lightning Labs patented nearly a dozen inventions for the Army, while the Connecticut National Guard's process-improvement cell focused on innovating day-to-day operations.<sup>12</sup> U.S. Army Central's innovation team, Task Force 39, adopted live data briefing tools and supported open-topic innovation efforts.<sup>13</sup> The XVIII Airborne Corps established a temporary data warfare company to explore software and AI best practices before reintegrating the effort into traditional staff processes.<sup>14</sup>

With several thousand ground-up innovation initiatives across the Army, tactical innovation teams have seen successes across multiple domains. For instance, innovation cells in 3ID and 82ABN partnered with the Rapid Capabilities Critical Technologies Office to rapidly test tethered and first-person-view UAS, increasing lethality and informing a joint capabilities document.<sup>15</sup> The 10th Mountain Division's innovation cell developed Counter-UAS schools, helping to prepare their soldiers for real-world threats in Jordan and Syria.<sup>16</sup> Soldier-DEVCOM partnerships identified mathematical errors in mortar ballistic computations and body armor quick-release mechanisms and rapidly created solutions.<sup>17</sup> Junior-enlisted software developers created mold-conditions sensing devices, piloted across an entire brigade at Fort Stewart, Georgia, and a web application to automate ammunition requests for training exercises.18

In addition to providing material and training benefits for operational units, tactical innovation teams provide intangible cultural benefits within their formations. Empowering soldiers to simultaneously solve their own problems, learn new skills, and highlight issues to senior leaders, led to the Department of Defense Suicide Prevention and Response Independent Review Committee listing tactical innovation teams as a quality-of-life and suicide prevention protective factor in 2023.<sup>19</sup>

### **Enabling Efforts**

Two programs within AFC warrant special attention for their enabling role in tactical innovation: the DEVCOM Catalyst-Pathfinder and the Army Applications Laboratory (AAL) Army Innovation Network (AIN). Catalyst-Pathfinder provides a scalable methodology to empower soldier-driven innovation. The Pathfinder methodology consists of four components that help transition nebulous problem statements into robust prototypes for soldier use and Army adoption.

**Problem sourcing.** The Pathfinder methodology starts by sourcing soldier problem statements and distilling them into research objectives. To systematize this process, DEVCOM developed the Soldier Innovation Platform to provide a simple-to-use portal for soldiers to submit problems, opportunities, and solution concepts.<sup>20</sup> The platform allows partners at DEVCOM and innovation officers at operational units to curate and prioritize those problem statements, examine trends across the force, and select projects for execution. Additionally, this platform allows reporting to senior Army levels to enhance awareness of arising tactical needs. The soldier innovation platform currently hosts over six hundred soldier-submitted problem statements.

Problem curation. Problem curation refers to a three-step process of problem framing, prioritization, and due diligence. Problem framing contextualizes raw soldier input to the soldier innovation portal and provides root-cause analysis to address the appropriate problem. Problem statements are then prioritized using well-defined and consistent criteria (e.g., scope of problem, alignment with Army priorities, alignment with unit command priorities, feasibility, and overall impact). Due diligence is then conducted across the DEVCOM enterprise ensuring no duplicative efforts exist and supporting the responsible stewardship of government time and resources on innovation projects. Of the over six hundred submissions in the soldier innovation portal, more than forty have resulted in active research and development programs.

Rapid prototyping with regionally aligned, multidisciplinary teams. Rapid prototyping follows problem curation. The Pathfinder methodology enhances typical rapid prototyping efforts by building regionally aligned teams of operational soldiers, researchers, technicians, and specialists from the military, U.S. government, industry, and academia. The regional model enables an unparalleled development-operations feedback loop, providing immediate operational value, enabling continuous improvement of delivered solutions, and de-risking longer-term development projects by ensuring early operational alignment. In partnership with a Pathfinder project at Fayetteville Technical Community College, the XVIII Airborne Corps utilizes ongoing research to improve the accuracy of AI models used in real-world operations.

**Early stakeholder engagement for transition.** Tactical innovation requires the alignment of the stakeholder network to transition ideas through requirement formalization, development, and acquisition. Establishing this stakeholder network early systematizes the warfighter-research and

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A U.S. Army Origin robotic weapons system uses a tethered unmanned aircraft system on 26 October 2022 to help soldiers perform reconnaissance of an area during Project Convergence 22 experimentation at Fort Irwin, California. (Photo by Spc. Jaaron Tolley, U.S. Army)

development-acquisition relationship, increasing the impact of innovation across the Army. The Pathfinder methodology educates and facilitates operational unit engagement with AFC, program executive offices, and Army Materiel Command, ensuring soldier feedback reaches the appropriate stakeholder.

Complementing Catalyst-Pathfinder, the AIN provides an oversight mechanism to magnify efforts to Army senior leaders and across the enterprise. Without the Army's centralized assistance, Catalyst-Pathfinder innovations have no clear path for development past technology readiness level 7.<sup>21</sup> Due to its unique authorities and experience with small businesses, AAL, which runs the AIN, is uniquely positioned to identify grassroots innovation efforts requiring Army resources and to facilitate traditional and nontraditional acquisition pathways for these efforts.

AAL is experimenting with several mechanisms to empower tactical innovation through the AIN, including maintaining a roster of tactical innovation teams across the Army and running monthly synchronization meetings. Additionally, AAL integrates tactical innovation teams into its VERTEX-Forge events, which define problem statements for future industry engagement events.<sup>22</sup>

#### Recommendations for Army Senior Leadership

Despite the success of tactical innovation teams and their enablers, the ecosystem faces challenges due to a lack of Army-level strategy, guidance, training, manning, and funding. Tactical innovation was born from, and owes its success to, the autonomy of individual units to perform innovation as they see fit, but a level of formalization is required to reap the full benefits of these efforts. To address these challenges and allow the Army to realize the ingenuity within its operational forces, the authors of this article propose the following recommendations for Army senior leaders.



Spc. Oria Attey, 3rd Infantry Division, prepares his drone for a test flight on 26 July 2024 at a Hinesville, Georgia, airfield. Attey participated in a first-of-its-kind drone building class run by the division's Marne Innovation Center at Fort Stewart, Georgia. (Photo by Corey Dickstein, courtesy of *Stars and Stripes*)

# Formalize Tactical Innovation in Army Doctrine

**Establish an Army-level tactical innovation working group.** Continuous transformation is one of four top priorities for Army senior leaders. The working group should consist of members of the Army secretariat, the Department of the Army Headquarters, and experienced tactical innovation officers. Their mission should be to integrate bottom-up innovation into existing Army processes across all Army commands.

**Publish a new Army innovation strategy.** The *Army Innovation Strategy* is expired by three years, and the proponent office no longer exists. A new innovation strategy should recognize tactical innovation as a component of continuous transformation, set frameworks for Army-wide adoption, and provide mechanisms and authority for increased engagement between tactical innovation teams and institutional Army organizations. The tactical innovation working group can lead the development of this strategy.

#### Develop Talent Management Solution for Tactical Innovators

**Establish military-occupational-specialty-immaterial billets for innovation officers.** Innovation is a military-occupational-specialty-immaterial skill. Despite recruiting shortfalls in 2023, the Army is overstrength on junior officers, with many serving in nonmodified table of organization and equipment standard excess positions. Nearly all tactical innovation teams utilize borrowed military manpower to man their organizations—formalizing these positions at the division and corps levels will allow operational units to maintain a reserve of intellectual and combat power while making tactical elements leaner and more mobile.

**Establish a training proponent for tactical innovation.** There is no formal curriculum for innovation officer training, meaning that the successes of tactical innovation teams have all emerged from self-taught junior officers and soldiers. In practice, tactical innovation is the combination of design thinking and institutional Army knowledge. The U.S. Military Academy teaches classes ME201, Introduction to Mechanical Engineering, and PL470A, Agile Innovation in Defense, which address problem-framing strategies, design thinking, and industry best practices, while the Army Force Management School provides a course on Army processes called "How the Army Runs." The Army should establish a proponent to combine these curricula and validate relevant fellowships, internships, and university-level courses such as the Shift Defense Ventures Fellowship, Stanford Ignite, and the North Carolina State Innovation Project Leaders course, which result in a tactical innovation additional skill identifier or skill identifier. The force management functional area 50 is proposed as the proponent for this training with the ability to offer career development as appropriate.

Include innovation support training in field grade and general officer professional military education. Army Doctrine Pamphlet 6-22, Army Leadership and the Profession, describes innovation as a core component of an Army leader's intellect.<sup>23</sup> With institutional Army knowledge from intermediate-level education and the Army War College, field grade and general officers are best positioned to enable innovative efforts in their formations. However, professional military education provides little coverage on innovation methodology and how it differs from traditional Army design methodology and the military decision-making process. Namely, senior tactical and operational leaders can empower tactical innovation by understanding that innovative efforts have a high risk of failure, endorsing ground-up initiatives to institutional partners, and enabling highly talented soldiers to participate in nonstandard fellowships and educational opportunities.

#### **Resource Tactical Innovation**

**Organize "transformation task forces" to support operational experimentation.** The Army enterprise is organized in a way that funnels all capability improvement efforts into the capability development integration directorates. For our organization to produce the best products and processes, the efforts need to be closer to the end user. 3ID and the 20th Engineer Brigade invite product managers, researchers, and capability managers to participate in training rotations and assess tactical innovation initiatives directly, a model that should be expanded across the Army.<sup>24</sup> This allows for more user-centric development with quicker and more clear communication between end user and developer.

Incentivizing increased engagement between the acquisitions community and tactical innovation teams will result in requirements that more closely align with soldier needs. These engagements should become required parts of the Army program offices' market survey phase of acquisition plan development, and Army capability managers' capability development document process.

Establish unit innovation funds. Operational units are not resourced appropriately to support tactical innovation. While select military installations at Fort Liberty, Fort Drum, and Fort Campbell have access to Catalyst-Pathfinder, it is solely funded by congressional adds and is limited to 6.2 applied research. To capitalize on the outputs of this research and experimentation, units need flexible funding to scale novel capabilities. AFC therefore nominated a program objective memorandum of twenty-seven planning tasks to the Headquarters, Department of the Army G-3/5/7 for consideration. Headquarters, Department of the Army should accept the unit innovation funding program objective memorandum planning task, allowing AFC to develop options for financially enabling tactical innovation. Operational units also lack education in nonstandard acquisition methods. Some efforts have been made to utilize statutory acquisition strategies such as 10 U.S.C. § 4023-Procurement for Experimental Purposes, which explicitly allows the expenditure of operation and maintenance funding "for experimentation, technical evaluation, assessment of operational utility, or to maintain a residual operational capability."25 However, executing these contracts and other nonfederal acquisition regulation strategies requires an authorization official, which most military installation contracting commands lack.

**Provide space and personnel consistency for tactical innovation.** Tactical innovation is significantly enabled by creating a physical space for ideation, prototyping, and collaboration between researchers and operational soldiers. Design innovation research and technology (DIRT') labs provided by Catalyst-Pathfinder fill this gap. DIRT labs provide additive/subtractive manufacturing, electrical/electronic equipment, textile crafting, and digital solution capabilities. They also serve as a central location for the execution of projects, providing collaborative space for problem curation, project execution, and soldier engagement by researchers. DIRT labs are staffed and managed by contractor engineering subject-matter experts in collaboration with assigned unit members, guiding soldiers through the use of equipment and the prototype design process. DIRT labs are not a requirement for application of the Pathfinder methodology but provide significant acceleration to the design of initial prototypes for materiel solutions. Additionally, to address high personnel turnover inherent in operational Army units, Catalyst-Pathfinder assigns DEVCOM contractor personnel with prior military experience and understanding of their assigned unit's mission set to unit DIRT labs. In collaboration with innovation officers, Pathfinder Warfighter innovation chiefs intake and curate problems from unit members, analyze viable solutions, identify academic and small-business performers to develop solutions, and ensure contractual timelines and deliverables are met. Working directly with the innovation officers, Pathfinder Warfighter innovation chiefs provide continuity for tactical innovation initiatives. To expand these efforts to additional locations Pathfinder cannot rely solely on congressional funding.

Host Army-level tactical innovation events. During fiscal year 2023, the Department of Defense hosted 157 conferences, each having a net cost of \$100,000 or more. The aggregate total cost of the fiscal year 2023 Department of Defense-hosted conferences was \$51,892,881.79.26 While many of these conferences involved corresponding technology expos and vendor demonstrations, no Army-hosted conferences specifically highlighted soldier-developed innovations. Due to this, senior leaders' visibility of internal innovation is dramatically overshadowed by external commercial innovation. Hosting an annual tactical innovation conference will allow the Army to increase the senior leaders' awareness of internal innovation and ongoing problems while recognizing and rewarding innovative soldiers within its ranks.

#### Recommendations for Unit Leadership

Implementation of the above recommendations is unlikely to be immediate; however, the Army needs to be prepared to fight and win on a complex battlefield today. To rapidly drive bottom-up tactical innovation, the authors of this whitepaper propose the following recommendations for Army leaders at every echelon.

## **Cultivate a Culture of Innovation**

While we are largely an Army at peace, cultivating this culture within formations now will prove essential in our next major conflict. Leaders at every echelon can empower their soldiers to innovate by granting five freedoms to the soldiers of their innovation team.

**Freedom to found.** There must be people, places, and funds dedicated solely to innovation, and the innovation officers must be able to freely utilize these resources.

**Freedom for fellowship.** Innovation officers must be free to build relationships with external entities on behalf of the unit (academia, industry, and Department of Defense).

**Freedom to flatten.** The military rank structure creates an environment where the highest-ranking person in the room is right. To effectively execute tactical innovation, agile design teams must be flat; rank has no place in a tactical innovation lab.

**Freedom to fail.** Failure is unacceptable in military operations; however, it is an essential aspect of design and experimentation. Innovations must be allowed to fail now so they can learn and generate better solutions for the future.

**Freedom to flow.** Bureaucracy slows down the fielding of solutions that soldiers need now. A leader must do everything they can to break down barriers preventing solutions from being fielded to the front lines.

# **Enable Soldier Ideas to Succeed**

Treat training as an opportunity to experiment. "If the Army is to better pursue innovation across the *s*pectrum, they must create mechanisms designed to support a culture that embraces innovation at the tactical level. The Army can better leverage their innovative potential by exploring capabilities and concepts from bottom-up and normalizing prototype and experimentation opportunities in the operational force. Supporting Soldier innovation requires operational units to make a habit of experimentation and prototyping."<sup>27</sup>

As a brigade combat team trains, capability gaps and program of record (PoR) shortcomings naturally reveal themselves. Capability development integration

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directorates and Army capability managers exist to support these problem sets but are often not geographically located where brigade combat teams train. Through the Center for Army Lessons Learned and soldier touch points, the Army enterprise slowly learns of these problem sets. However, even with clear communication and motivated stakeholders, execution on the development and integration of a solution developed by the Army enterprise to solve for an identi-

**Provide general officer support.** New, innovative ideas that come from the end user, often come with minor flaws that need to be worked out as the idea matures. For that idea to continue on a path to fruitful outcomes, top cover is needed to support early failures and setbacks. Sometimes, these ideas involve disruptive technology that have an expiration date and need to be implemented in a timely manner. General officer support can expedite Army staffing

Raider Brigade (1st Armored Brigade Combat Team, 3ID) has conducted multiple experimentation events with the Marne Innovation Center at home-station training events as well as combat training center rotations, to include electromagnetic spectrum emitters, tethered drones, and sUAS.

fied capability gap can take years. Experimentation conducted by an operational unit can generate novel solutions to identified capability gaps while also generating data and feedback to inform a future PoR. Not only does this provide a more user-centric design, it also de-risks the investment of a new PoR by reducing the cost of experimentation and data collection. While many innovation efforts tend to develop a hardware or software solution, experimentation at the tactical level is critical to developing processes revealing that a new concept has possibilities to inform future doctrine.

Raider Brigade (1st Armored Brigade Combat Team, 3ID) has conducted multiple experimentation events with the Marne Innovation Center at home-station training events as well as combat training center rotations, to include electromagnetic spectrum emitters, tethered drones, and sUAS. This has allowed Raider soldiers to develop tactics, techniques, and procedures with new, disruptive technology and conduct iterative prototyping on solutions to identified capability gaps.

**Protect soldiers' time to innovate.** Bottom-up innovation only works when soldiers are directly involved. Therefore, they need to be given time and space to solve their problems. When commanders allocate time for soldiers to focus on innovation efforts and experimentation, they are creating a culture that promotes creative problem-solving.

and provide the proper messaging to program offices and capability managers. This, in turn, can help connect soldiers to the subject-matter experts and resources needed to quickly turn an innovative idea into a new capability.

#### Empower Talented Soldiers to Innovate

Provide talented soldiers to lead innovation efforts. To advance tactical innovation, leaders need to identify, align, and incentivize the right talent to serve as innovation officers. There is no shortage of highly skilled innovators and entrepreneurs in the junior officer and NCO ranks that will excel as innovation officers; however, this talent is rarely effectively utilized. Misuse of this talent will not only yield suboptimal results from any innovation venture but will also continue to contribute to the disastrous retention rates of these uniquely talented individuals. When soldiers feel they are not given the opportunity to utilize their skills or recognized for nontraditional talent in the Army, they will seek a role elsewhere. Serving as an innovation officer allows junior officers and NCOs to deliver disproportionate value to their units by delivering Army-level impact despite their rank. The subsequent retention of this population will pave the way for a generation of technically skilled senior officers with

the experience and expertise to lead future formations on unpredictable battlefields.

Incentivize innovation and protect soldiers on nontraditional career paths. Division leadership must incentivize and protect their innovation officers by ensuring they are provided an opportunity to progress in their careers despite the lack of a formal career path at this time. In addition to incentivizing the soldier, they must also enable and incentivize battalion and brigade leadership to identify and nominate innovation talent from within their formation and articulate the value they will receive in return.

#### **Tactical Innovation Institute**

The recommendations put forth in this article will further solidify and amplify tactical innovation's hardearned, grass-roots successes. The Tactical Innovation Institute (TII) was founded in early 2024 as a resource for operationalizing tactical innovation that enhances capabilities through a talent-centric approach.<sup>28</sup> Founded by experienced tactical innovation officers, TII conducts research, supports existing tactical innovation efforts, advises units on starting new labs, and guides Army leadership on implementing policy to enhance tactical innovation.

In collaboration with experts across the innovation ecosystem, TII's current initiatives are aiding the management of the uniquely talented soldiers leading innovation across the Army. These efforts include the development of a core competencies model to help leaders identify and recruit top talent to serve on their innovation teams and a pilot training program that combines education on the Army innovation ecosystem with lessons from industry and academia to equip these innovation officers to succeed. This training is currently being delivered to officers and NCOs from every component of the Army and will serve as a framework for the training required for an innovation officer ASI (Additional Skill Identifier). TII is serving as a stop-gap solution to support tactical innovation labs but primarily exists to guide the implementation of the recommendations laid out in this article, enabling the Army to execute continuous transformation through a bottom-up, soldier-inspired approach to innovation.

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