

# Strategy Research Project

## Operationalizing Innovation

by

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United States Army War College  
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# USAWC STRATEGY RESEARCH PROJECT

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## **Abstract**

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After a decade of war in Afghanistan and Iraq, the U.S. military exits a period of adaptation and into an interwar period where innovation will be critical to drive future investments. In peacetime, the U.S. military faces a paradox where a demand signal is needed to inform future investments, yet innovation typically occurs in war. Innovation in peacetime is hindered by a Service's dominant concept of war, Service bureaucracy, and politics influenced by the defense industrial base. This paper proposes a novel approach to creating innovation in peacetime and introduces the term operationalizing innovation. Operationalizing innovation requires a three-pronged approach that involves: 1) operational employment, 2) the pursuit of disruptive technologies, and 3) the promotion of capabilities competition. With an investment in force structure, this paper proposes the creation of a new organization, Task Force Innovate, whose sole focus is to challenge the current mix of capabilities through innovative concepts of war. Because of the low-cost footprint of Task Force Innovate and the freedom to experiment and explore, the concept of operationalizing innovation represents a viable approach to stimulating innovation in peacetime.



## Operationalizing Innovation

To Alice's question, "Would you tell me, please, which way I ought to go from here?" The Cheshire cat replied, "That depends a good deal on where you want to get to."

—Lewis Carroll<sup>1</sup>

As the United States Army (U.S. Army) exits the conflicts in Iraq and Afghanistan, it enters a period of innovation when it is critical to determine the investments needed to place the Army in a competitive advantage when called upon by the Nation.<sup>2</sup> The last decade produced a very capable force tailored for the wars in Iraq and Afghanistan. With the United States' exit from Iraq in 2011 and troop levels in Afghanistan decreasing, the U.S. Army enters a new era filled with uncertainty. For the U.S. Army, the time to innovate is now.<sup>3</sup> Innovation, involving the methodical examination of possibilities, provides the U.S. Army a strategic advantage in the future.<sup>4</sup>

Unless the U.S. Army develops a demand signal in peacetime with reduced resources, innovation and change will be stifled and result in unpreparedness for the next major conflict. During war, a capable adversary presents the demand signal for change. In peacetime, the demand signal for change is not clear. Historically, defense budgets are reduced after major conflicts. From a 40% increase in the base Department of Defense (DoD) budget from 2001 to 2012, DoD will experience reduced budgets due to spending caps from the Budget Control Act of 2011 and the triggering of sequestration, which total to almost \$1 trillion over a ten-year period.<sup>5</sup>

In order to enable innovation and change, the U.S. Army must *operationalize innovation* by the creation of an innovation organization that promotes capability competition and can be employed operationally. This paper introduces the term *operationalizing innovation*. In this context, an investment in force structure can not only

advance innovation, but also meet current operational requirements. Because of the low cost footprint of these organizations and the freedom to experiment and explore, the concept of operationalizing innovation represents a viable and structured approach to stimulate innovation. This paper looks at the post-conflict environment and the challenges with driving innovation and change. Next, the status quo approach to innovation is investigated. Under the status quo, current warfighting concepts, current force structure, and the defense industrial complex, present obstacles that impede innovation. To avoid stagnation, the Army must operationalize innovation to foster a peacetime environment of competition and learning while meeting operational requirements. This paper proposes a way for senior defense officials to operationalize innovation and create a demand signal in peacetime to drive future materiel investments, new concepts of warfare, and new force designs.

### The Problem with Post-Conflict Innovation and Change

For the last decade of war in Iraq and Afghanistan, the Army adapted its forces to an asymmetric threat that inspired military change. In a speech before the Association of the United States Army, Lieutenant General Keith Walker stated, "Adaptation is driven by some emergency and arguably what we've done for the last dozen years at war . . . Right now, we are coming out of a period of adaptation and into a period of innovation."<sup>6</sup> As stated, Lieutenant General Walker makes a distinction between the processes of adaptation versus innovation. Often used synonymously with the word innovation, military change occurs along three pathways, innovation, adaptation, and emulation.<sup>7</sup> Innovation involves changes in new military technologies, tactics, strategies, and structures.<sup>8</sup> Adaptation involves the adjustment of existing military means and

methods.<sup>9</sup> Emulation involves the importing of new tools and ways of war from other military organizations.<sup>10</sup>

### The Period of Adaptation

The period of adaptation during the last decade resulted in organizational design changes and an infusion of new capabilities to meet the demands of war. Prior to the events on September 11, 2001, the U.S. Army was configured to fight a conventional force. Fighting an asymmetric threat in Iraq and Afghanistan caused the U.S. Army to adapt organizations and develop military solutions in response to a dynamic threat. New organizations were created to fill the gap between a conventional force and a counterinsurgency force tailored for Iraq and Afghanistan. For example, Human Terrain Teams were created to provide expertise on local culture.<sup>11</sup> The COIN (Counter-Insurgency) Academy was created as an in-theater training school to fill training gaps as schoolhouses adjusted their curricula.<sup>12</sup> General James Cartwright, former Vice Chairman for the Joint Chiefs of Staff remarked, “These battlefields were not driven by ‘platform solutions,’ because our major weapons platforms take 15 to 20 years to field.”<sup>13</sup> Platforms were adapted with computer software and cutting edge sensors to find and fight the enemy.<sup>14</sup> The one exception to this statement was the rapid fielding of the Mine Resistant Ambush Protected armored vehicles to protect troops from Improvised Explosive Devices (IED), which was borne of the need to provide protection for close-in fighting.<sup>15</sup> From capability improvements in body armor protection, intelligence, surveillance, and reconnaissance, to counter-IED devices, the U.S. military developed military solutions to the problems at hand.

In a wartime environment, the U.S. military is in “business” with an adversary as the customer. During war, military organizations and the enemy on the battlefield exhibit

a unique symbiotic relationship with the enemy providing feedback on the usefulness of the products the military is providing. Wartime military organizations face an enemy who is trying to defeat them physically and psychologically with intent to thwart useful learning.<sup>16</sup> The uniqueness of war makes long time horizons for military solutions impractical because the organization is suffering casualties and the leadership is affected by that reality.<sup>17</sup> Therefore, during war, the U.S. Army Capabilities Integration Center noted that adaptation delivers “just-in-time, ‘good enough’ solutions.”<sup>18</sup>

As the U.S. military enters a post-conflict environment with no dominant threat, it must imagine the next customer for war. The challenge of peacetime innovation is one of imagination and thinking about who the next customer for war will be; of which Micah Zenko observes that the U.S. military has been “100% right, 0% of the time.”<sup>19</sup> In a speech to West Point cadets in February 2011, Secretary of Defense Robert Gates stated:

And I must tell you, when it comes to predicting the nature and location of our next military engagements, since Vietnam, our record has been perfect. We have never once gotten it right, from the Mayaguez to Grenada, Panama, Somalia, the Balkans, Haiti, Kuwait, Iraq, and more-- we had no idea a year before any of these missions that we would be so engaged.<sup>20</sup>

Unlike organizations in the private sector, the military must innovate and prepare for war in the absence of operational competition. That is, it must prepare for 1) an unidentified enemy, 2) at an unknown point in time, 3) during unknown political conditions, and 4) in an arena of violence that cannot be replicated in peacetime.<sup>21</sup>

### The Post-Conflict Environment

The post-conflict environment presents challenges to creating innovation and change. Organization theory scholars tend to view the U.S. military as a large, inert

organization that resists change and innovation by minimizing uncertainty and engaging in bureaucratic battles to claim resources or prestige.<sup>22</sup> Large organizations like the U.S. military must coordinate the efforts of a large number of people.<sup>23</sup> Because of their size, large organizations must develop standard operating procedures (SOPs) as a standard way of doing business to facilitate coordination.<sup>24</sup> SOPs do not change easily or quickly. They become part of the incentive structure of the organization and shape the norms, attitudes, and professional culture of its members. SOPs are very resistant to change, particularly in peacetime.<sup>25</sup>

A body of thought exists that innovation occurs after organizations fail. Business failure equates to going bankrupt, while military failure is commensurate with not achieving political objectives. Military failure encourages innovation, while victory discourages innovation. The literature is filled with examples of innovation after organizational failure.<sup>26</sup> Failure challenges the basic existence and purpose of organizations and causes organizations to innovate or suffer.<sup>27</sup> That said, history offers many examples that make the opposite argument. During the Vietnam War, the U.S. Army was innovative in shifting resources to counterinsurgency and away from conventional-style operations.<sup>28</sup> After Vietnam, the U.S. Army did not rush to innovate capabilities for counterinsurgency.<sup>29</sup> Instead, the Army sought to expunge counterinsurgency lessons learned through officer education at the Army War College and the Command and General Staff College that focused on the big war contingency in Europe.<sup>30</sup> Additionally, a victorious U.S. military after World War I and II developed new capabilities in helicopter warfare, carrier aviation, and amphibious assault.<sup>31</sup> A more

powerful explanation for the lack of innovation in peacetime resides in military organizational culture.

Institutionalizing innovation and change is difficult due to military organizational culture. Organizational culture consists of the formal and informal understandings of how an organization fulfills its functions and what functions are appropriate.<sup>32</sup> Large organizations try to control the behavior of members of the organizations through standardized conduct known as SOPs. With a reluctance to change the status quo, innovation in the U.S. military creates operational uncertainty. SOPs and programs experience turmoil when innovation is in progress.<sup>33</sup> If war should break out during a time in transition, the organization would find itself in the middle of doctrine changes; in short, a bad doctrine is better than no doctrine.<sup>34</sup> Seldom does a new technology not tested under battlefield conditions become the catalyst for innovation.<sup>35</sup> Normally, new technology is assimilated into the old doctrine than creating new doctrine.<sup>36</sup>

The military personnel system inhibits innovation by discouraging “mavericks” from speaking out against the norm. Military organizations are noted for being hierarchical and disciplined organizations with power residing in those promoted to senior positions of command.<sup>37</sup> If a “maverick” is defined as a military person who is an outsider with brilliant ideas and rejected by the system, no “maverick” will have the kind of power to make changes because of the lack of a promotion pathway for that officer.<sup>38</sup> Because of the ability to control promotions, senior leaders would need to create a separate promotion pathway to encourage younger officers to practice new ways of war as part of a generational change.<sup>39</sup> In the development of carrier aviation in the U.S. Navy after World War I, Rear Admiral William Moffett expanded opportunities for

promotion and changed personnel policy for aviators by: 1) permitting higher rank Navy captains to earn their wings as observers to allow time for junior aviators to rise from the bottom, 2) creating a Naval Reserve system that allowed aviators to be activated in time of war, and 3) ensuring only aviators were selected to command naval air stations and aircraft carriers.<sup>40</sup> Thus, the problem of peacetime innovation requires not only a novel theory of tactics, operations, or strategy, but also the support of senior military officers who must supply resources and structure for the exploration and development of significant innovations.

### Encouraging Innovation and Change

The U.S. military has two approaches to motivating innovation and change in a post-conflict environment: continuing along the current path or operationalizing innovation. Military leaders must manage innovation to prevent stagnation. Managing innovation requires an understanding of different types of innovation. For the military, warfighting can be viewed as a set of integrated components linked by architecture (doctrine).<sup>41</sup> Based on this component-linkage model, innovation can be classified into four types of innovation depending on the innovation's impact on components versus the impacts to the component linkages.<sup>42</sup> Among the four types of innovation in this model, architectural innovation represents military doctrine changes that are defined as linking existing components in a unique way; the other three types of innovation result in an assimilation to the old doctrine.<sup>43</sup> Rebecca Henderson and Kim Clark describe architectural innovation as follows:

The essence of an architectural innovation is the reconfiguration of an established system to link together existing components in a new way. This does not mean that the components themselves are untouched by architectural innovation. Architectural innovation is often triggered by a change in a component—perhaps size or some other subsidiary parameter

of its design-that creates new interactions and new linkages with other components in the established product.<sup>44</sup>

Architectural innovation can further be classified as either sustaining or disruptive. Sustaining innovations are those that result in improvements along a facet of performance that is valued.<sup>45</sup> Disruptive innovation results in improvements along a dimension that is either not valued or inferior to valued measures.<sup>46</sup> Disruptive innovations result in novel linkages among components in an unstable architecture that ultimately leads to a new way of warfighting.<sup>47</sup> Sustaining innovations reinforce the capabilities of the organization, while disruptive innovations require new skills and routines (see Figure 1).<sup>48</sup>

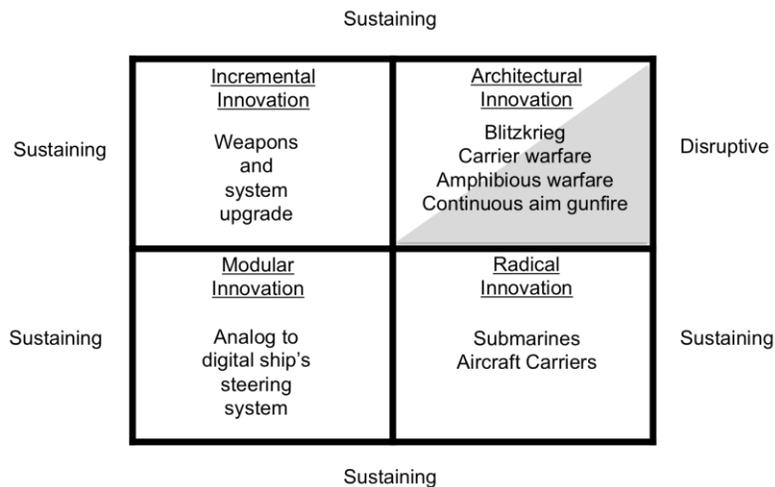


Figure 1. Innovation Classification Typology<sup>49</sup>

Continuing Along The Current Path

Current concepts of warfare represent the war that the military wants to fight. If an innovation is not congruent with a concept of war, the more likely it is that the military will hinder or ignore the innovation. Each Service in the U.S. military possesses a concept of war. Military organizations possess the ability to define their missions, and they have processes for developing and fielding capabilities needed to pursue these

missions. The *organization's essence* represents the dominant view of what the missions and capabilities should be in defining the organization.<sup>50</sup> The U.S. Navy's dominant concept is a fight at sea for naval supremacy.<sup>51</sup> In the U.S. Air Force, the dominant concept is split between bomber pilots and fighter pilots.<sup>52</sup> For the U.S. Army, the dominant concept of war has been a focus on mid-intensity, conventional war with massive firepower to minimize casualties; thus trading off materiel costs to avoid payment in blood.<sup>53</sup> World War I, World War II, and the Korean War helped to define the U.S. Army's focus on conventional war and became a suitable frame of reference to view conflict.<sup>54</sup> Dominant concepts of war have three strategic implications: 1) the dominant concepts shape the forces that are fielded, 2) dominant concepts correspond to peacetime interests than preparedness for the next war, and 3) if the dominant concept of war is wrong, the Services will be less efficient and less effective in the next war.<sup>55</sup>

From the dominant concepts of war, the U.S. military identifies needed capabilities and contracts with the Nation's defense industries to fulfill these needs.<sup>56</sup> Thus, the industrial base may reinforce dominant concepts by creating significant sunk costs in existing capabilities and hinder innovation. In 1993, shortly after President William Clinton was elected, defense industries began a period of intense consolidation and decrease which resulted in the five major defense firms in existence today; Boeing, Lockheed Martin, Northrop Grumman, General Dynamics, and Raytheon.<sup>57</sup> The gap between what the U.S. military desires versus what defense firms can provide is widening due to industry consolidation, DoD's reduced procurement and research budgets, and the current economic downturn.<sup>58</sup> As an unintended consequence of

consolidation, the future will be one of less competition and innovation.<sup>59</sup> Because defense firms and parts suppliers provide jobs, Congressional pressures exist to continue with major defense programs. Aircraft, ships, tanks, and bases, all have a political constituency.<sup>60</sup> As Secretary of Defense Leon Panetta stated, DoD's proposed 2013 budget diverted \$74 billion of savings "to other areas that, frankly, we don't need."<sup>61</sup> In the same budget request, Congress mandated an additional 280 M1A2 Abrams tanks that were not needed.<sup>62</sup> A year prior in 2012, Chief of Staff of the Army, General Raymond Odierno, made a similar case and stated before Congress, "We don't need the tanks . . . Our tank fleet is 2 1/2 years old average now. We're in good shape, and these are additional tanks that we don't need."<sup>63</sup> Therefore, domestic politics can stifle innovation.

Lastly, the existing force structure represents the war the military is ready to fight and obstructs innovation. The existing force structure of all Services is tied to the dominant concept of war that defines each Armed Service and represents an investment in the next war, yet the force structure may not be appropriate for the unknown conflict. During the Cold War, the U.S. Army's dominant concept of war was a conventional fight with the Warsaw Pact countries over the territorial integrity of the Federal Republic of Germany.<sup>64</sup> During the Cold War, the Army could optimize its doctrine and force structure around a single scenario that was consistent with the Army's preference for high-intensity conflict.<sup>65</sup> After the collapse of the Soviet Union, the U.S. Army found itself in an era of strategic uncertainty when the North Atlantic Treaty Organization Central Front scenario that had anchored so much of the Army's force structure and doctrine disappeared.<sup>66</sup> Prior to Afghanistan and Iraq, the Army was still

focused on the conventional fight. Not until the later stages of both wars did it become evident that increased manpower and heavy protection for close fighting was necessary to prosecute both wars.<sup>67</sup>

The future of unmanned systems development is one example how the military can be trapped by these organizational dynamics. Unmanned systems, particularly unmanned aerial vehicles (UAVs), demonstrated its transformational value during the wars in Afghanistan and Iraq by providing real-time intelligence, persistent surveillance, and a precision strike capability. Getting to the point of being recognized as a critical asset on the battlefield required overcoming institutional bias for manned aircraft, or the “white scarf” syndrome.<sup>68</sup> As stated previously, typically new technologies are assimilated onto old doctrine. In the case of UAVs, a Defense Science Board report in 2004, noted that DoD and the Services need to make UAVs an integral part of the force structure and not an “additional asset.”<sup>69</sup> To accomplish this task requires planning, appropriate budgeting, and continued management to move from the previous task of deconfliction to better integration and interdependence.<sup>70</sup> In a review of DoD’s Unmanned Systems Integrated Roadmap FY2013-2038, each Service is pursuing unmanned systems development along their dominant concepts of war, and not towards better integration. Stratified by mission areas that are loosely tied to altitude, the U.S. Air Force is pursuing higher altitude systems like the MQ-9 Reaper and RQ-48 Global Hawk, while the U.S. Army is pursuing more tactical systems like the RQ-7 Shadow and persistent systems that enable intelligence like the MQ-1C Gray Eagle (see Figure 2). Because many of these unmanned systems were acquired rapidly to meet the needs of the war, a thorough and rigorous requirements review was not conducted through the

Joint Capabilities and Integration and Development System process to address system interdependencies, interoperability issues, and broader joint capability areas; thus further reinforcing the lack of integration across UAS and the Services.<sup>71</sup>

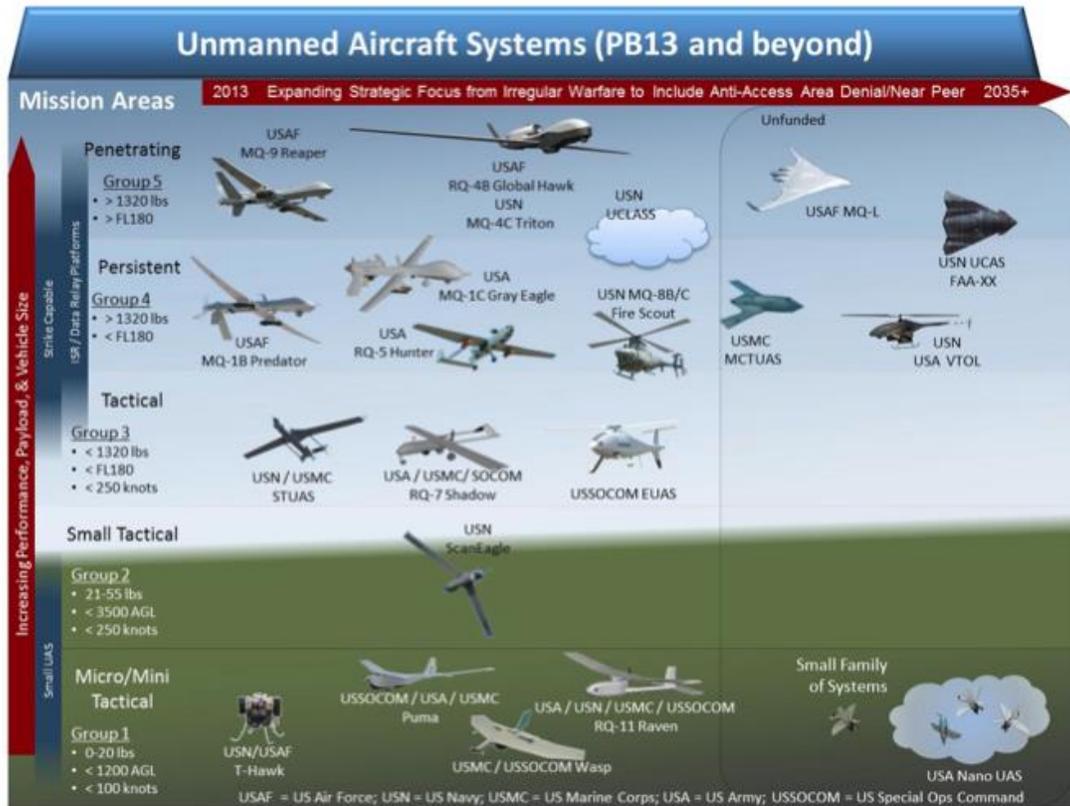


Figure 2. Unmanned Aerial Systems and Beyond<sup>72</sup>

By operationalizing innovation, the military can create an escape vector to challenge the employment and mix of current capabilities and inform future investment. The future environment will be one with reduced defense budgets and no dominant threat to organize doctrine and organizations. Organizationally, the military culture is hierarchical and disciplined with a military personnel system that discourages junior personnel from speaking out for fear of going against the “system.” A Service’s dominant concept of war, organizational bureaucracy, and the politics to provide

capabilities, limit the current approach to innovation. A different approach to encouraging innovation in peacetime is to operationalize innovation.

### Operationalizing Innovation

Operationalizing innovation requires a three-pronged approach that involves: 1) operational employment, 2) the pursuit of disruptive technologies, and 3) the promotion of capabilities competition. First, an investment in force structure is needed to create a new organization, Task Force Innovate (TF Innovate), whose sole focus is to challenge the current mix of capabilities through innovative concepts of war. The mission of TF Innovate would be to prepare to deploy and conduct Service-specific operations (land, sea, or air) in support of a Service Component Headquarters, Joint Task Force, or Multinational Force. TF Innovate, through the use of disruptive technologies and off-the-shelf equipment, pursues innovation by invalidating the current mix of capabilities in order to inform new concepts of war. Creation of this organization legitimizes innovation, creates a separate organizational culture, and encourages leaders within the organization to understand and solve a wide variety of military problems. While serving in typical leadership positions in this organization, personnel would not be discriminated against in promotion boards. Through the operational employment of this organization, TF Innovate is designed to meet current mission requirements, as opposed to creating an experimental test unit. Finally, the creation of TF Innovate can guide future investments in new technologies and changes in doctrine.

For the U.S. Army, TF Innovate would be a regionally aligned brigade-sized task force that fights asymmetrically, develops new concepts of war, pursues disruptive technologies in a rapid equipping cycle, and meets current mission requirements. Sized at three to four thousand personnel, the U.S. Army should invest a portion of its force

structure in TF Innovate with the previous described mission in the land domain. From an organizational perspective, the brigade resembles a standard U.S. Army brigade combat team (BCT) with a brigade headquarters and subordinate battalions. However, TF Innovate would retain the flexibility to alter its organizational design as needed to fight new concepts of war. The organization would not be tied to any doctrinal constraints and have the freedom to pursue commercial-off-the-shelf disruptive technologies in a rapid equipping cycle.

Maneuver battalions in TF Innovate could be stationed at any one of the combat training centers. Within a unit's rotation to a combat training center, TF Innovate could participate and fight asymmetrically as an opposing force (OPFOR). Combat training centers have the mission to provide realistic Joint and combined arms training according to Army and Joint doctrine.<sup>73</sup> For stationing options, the Army's combat training center program consists of three maneuver training centers: 1) the National Training Center at Fort Irwin, California, 2) the Joint Readiness Training Center at Fort Polk, Louisiana, and 3) the Joint Multinational Readiness Center in Germany. Unit rotations with TF Innovate would provide a source of data for lessons learned on unified land operations to improve doctrine, organization, training, materiel, leadership and education, personnel, and facilities.<sup>74</sup> The difference between TF Innovate and the stationed OPFOR at a combat training center is operational employment. After Afghanistan and Iraq, the Army is regionally aligning units to specific combatant commands such as those in Europe, Africa, and the Pacific.<sup>75</sup> Besides stationing these units at combat training centers, the Army should regionally align subordinate units

within TF Innovate. Regional alignment and a deployment to a specific region would enable the unit to learn asymmetric tactics and build cultural expertise within the unit.

A key component to operationalizing innovation involves worldwide employment and the creation of an organization that is more than an experimental test unit. Within the U.S. Army's formations, the 2nd BCT, 1st Armored Division (2/1 AD), has the mission to be prepared "to deploy and conduct decisive and sustainable land operations in support of a Division, Joint Task Force, or Multinational Force."<sup>76</sup> Additionally, this unit is tasked to "support the Army Modernization Strategy through integration and evaluation of the Network, Capability Sets, and other adaptive and core capabilities to assist in shaping the future force of the U.S. Army."<sup>77</sup> The organization of this unit is an Armored BCT that is task organized to replicate a light, heavy, or Stryker brigade combat team.<sup>78</sup> Working with the Brigade Modernization Command at Fort Bliss, Texas, 2/1 AD has the mission to evaluate candidate network solutions and other candidate capabilities to support Army Modernization.<sup>79</sup> While similar in concept, the proposal for TF Innovate differs from 2/1 AD by not mimicking or replicating current Army formations. Additionally, much of the innovation occurring with 2/1 AD is either incremental or modular as part of the Army's Network Integration Evaluation exercise where 2/1 AD assists to reduce the integration burden on operational formations, integrate capability sets, and provide a forum to leverage mature industry capabilities to fill operational gaps.<sup>80</sup> Unlike 2/1 AD and other BCTs, TF Innovate differs in terms of concepts of war, operational construct, type of innovation pursued, organizational design, and equipment (see Table below).

Table. Comparison of U.S. Army Brigade Combat Teams

	<b>Current Brigade Combat Team (BCT)</b>	<b>2nd Brigade Combat Team / 1st Armored Division</b>	<b>TF Innovate</b>
<b>Concept of War</b>	Fights the current concepts of war	Fights the current concepts of war	<ul style="list-style-type: none"> <li>• Seeks new concepts of war</li> <li>• Fights asymmetrically</li> </ul>
<b>Operational Construct</b>	<ul style="list-style-type: none"> <li>• Prepare to deploy and fight</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare to deploy and fight</li> <li>• Tasked to support Army Modernization</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare to deploy and fight</li> <li>• Augments Combat Training Centers</li> </ul>
<b>Type of Innovation</b>	<ul style="list-style-type: none"> <li>• Incremental Innovation</li> <li>• Sustaining</li> </ul>	<ul style="list-style-type: none"> <li>• Incremental or Modular Innovation</li> <li>• Sustaining</li> </ul>	<ul style="list-style-type: none"> <li>• Architectural Innovation</li> <li>• Disruptive</li> </ul>
<b>Organizational Design</b>	<ul style="list-style-type: none"> <li>• Standard BCT design by type of BCT</li> <li>• Design changes affect all BCTs by type of BCT</li> </ul>	<ul style="list-style-type: none"> <li>• Armored BCT type</li> <li>• Replicates other BCT types based on equipment</li> <li>• Subject to design changes in Armored BCTs</li> </ul>	<ul style="list-style-type: none"> <li>• Unique BCT design</li> <li>• Flexible to modify organization to meet new concepts of war</li> </ul>
<b>Equipment</b>	Government bought through Defense Acquisition System	Government bought through Defense Acquisition System	Commercial off-the-shelf in rapid equipping cycles

By learning and fighting with off-the-shelf technologies, TF Innovate can be a catalyst for change. The pursuit of commercial-off-the-shelf, government-off-the-shelf, or commercial/ foreign-derivative systems may provide a potential advantage in rapid response, lower costs, lower risks, and easier fielded performance, as our adversaries fight neither the war the U.S. military wants nor the war that is planned for.<sup>81</sup> Operationalizing innovation involves the pursuit of disruptive innovations, innovations that result in different ways of conducting war. To pursue disruptive innovations, TF Innovate would possess the freedom to investigate and try different technologies and not be tied to Service dominant concepts of war. Edward Katzenbach noted in his study on horse cavalry that a time lag exists between the innovation and the successful institutional or social response to it, especially in military matters.<sup>82</sup> As the pace of

technological change increases, time lag increases, as doctrine, organizations, and training, must adjust.<sup>83</sup> While this paper is not a treatise on the current DoD acquisition process, the essence of the problem is to field useful military solutions faster, yet DoD is not equipped to acquire and field capabilities rapidly in peacetime.<sup>84</sup> In the civilian sector, equipment cycles are rapid and accelerating. As an example, a study of country cell phone replacement cycles showed Americans in 2010 replaced their cell phone on average every 21.7 months.<sup>85</sup> The more advanced the device, the more a consumer or business user takes advantage of the wireless services and mobile applications, which is a prerequisite for innovation.<sup>86</sup> By pursuing commercial off-the-shelf technologies in a rapid equipping cycle, TF Innovate can take advantage of changing technology to generate innovation.

By promoting capabilities competition, TF Innovate can challenge the current mix of capabilities and guide future investments. Capabilities in the U.S. military are optimized against a given threat or a range of scenarios. Under the hypothesis that the current Service concept of war and the force structure organized to fight that concept is valid, the mission of the learning organization would be to invalidate that hypothesis by challenging the status quo of capabilities in competition or mock battles. Borrowing from the field of statistics, the concept of the null hypothesis is useful to promote a capabilities competition. Rather than trying to prove an idea is useful (the alternate hypothesis), it is important to create a null hypothesis that invalidates the idea. If sufficient evidence can be gathered to negate the null hypothesis, then an idea is more likely to stand.<sup>87</sup> For the U.S. military, the null hypothesis would be: the current dominant concepts of war and force structure *are not valid*. The alternate hypothesis would be:

the current dominant concepts of war and force structure *are valid*. Although a subtle difference, in order to encourage innovation in the future, an assumption must be based on failure. Thus, by having an organization focused on invalidating the current concepts of war and force structure, the U.S. military can encourage innovation in the future.

With the creation of TF Innovate, promotion of capabilities competition, and operational employment, a post-conflict demand signal for innovation and change can be created. A post-conflict demand signal is needed to drive future materiel investments, but the current path for innovation is limited. Taking the previously described three-pronged approach will be the impetus for new ideas on war, new ways to organize, and new ways to equip formations in the Services. Innovators rely on “associational thinking” or the cognitive skill of making sense out of seemingly unrelated questions, problems, and ideas.<sup>88</sup> Achieving associational thinking requires discovery skills in questioning the status quo, intense observations of the environment, a diverse network of individuals with varied perspectives, and experimentation to hold convictions at bay while testing hypotheses.<sup>89</sup> The motivation to innovate is reliant on two themes: 1) the desire to change the status quo, and 2) tolerance of taking risks to foster required change.<sup>90</sup> By operationalizing innovation, the Services can create an organization with the requisite discovery skills described to motivate innovation.

If the military adopts and creates TF Innovate, the military can posture itself to operationalize innovation and drive a demand signal in peacetime. The current approach inhibits innovation by Service concepts of war, current investment in force structure, and the defense industrial base. The creation of TF Innovate can motivate innovation and change. By giving these organizations a low-cost footprint, these

recommendations serve as a feasible solution in a reduced defense budget environment. Finally, the codification of these organizations in Service force structure provides legitimacy to build an organizational culture of innovation.

### Conclusion

The U.S. military enters a period of innovation with limited resources and an uncertain future. After a decade of war in Afghanistan and Iraq, the U.S. military exits a period of adaptation and into an interwar period where innovation will be critical to drive future investments. In peacetime, the U.S. military faces a paradox where a demand signal is needed to inform future investments, yet innovation typically occurs in war. With no existential threats and uncertainty, a different demand signal for change is needed due to the absence of a threat-induced feedback mechanism to drive capability development that is normally seen in war. The uniqueness of the military is that its capabilities are only tested in war at a time, place, and by an adversary that may not be advantageous to the U.S. military.

Unless the U.S. military operationalizes innovation and creates a demand signal in peacetime, innovation and change for the next war will be stifled. Military organizations are large bureaucratic organizations that are hierarchical, disciplined, and value certainty through SOPs and organizational processes. Personnel within the military organization are valued for following SOPs and processes. Promotion to higher ranks equates to following organization culture while speaking out, as a “maverick” is discouraged. Each Service maintains an organization culture that manifests itself through its concepts of war. Service concepts of war shape the force structure that is needed for that concept and inform the defense industrial base on the capabilities

needed when war breaks out. In peacetime, these organizational forces can trap and stifle innovation under the current approach.

In order to motivate innovation and change, the U.S. military must operationalize innovation. TF Innovate is a novel approach to accomplishing this task. Through operational employment, pursuit of disruptive technologies, and the promotion of capabilities competition, TF Innovate can encourage innovation through new concepts of war. By adopting the proposed approach and recommendations, the U.S. military can increase innovation through legitimate force structure and create an organizational culture where the discovery skills of questioning, observation, networking of diverse ideas, and experimentation, can serve as the springboard for the next Service concept of war through learning about new components and linkages. With reduced defense budgets, military capabilities and operational concepts need to undergo intense scrutiny through a capabilities competition where the status quo is questioned. Finally, through operational employment, TF Innovate serves more than an experimental test unit and provide operational value to the Services. One may not know what the future holds, but operationalizing innovation as outlined in this paper puts the U.S. military in a position of strategic advantage by reducing the time lag from when the next war begins to when new technologies or concepts can be applied.

## Endnotes

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<sup>5</sup> Clark A. Murdock, Ryan Crotty, and Kelley Saylor, "The Defense Budget's Double Whammy: Drawing Down While Hollowing Out from Within," October 18, 2012, <http://csis.org/publication/defense-budgets-double-whammy-drawing-down-while-hollowing-out-within> (accessed February 24, 2014).

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<sup>14</sup> Joint and Coalition Operational Analysis, *Decade of War Volume I: Enduring Lessons from the Past Decade of Operations*, 19.

<sup>15</sup> Kitfield, "Five Takeaways from a Decade of War."

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<sup>17</sup> Ibid.

<sup>18</sup> U.S. Army Capabilities Integration Center, "Top 10 Insights On the U.S. Army in Transition."

<sup>19</sup> The phrase "100% right, 0% of the time" comes from the title of an article published by Micah Zenko, "100% Right, 0% of the Time," *Foreign Policy*, October 16, 2012, [http://www.foreignpolicy.com/articles/2012/10/16/why\\_the\\_military\\_cant\\_predict\\_the\\_next\\_war](http://www.foreignpolicy.com/articles/2012/10/16/why_the_military_cant_predict_the_next_war) (accessed February 25, 2014).

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<sup>32</sup> Nielsen, "An Army Transformed: The U.S. Army's Post-Vietnam Recovery and the Dynamics of Change in Military Organizations," 6.

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<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

<sup>37</sup> Rosen, *Winning the Next War: Innovation and the Modern Military*, 20.

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