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THESIS

**SOF INTRAPRENEURSHIP: HOW SOF CAN
LEVERAGE ENTREPRENEURSHIP WITHIN THE
MILITARY BUREAUCRACY TO MANAGE COMPLEXITY**

by

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TO MANAGE COMPLEXITY**

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ABSTRACT

In an environment steeped in complexity, military organizations must be able to respond to change. By drawing from the fields of complexity and entrepreneurship and from military innovation literature, we create a concept called special operations forces (SOF) intrapreneurship. SOF intrapreneurship leverages SOF characteristics to increase innovative capacity. SOF intrapreneurship balances the tensions of entrepreneurship with the inherent characteristics of the military bureaucracy. The concept provides the tools to navigate, iterate, and pivot, giving organizations the framework for exploring and implementing innovations. SOF intrapreneurship, therefore, provides a way for SOF to respond to changes in the environment and, ultimately, remain an effective and relevant choice for decision and policy makers in an environment of constant change.

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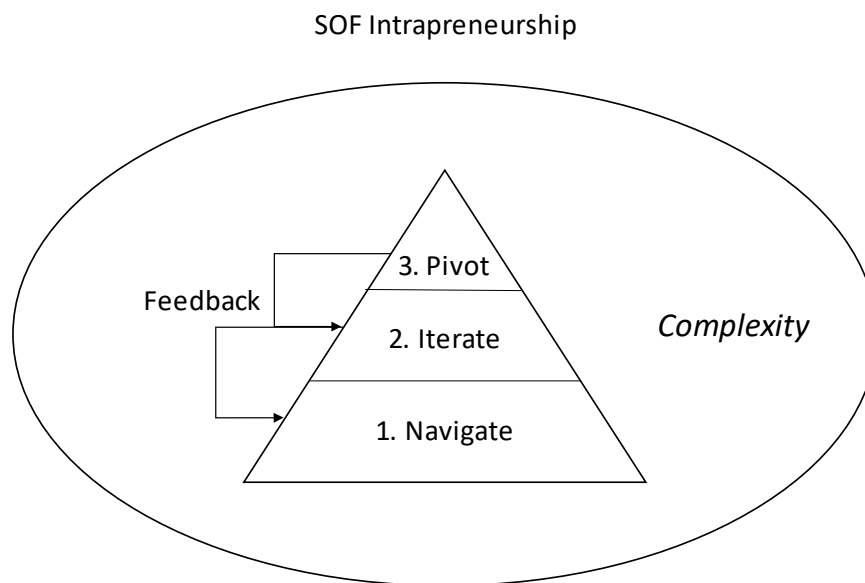
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EXECUTIVE SUMMARY

As the United States and Allies wind down from the nearly two-decades-long operations in Afghanistan and Iraq, they should realign to a global environment where their technological superiority is shrinking and resurgent and revisionist peer and near-peer competitors are challenging the status quo. This changing global environment has led senior civilian and military leadership to promote innovation and change to western militaries to meet the new reality. This newfound sense of urgency, however, is nothing new. For the last century, large strategic changes have impacted the relevancy and effectiveness of military organization every couple of decades. This is the inherent nature of the complexity of our environment.

To remain relevant and effective in complex environments, special operations forces (SOF) should adopt *SOF intrapreneurship*, which *leverages SOF characteristics to increase innovative capacity*. By harnessing relevant practices and benefits from Entrepreneurship and combining it with the construct of the military organization, SOF intrapreneurship provides the tools to navigate, iterate, and pivot (see figure below).



A framework for SOF intrapreneurship

SOF intrapreneurship takes a hybrid approach leveraging the best from two worlds. By balancing these approaches, SOF intrapreneurship is a framework for increasing innovative capacity. Complexity, encompassing the effects of friction, wicked problems, and complex adaptive systems, makes the framework for SOF intrapreneurship less linear than depicted and creates continuous feedback loops. The purpose of step 1, *navigate*, is to build context of the changing complex environment for innovation. Step 2, *iterate*, intends to find and develop the “right” innovations. Lastly, step 3, *pivot*, is about implementing the innovation. The triangle illustrates an inverted funnel, through which selected outputs are pushed upwards. Unlike a funnel that sees product flow downwards simply by gravity, SOF intrapreneurship requires deliberate effort to filter up through high volume demands and select outputs for furtherance.

I. INTRODUCTION

Change is inevitable. Following a perceived strategic shift to Great Power Competition, Western senior military and civilian leadership have increasingly recognized and promoted a need for change and innovation in military organizations.¹ The resurgence of peer and near-peer actors in the international arena, for instance, has spurred the United States “to pursue innovative ways to sustain and advance [their] military superiority for the 21st Century.”² This sense of urgency, however, is nothing new. Since the end of World War II (WWII) many environmental shifts have occurred; they even seem to occur every other decade or so. First, the advent of the nuclear era and the start of the Cold War required Western militaries to change. The Vietnam War illustrated that wars are not always winnable with the formula “mobility plus firepower.”³ Later, the end of the Cold War marked the beginning of American hegemony and Western technological superiority for years to come. Yet only a decade later on 9/11, the West learned that technological superiority would not suffice against an increasingly networked, agile, and determined adversary. All the while, peer and near-peer actors have been slowly reducing Western, and U.S. in particular, military hegemony.⁴

Change without context is meaningless; when the environment changes, so should actors in it. While innovation is commonly viewed as the panacea to the military organization, the complex environment challenges actors in determining what innovations will help or hinder. Innovation is “the exploitation of new ideas.”⁵ Aside from the

¹ Forsvaret Spesialstyrker Stab [NORSOCOM], “Utvikling av Spesialstyrkene mot 2030 [Development of the Special Operations Forces towards 2030]” (Forsvaret [Norwegian Armed Forces], 2019); Eric Schmidt, “Statement to House Armed Services Committee,” April 17, 2018; CANSOFCOM Future Operating Concept Handbook (Canadian Armed Forces, 2019).

² Secretary of Defense Memorandum, “The Defense Innovation Initiative,” November 15, 2014, 1, www.defense.gov/pubs/OSD013411-14.pdf.

³ John Arquilla and Nancy C Roberts, “Design of Warfare” (Manuscript Monterey, CA: Naval Postgraduate School, 2017), 58.

⁴ For a contemporary study of this, see: David Kilcullen, *The Dragons and the Snakes: How the Rest Learned to Fight the West* (Oxford University Press, 2020).

⁵ A Baregheh, J Rowley, and S Sambrook, “Towards a Multidisciplinary Definition of Innovation,” *Management Decision* 47, no. 8 (2009): 1323–39.

definitive outcomes of tactical operations, there is no mechanism to ensure that militaries are deriving, preparing, and adopting the right ideas at the right time. As LTG H.R. McMaster writes in the foreword to *Forging the Sword*, “war is the final auditor of military organizations.”⁶ Military organizations, moreover, are inherently rigid and bureaucratic, an attempt to formalize at scale and reduce friction or uncertainty in the face of combat.⁷ Bureaucracies are often custom built to operate in relative certainty and manage the status quo at scale. This works exceptionally well in specific contexts but also makes change inherently difficult and slow.

Conventional military organizations often struggle to exist in this tension between rigid bureaucracy and a changing environment. Special operations forces (SOF) are more a part of the military bureaucracy and challenged by its implications than they may believe. While SOF enjoy inherent strengths in potential for change due to smaller size, some degree of flexibility, and increased freedom, they still rely heavily on the larger military bureaucracy in strategy, doctrine, organization, and technology. Even United States Special Operations Command (USSOCOM) “fought a losing battle to keep [the] command from becoming bigger and more bureaucratic.”⁸ Further, some argue that SOF’s increasing levels of bureaucratization and conventionalization at higher levels of the command structure have “taken the ‘special’ out of ... special operations.”⁹

SOF should continually change to retain the title of “special.” SOF can be defined as “small, specially organized units manned by carefully selected people using modified equipment and trained in unconventional applications of tactics.”¹⁰ While the very term

⁶ Benjamin M. Jensen, *Forging the Sword: Doctrinal Change in the U.S. Army* (Stanford: Stanford University Press, 2016), vii.

⁷ Hans Hasselbladh and Karl Ydén, “Why Military Organizations Are Cautious About Learning?,” *Armed Forces & Society* 46, no. 3 (July 2020): 475–94, <https://doi.org/10.1177/0095327X19832058>.

⁸ Mark Bowden, “American Special Ops Forces Are Everywhere,” *The Atlantic*, March 12, 2021, <https://www.theatlantic.com/magazine/archive/2021/04/how-special-ops-became-the-solution-to-everything/618080/>.

⁹ Sadcom via Happycom, “What Can Be Done About SOCOM?: Part Four of Four of ‘What’s Wrong with SOCOM?’,” *Small Wars Journal*, January 4, 2017.

¹⁰ Robert G. Spulak, Jr., “A Theory of Special Operations: The Origin, Qualities, and Use of SOF,” JSOU Report (Hurlburt Field, Florida: Joint Special Operations University, 2007), 1.

“special” implies something unique and of value-added, this “specialness” is not static. If our organizations are not changing with the environment as a continuous practice, finding competitive advantage, and exploiting existing and emerging opportunities, can they claim to be “special?” Does SOF run the risk of becoming just like conventional forces? Eliot Cohen describes the “laboratory role” that elite units are positioned to support in developing new approaches for the broader force.¹¹ This approach requires a renewed consideration of what it is that defines SOF as “special” in relation to the broader force and the environment. A key issue is understanding that innovation may be militarily valuable but also needs to be done deliberately in a military setting. A lack of a coherent and deliberate practice of innovation leads to lost opportunities and inappropriate changes. This leads us to propose that adopting entrepreneurship practices in conjunction with SOF bureaucratic conditions can lead to increased success.

Specifically, we suggest SOF adopt the concept of SOF intrapreneurship, which *leverages SOF characteristics to increase innovative capacity*. SOF intrapreneurship provides the tools for organizations to navigate, iterate, and pivot in a complex environment. Such a concept is particularly suited to SOF, as it draws on the advantages from entrepreneurial activity, while leveraging the strengths and managing the challenges of the military organization. Whereas bureaucracy is characterized by the degree of control, rigidity, and size in corporate and military organizations, entrepreneurship is characterized by freedom, change, and risk tolerance as a sort of contrasting approach to managing complexity. SOF intrapreneurship is a hybrid approach leveraging the best from two worlds.

In developing this concept, we will first explore the term innovation within the complex environment. We will then explore the characteristics of military bureaucracies to assess the challenges and advantages in attempting meaningful change through innovation. Turning towards the field of entrepreneurship, we synthesize lessons from the literature on how individuals and organizations gain competitive advantages while

¹¹ Eliot A. Cohen, *Commandos and Politicians: Elite Military Units in Modern Democracies*, Harvard Studies in International Affairs 40 (Center for International Affairs, Harvard University, 1978), 31–32.

acknowledging the gaps in applying to military bureaucracy. Last, we conclude that an intrapreneurial approach fits well and, combined with other ideas about military innovation literature, we create a framework for SOF intrapreneurship. While the framework explored here is specific to *SOF intrapreneurship*, it could also prove applicable to military organizations, writ large in varying degrees.

II. ON INNOVATION

The ability of organizations to effectively respond to changes in the environment is what keeps them relevant and effective over time. Innovation is the process in which these changes occur. While the literature on military innovation has grown steadily in recent decades, it has yet to produce an agreed-upon definition.¹² We understand innovation, therefore, as “the successful exploitation of new ideas.”¹³ Our understanding of innovation includes changes in wartime and peacetime, small change and big change, and several categories of change.

Some view innovations in wartime and peacetime as very different processes.¹⁴ To be sure, there are differences. Innovations in peacetime are conducted against an indeterminate enemy, at an unknown time and place. Innovations in wartime, on the other hand, are developed with a specific enemy, time, and place in mind.¹⁵ The strategic contexts in peace, moreover, are different from the political, financial, and cultural environment of wartime.¹⁶ Nevertheless, those that succeed in one environment often do so in the other.¹⁷ Furthermore, innovations are seldom completed in either peacetime or

¹² For a summary of the field of studies on military innovation, we recommend the following literature: Adam Grissom, “The Future of Military Innovation Studies,” *Journal of Strategic Studies* 29, no. 5 (October 2006): 905–34; Stuart Griffin, “Military Innovation Studies: Multidisciplinary or Lacking Discipline?,” *Journal of Strategic Studies* 40, no. 1–2 (January 2017): 196–224, <https://doi.org/10.1080/01402390.2016.1196358>; Michael C. Horowitz and Shira Pindyck, “What Is a Military Innovation? A Proposed Framework,” *Social Science Research Network*, December 15, 2019, <http://dx.doi.org/10.2139/ssrn.3504246>.

¹³ Baregheh, Rowley, and Sambrook, “Towards a Multidisciplinary Definition of Innovation.”

¹⁴ See for instance the distinction between what Murray and Millett call innovation and adaptation: Allan R. Millett and Williamson Murray, eds., *Military Innovation in the Interwar Period* (New York: Cambridge University Press, 1996); Williamson Murray, *Military Adaptation in War: With Fear of Change* (New York: Cambridge University Press, 2011).

¹⁵ Murray, *Military Adaptation in War*, 309.

¹⁶ Williamson Murray, “Innovation: Past and Future,” in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan Reed Millett (New York: Cambridge University Press, 1996), 301.

¹⁷ Murray, *Military Adaptation in War*, 5.

wartime; they usually start in one and continue into the other.¹⁸ Hence, we include changes in both wartime and peacetime in our definition of innovation.

It is also common to differentiate innovations on a scale of significance. The terms sustaining and disrupting innovations were popularized by Clayton Christenson for describing changes in the commercial sector.¹⁹ He found that some innovations sustained the current method or product, while other innovations disrupted it, making the former method or product obsolete. While both sustaining and disruptive innovations give the innovator an advantage, disruptive innovation gives a bigger and longer advantage.²⁰ Within the field of study of military innovation, it is largely disruptive change that has been researched, simply because “minor military change is less important.”²¹ However, since disruptive changes are rare, it would be less useful for SOF to focus exclusively on disruptive innovations. Sustaining innovations, moreover, can over time aggregate to produce disruptive effects. We therefore include the full scale of innovations in our understanding.

Innovations come also in different categories. In Figure 1, three common descriptions are visualized. At the top of the figure, hardware and software are the most simplistic way of describing innovations, with hardware representing technology, and software everything else. The middle divides innovations into three, breaking software into organization and doctrine. The bottom is the most detailed categorization, breaking organization and doctrine down further. Whatever the categorization of innovations, they

¹⁸ Theo Farrell, Sten Rynning, and Terry Terriff, *Transforming Military Power since the Cold War: Britain, France, and the United States, 1991–2012* (New York: Cambridge University Press, 2013), 290.

¹⁹ Several other terms are also used, such as: evolutionary and revolutionary, minor and major, incremental and discontinuous. For the purpose of this research the authors will continue to use sustaining and disruptive. Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, The Management of Innovation and Change Series (Boston, Mass: Harvard Business School Press, 1997).

²⁰ John J. Gartska, “Patterns in Innovation,” in *Transforming Defense Capabilities* (Boulder: Lynne Rienner Publishers, 2009), 57–78.

²¹ Theo Farrell and Terry Terriff, eds., *The Sources of Military Change: Culture, Politics, Technology* (Boulder, Colorado: Lynne Rienner Publishers, 2002), 6.

are usually most effective when developed in combination with each other.²² All these categorizations are useful when describing types of military innovation, and we include them all in our understanding of innovation.

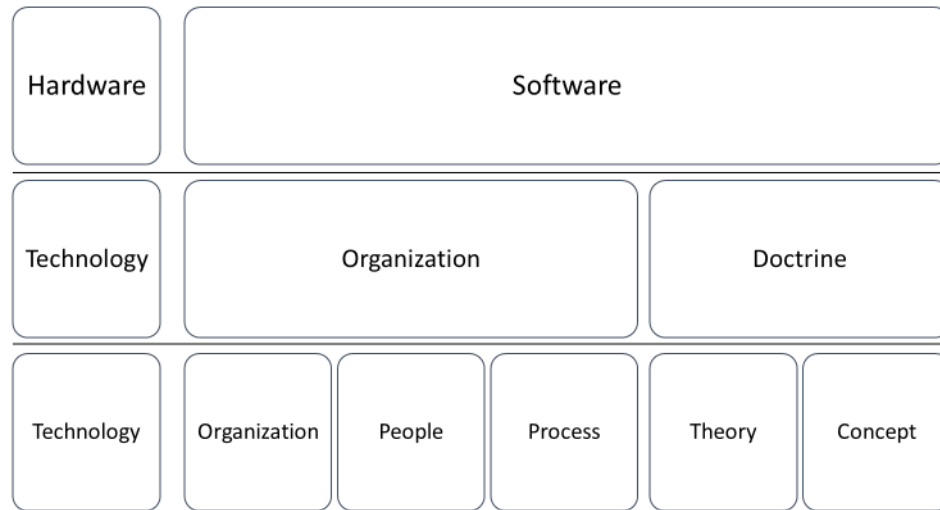


Figure 1. Categories of innovation.²³

While there are not an agreed upon definition on military innovation, Horowitz and Pindyck explain that is because earlier research on military innovation focuses on distinct stages of the innovation process.²⁴ Innovation follows three stages:

The first stage of this process is invention, when new technologies or tactics are created, or existing technologies or tactics are applied to specific operational problems in new ways. This is followed by the incubation stage, when the invention gains status and influence through both top-down and bottom-up processes. The third stage is implementation where political will

²² Terry Pierce, *Warfighting and Disruptive Technologies: Disguising Innovation* (Taylor and Francis, 2004), xii.

²³ Adapted from Gartska, "Patterns in Innovation"; Arquilla and Roberts, "Design of Warfare"; Emily O. Goldman and Leslie C. Eliason, eds., *The Diffusion of Military Technology and Ideas* (Stanford, California: Stanford University Press, 2003).

²⁴ Horowitz and Pindyck, "What Is a Military Innovation?," 3.

leads the community of interest to adopt the innovation. It is at this point that a state becomes capable of fully operationalizing the innovation.²⁵

Interestingly, actors may have different proficiency levels in varying stages of innovation. For instance, Adamsky finds that the Soviet Union, through their “holistic-dialectical approach to military affairs” were able to develop a new concept for employing emerging technologies, something which a decade later would be implemented and called “Air Land Battle” by the United States.²⁶ The Soviets would not have managed to invent it, however, if it were not for the United States’ unparalleled ability to incubate and develop technology such as precision guided munitions and command and control systems.²⁷ However, neither the Soviets nor the United States were as effective in implementing these innovations as the Israelis.²⁸ Which leads us to a last note on innovations; innovations need not be new or developed by the one implementing them. Emulation of successful innovations or imitating other actor’s innovations can be a highly effective way of increasing military effectiveness.²⁹ It can be time-efficient and cost-effective. Our understanding of innovation is purposefully broad; including all categories of change, in peace and war, and both big and small.

Innovation “does not have to be technical, does not indeed have to be a thing altogether.”³⁰ It is through the practice of systemic innovation that enterprises find enduring advantage by searching both internally and externally for sources of change and potential innovation.³¹ Sources of innovation can be extrapolated from business literature to military applications and generalized as originating from six distinct categories: the *unexpected* occurrence (success, failure, event), the *incongruity* between reality and

²⁵ Horowitz and Pindyck, 3–4.

²⁶ Dima Adamsky, *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the U.S., and Israel*. (Stanford, CA: Stanford University Press, 2010), 54.

²⁷ Adamsky, 88–89.

²⁸ Adamsky, 125–29.

²⁹ Goldman and Eliason, eds., *The Diffusion of Military Technology and Ideas*, 372.

³⁰ Peter F. Drucker, *Innovation and Entrepreneurship* (New York: Harper, 1993), 31.

³¹ Drucker, 34.

possibility in the environment, the *process need*, the change in *industry or strategic structure*, changes in force *demographics*, changes in organizational *perception or vision*, and *new knowledge* about the environment.³² Arguably, these sources could emanate from within SOF, from the strategic climate, or outside the military altogether. Any approach at deliberate and systemic innovation should search for opportunities from all of them.

To borrow from the famous economist Schumpeter, warfare is like capitalism, it “not only never is but never can be stationary.”³³ Innovation, thus, can be viewed as a process of “creative destruction;” “incessantly destroying” old ways and “incessantly creating” new ones.³⁴ This process of creative destruction is something which the field of complexity has termed emergence, and which will be explored in the next section on complexity.

³² Drucker, 35.

³³ Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (New York: HarperCollins, 2008), 81–87.

³⁴ Schumpeter, 83.

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III. AN ENVIRONMENT OF COMPLEXITY

The military operating environment is steeped in complexity. We understand complexity as the effects of friction, wicked problems, and complex adaptive systems on our environment. Human limitations, informational uncertainties, non-linearity, social diversity, and interconnectedness are indicators of complexity that all create uncertainty. The acknowledgment of this, however, is hardly newfound. Clausewitz introduced friction, an expression of the complex, adaptive, and non-linear interplay between opponents in war, as early as the 19th century. Later research into the science of complexity has elaborated on Clausewitz's notion of "the effect of reality on ideas and intentions in war," and it is increasingly relevant.³⁵ The reason is that innovations often seek to solve wicked problems, emerging within complex adaptive systems that interact with other complex adaptive systems, and are impacted by friction throughout the process of development. Complexity, thus, impacts our ability to assess which innovations will prove relevant and effective in our environment.

Friction, as introduced by Clausewitz, impacts military innovation. Clausewitz recognizes "that every war is inherently a nonlinear phenomenon" and "our ability to predict the course and outcome of any given conflict is severely limited."³⁶ This operating environment creates what Clausewitz calls friction. Friction can be understood as "constraints imposed by human physical and cognitive limits," "informational uncertainties and unforeseeable differences between perceived and actual reality," and "the structural nonlinearity of combat processes."³⁷ Simply put, friction makes development of innovations difficult, because humans have limitations, we do not know everything, and the future is unpredictable.

³⁵ Hans Rothfels, quoted in: Barry D. Watts, "McNair Paper 68: Clausewitzian Friction and Future War Revised Edition" (Washington, DC: National Defense University, 2004), 1.

³⁶ Alan Beyerchen, "Clausewitz, Nonlinearity, and the Unpredictability of War," *International Security* 17, no. 3 (1992): 61, <https://doi.org/10.2307/2539130>.

³⁷ Watts, "Clausewitzian Friction and Future War," 76.

Innovations are often solutions to wicked problems. Wicked problems arose as a concept in the 1960s and 1970s as a counterweight to the quantitative and algorithm-based scientific approach and are “problems for which there are no solutions in the sense of definitive and objective answers.”³⁸ Interestingly, while non-linearity and informational uncertainties are important factors in wicked problems theory, wicked problems shed light on a different element of the complex environment: social diversity.³⁹ Social diversity adds to our understanding of complexity because “what satisfies one may be abhorrent to another, that what comprises problem-solution for one is problem-generation for another.”⁴⁰ Indeed, social diversity may lead to vastly different understanding, framing, and solutions to problems in our environment. Social diversity is very much apparent in military affairs and impacts organizations’ development of innovations.

Innovations emerge within complex adaptive systems. A complex adaptive system is “a dynamic network of many agents acting in parallel, constantly acting and reacting to what the other agents are doing.”⁴¹ Complex adaptive systems consist of independent but interconnected elements, with non-linear and unpredictable behavior lacking centralized control, where even small changes can cause long-term effects.⁴² Even though showing signs of regularity, it can be interrupted by periods of non-regularity.⁴³ A military formation, for instance, “behaves as [a] Complex Adaptive System formed by a large number of agents endowed with learning capabilities that interact between them through complex rules and institutions and whose aggregate response is characterised by non-linearity, yet considerable flexibility.”⁴⁴ These responses and changes within complex

³⁸ Horst W. J. Rittel and Melvin M. Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences* 4, no. 2 (June 1973): 155.

³⁹ Rittel and Webber, 167.

⁴⁰ Rittel and Webber, 169.

⁴¹ Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York: Oxford University Press, 2010), 175.

⁴² Paul Cairney, “Complexity Theory in Political Science and Public Policy,” *Political Studies Review* 10, no. 3 (August 7, 2012): 346–58, <https://doi.org/10.1111/j.1478-9302.2012.00270.x>.

⁴³ Cairney.

⁴⁴ Carlos Marti, *Armies as Complex Adaptive Systems*, 2018, 16.

adaptive systems are often called emergence, “the arising of novel and coherent structures, patterns, and properties during the process of self-organization.”⁴⁵ Emergence occurs as a result of the interconnectedness between agents, both within a system and between systems, and can be understood as a constant chain of actions and reactions. These agents may represent individuals, organizations, and even nations and are constantly adapting to their environments. It is not just agents, however, that change. Agents produce change in other systems, such as in the technological systems. This interconnectedness and adaptability results in a dynamic and ever-changing environment. The number of agents and the interconnectedness make the variables for predicting the development of a complex adaptive system infinite. Complex adaptive systems encapsulate to a large extent the elements of friction and wicked problems and explains why they occur. Human limitations make it impossible to account for all variables to predict outcomes, there will always be informational uncertainties, the system will always be unpredictable, and, thus, there will also be numerous interpretations of the best response to a certain problem.

To illustrate the effects of friction, wicked problems and complex adaptive systems on innovation, consider the innovation of armored warfare that saw its inception during World War I (WWI) and was further developed in the interwar period. Armored warfare was a response to the wicked problem of protracted trench warfare.⁴⁶ While armored warfare, in hindsight, solved the wicked problem of trench warfare it was far from apparent at the time. During the first three years of WWI there were little development and while the British developed and utilized the tank at the later stages of WWI, the tank would not have a decisive effect until WWII. This development occurred differently in the varying complex military organizations of the British, French, and Germans. For most of WWI there existed no solution to trench warfare “in the sense of definitive and objective answers.”⁴⁷ In the interwar period, however, the process of developing armored warfare

⁴⁵ Jeffrey Goldstein, “Emergence as a Construct: History and Issues,” *Emergence* 1 (March 1, 1999): 49, https://doi.org/10.1207/s15327000em0101_4.

⁴⁶ Williamson Murray, “Armored Warfare,” in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millett (Cambridge: Cambridge University Press, 1996), 7.

⁴⁷ Rittel and Webber, “Dilemmas in a General Theory of Planning,” 155.

intensified, yet it was filled with friction, and it was not until the invasion of Poland in 1939 “that the [German] officer corps as a whole began to grasp the potential of armored exploitation.”⁴⁸ Far worse was the situation in France, which, despite “[taking] their preparations for a ground war seriously,” had spent large amounts of resources on the formidable Maginot-line.⁴⁹ The French defensive concept, an incremental approach to innovate trench warfare, was believed to stop any German aggression, yet shows “the effect of reality on ideas and intentions in war.”⁵⁰

One of the more prominent military theorists of the modern era, John Boyd, recognized this complexity and provided a useful model for making sense of it. One of the key elements of his famous Observe-Orient-Decide-Act (OODA) model is the creation (and destruction) of mental models, representations of the world.⁵¹ Due to the complexity of the real world and cognitive limitations, mental models will never be perfect. Moreover, due to the world constantly changing, mental models should be updated continuously. Eventually, one or more of the mental models will be faulty, leading to the destruction of one or more mental models and the creation of newer, more accurate, models.⁵² A useful way of thinking of Boyd’s mental model is in terms of map and terrain. The map (mental model) helps navigate the terrain (the complex real-world). If the terrain is not corresponding with your map, it is seldom the terrain that is wrong. Hence, the mental model should be adjusted to represent the real world. Furthermore, the map will never replicate the complexity and details of the terrain. As such, parts of the mental model will always be faulty or lacking information. Also, the map represents only one piece of terrain; when moving out of the area covered by the map, a new map is needed. Hence, different environments require different mental models. Last, terrain changes with time and maps should as well. Our environment is constantly changing—technologically, socially,

⁴⁸ Murray, “Armored Warfare,” 43.

⁴⁹ Murray, 31.

⁵⁰ Hans Rothfels, quoted in: Watts, “Clausewitzian Friction and Future War,” 1.

⁵¹ John A Boyd, “A Discourse on Winning and Losing,” ed. Grant T. Hammond (Air University Press, 2018), 384–85, https://www.airuniversity.af.edu/Portals/10/AUPress/Books/B_0151_Boyd_Discourse_Winning_Losing.PDF.

⁵² John R. Boyd, “Destruction and Creation,” September 3, 1976.

politically and so on—and our mental model must change with it. Due to all these factors, our mental models are constantly refined, adjusted, and, eventually, destroyed and recreated to explain and make sense of our observations of the real world.

Dealing with this complexity can be measured in an organization's ability to effectively process, store, and act on information from the environment.⁵³ This is what Bousquet calls organizational complexity, the ability to “balance at the edge of chaos” between order and disorder, where emergent behavior is at its greatest (see Figure 2).⁵⁴ Order and disorder represent theoretical extremes, and any organization existing within complex adaptive systems balances its response to its environment between these spectrums. This response is often called feedback. Feedback can either have “a stabilizing adjustment to guide or return the [organization] to the desired state,” or amplify disturbances to the organization “and thus moves the [organization] further away from its point of origin.”⁵⁵ In other words, feedback either provides order and rigidity, or amplifies disorder and change.⁵⁶ In a military setting, order implies centralization, rigidity, control measures, stability, and little to no capacity for change. Disorder, on the other hand, is the opposite, decentralization, freedom, autonomy, and capacity to change. Balancing the tension between order and disorder is the key to achieving emergent behavior within complex adaptive systems. Disorderly emergence results in chaos, while no emergence results in stagnation. This is relevant because innovation within military organizations is emergent behavior. Military organizations are, therefore, required to balance these forces of order and disorder to achieve the exact tension for enough innovation to change to the environment, while not creating chaos and disorder within the organization.

⁵³ Bousquet, *The Scientific Way of Warfare*, 178.

⁵⁴ Bousquet, 178.

⁵⁵ Bousquet, 165.

⁵⁶ Bousquet, 165, 167.

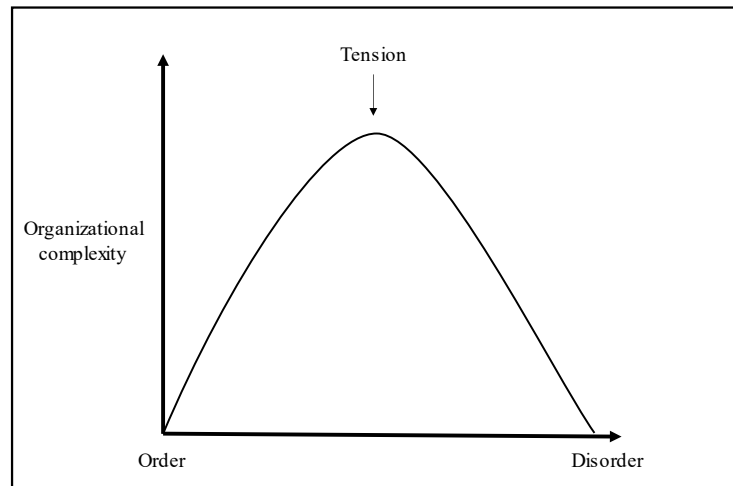


Figure 2. Organizational complexity is highest at the tension between order and disorder.⁵⁷

While it is natural to relate complexity to times of war, it also provides a good description of what peacetime organizations must deal with. As an illustration, consider the difficulties of predicting and anticipating the future character of warfare. Peacetime environments do not present a known adversary, the area of conflict, nor the time for when conflict will take place.⁵⁸ Peacetime organizations often, therefore, receive little, if any, feedback on the effectiveness of the military organization. Exacerbated, furthermore, by the fact that it is impossible to replicate the environment of war, times of peace may, paradoxically, have more uncertainty than those of war.⁵⁹ It is possible to prepare for war in times of peace by leveraging the ongoing conflicts and lessons occurring elsewhere as test-beds for innovation and strategy evolution. To distinguish between wartime and peacetime, however, proposes a challenge, since the terms are ever more blurred. Since the end of WWII, an increasing number of categories explaining conflicts below the threshold of war has been introduced.⁶⁰ Like most of these in-between categories of conflicts is that

⁵⁷ Adapted from Bousquet, 179.

⁵⁸ Murray, *Military Adaptation in War*, 309.

⁵⁹ Murray, 309.

⁶⁰ For instance: irregular warfare, unconventional warfare, limited wars, grey zone conflict and hybrid warfare.

they represent a state of conflict where the tactical and operational levels are in contact with the enemy, while the strategic and political levels are comfortably distanced from it. This represents a state where the tactical and operational environments are that of war, while the strategic and political environments are that of peace. Regardless of how we categorize the environment, we can assert that it is complex, and military organizations must deal with it, whether they are at peace or in war.

The military operating environment, in peace and war, is steeped in complexity. SOF's ability to deal with the environment is impacted by human limitations, informational uncertainties, non-linearity, social diversity, and interconnectedness between complex adaptive systems. As illustrated in Figure 2, there are fundamentally two ways of responding to this complexity. An organization can accept *disorder* and constantly react and respond to inputs from the environment. On the other hand, an organization can create certainty by imposing *order*, becoming less responsive to the external environment in the process. We shall now turn to one way of organizing that emphasizes order, the military bureaucracy.

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IV. THE MILITARY BUREAUCRACY AND SOF

While there are different types of bureaucracies, the military bureaucracy is designed to “exercise large-scale violence as the ultimate tool of sovereign nation-states.”⁶¹ This leaves the military organization distinct, in some respects, from other bureaucracies, yet it still portrays traditional bureaucratic characteristics such as formalization, hierarchy, and institutionalization.⁶² Most studies on military organizations note, rightly, that they are ill-suited to change—and, hence, also ill-suited to respond to changes in the complex environment. Like most public service-oriented institutions, simply “existing” consumes significant resources and capacity and presents an obstacle to change.⁶³ The underlying distinction is that public-service institutions, including the military, exist to do “good” for multiple societal stakeholders as an absolute rather than producing profits for stockholders.⁶⁴

Militaries have particularly developed towards becoming organizations that strive “to impose order on the inherent chaos of battle.”⁶⁵ One reason for this is that militaries reduce friction by increasing size and imposing control and rigidity. Size and superiority of numbers are especially important, since they, according to Clausewitz, are “the most common element in victory.”⁶⁶ The reason is, bluntly put, that “when threatened by destruction, or the task of destroying an enemy, more is better.”⁶⁷ However, the expense of increased size is increased control and rigidity—imposed to reduce friction in “ambiguous, dangerous, swiftly changing and highly consequential conditions.”⁶⁸

⁶¹ Hasselbladh and Ydén, “Why Military Organizations Are Cautious About Learning?,” 5.

⁶² Hasselbladh and Ydén, 5.

⁶³ Peter F. Drucker, *Innovation and Entrepreneurship* (New York: Harper, 1993), 177.

⁶⁴ Drucker, 178–180.

⁶⁵ Hasselbladh and Ydén, “Why Military Organizations Are Cautious About Learning?,” 5.

⁶⁶ Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 194.

⁶⁷ Spulak, Jr, “A Theory of Special Operations,” 10.

⁶⁸ Hasselbladh and Ydén, “Why Military Organizations Are Cautious About Learning?”

Increased control and rigidity are a “functional mechanism to ensure organizational stability and robust performance.”⁶⁹ Control and rigidity are, therefore, essential for large military organizations in maintaining military effectiveness because they produce order in otherwise uncertain environments.⁷⁰

Increased size, control, and rigidity, however, are antithetical to responding to changes in the complex environment, because of how they inhibit the organization’s ability to change.⁷¹ Some have even termed militaries the quintessential bureaucracy.⁷² The bureaucracy “exists to increase the predictability of government action by applying general rules to specific cases.”⁷³ It is characterized by specialization and division of labor, within hierarchical structures governed by rules and regulations.⁷⁴ All of which are meant to create efficiency and accountability, yet effectively reduce organizational complexity by over-imposing order.

Military organizations are plagued with long correspondence “to” lines and conference rooms filled with people, leading to the antithesis of nimble thought.⁷⁵ Big structure creates deep habits over time that are hard to break and even harder to adapt continually. While long-range strategies and business plans brief well at the operational and tactical level, the real world will not wait for doctrinal adjustment and bureaucratic reorganization.⁷⁶ SOF tended to start as small, agile, well-resourced organizations at the fringe of the larger military complex and supported by key stakeholders. Over time, their

⁶⁹ Hasselbladh and Ydén.

⁷⁰ Jessica G. Turnley, “Cross-Cultural Competence and Small Groups: Why SOF Are the Way SOF Are,” JSOU Report (MacDill Air Force Base, Florida: The JSOU Press, 2011), 55; Murray, *Military Adaptation in War*, 18.

⁷¹ Murray, “Innovation: Past and Future,” 322; Murray, *Military Adaptation in War*, 3; Jensen, *Forging the Sword*, 3.

⁷² Turnley, “Cross-Cultural Competence and Small Groups,” 52.

⁷³ James Q. Wilson, *Bureaucracy: What Government Agencies Do and Why They Do It*, New Edition (USA: Basic Books, 2000), xvii.

⁷⁴ Turnley, “Cross-Cultural Competence and Small Groups,” 52–53.

⁷⁵ Jensen, 145.

⁷⁶ Thomas K. Adams, U.S. *Special Operations Forces in Action: The Challenge of Unconventional Warfare* (Portland: Frank Cass Publishers, 1998), 66.

success (and failure in some instances) has led to increased attention, resourcing, size, tasks, and processes. All of these contribute to organizational inertia that, absent a new perspective, can make change slow and potentially counter-productive. This inertia creates a perspective that “stopping what has always been done and doing something new are equally anathema to service institutions. The inertia inherent in bureaucracies makes both instituting change and stopping it equally painful.”⁷⁷

James Q. Wilson describes the challenge of gradual bureaucratization of organizations and the implications for the executives that lead them. “The longer an agency exists,” he explains, “the more likely that its core tasks will be defined in ways that maximize the costs of changing them. Innovation in these cases requires an exercise of judgment, personal skill, and misdirection, qualities that are rare among government executives.”⁷⁸ Such corporations have several options available to them. They can continue down the path of bureaucratization to eventually find themselves out of touch with the market, can establish or acquire fringe entities to continue to evolve or seek relevance and then integrate them when innovations stick, or they can fundamentally change their approach towards change. Ultimately, while bureaucracy serves as a mechanism to reduce friction and uncertainty, it can leave SOF with reduced flexibility and capacity for change in complexity.

⁷⁷ Drucker, *Innovation and Entrepreneurship*, 177.

⁷⁸ Wilson, *Bureaucracy*, 232.

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V. ENTREPRENEURSHIP AND SOF

Entrepreneurship can be defined, in simple terms, as the practice of systemic innovation.⁷⁹ Whereas bureaucracy is characterized by the degree of control, rigidity, and size in corporate and military organizations, entrepreneurship is characterized by freedom, change, and risk tolerance as a sort of contrasting approach to managing complexity. In simple terms, “innovation” is the “what” and “entrepreneurship” is the “how.” This important relationship between the innovations sought by SOF and the applied practice of entrepreneurship often goes unnoticed in favor of the next new gadget.

Any individual or organization that constantly searches for change in uncertainty, responds to it, and exploits it as an opportunity, is an entrepreneur.⁸⁰ Entrepreneurs could exist within any type of organizational structure from a government agency to a non-profit to a for-profit or venture capital-backed startup.⁸¹ The concept of an entrepreneur is similar to the common understanding of the term “start-up,” albeit with different initial conditions governing development and different emerging goal systems. Eric Ries, states that the concept of a startup (or in other words, an entrepreneurial team) is organization size, industry, and economic sector agnostic. Thus, in a military context, entrepreneurship could be considered applicable to some degree for any organization. The key mission and output of entrepreneurship is innovation. Too often, organizations fail to differentiate between acquisition or invention and the more critical notion that innovation involves everything from process updates to the integration of new technology into capabilities. Many strategic military guidance documents are rife with the use and misuse of the term “innovation” and could potentially lead subordinate organizations and teams to be unclear on what this means or how to implement it. The innovation literature generally emphasizes that simply having an innovation strategy is not enough; the strategy should be distributed as a mindset

⁷⁹ Peter F. Drucker, “The Discipline of Innovation,” *Harvard Business Review*, no. Best of HBR (August 2002): 10.

⁸⁰ Drucker, *Innovation and Entrepreneurship*, 28.

⁸¹ Ries, *The Lean Startup*, 27.

and practice throughout the depth of the organization and should have the necessary organizational elements to align and support change.⁸²

There are many examples of successful innovations that have risen coincidentally from an individual or team working diligently at the margins out of a passion for creation but without organizational endorsement. These rare occurrences of “successful” innovation though, are neither deliberate in strategy nor consistent over time. Entrepreneurship as an applied practice, however, is a way of ensuring that innovation happens more frequently, with more impact, and lower costs (e.g., when failures happen, they cost less). Effectively, innovation is the specific function of entrepreneurship.⁸³ Although some innovations develop from the random lightbulb moment, many more develop over time through hard work, continual sensing of the environment, and repeated trial and error. Sarasvathy describes entrepreneurs as distinct from strategists or managers. Rather, they can imagine a potential future shaped by the inputs of organizations and constraints of the environment and can adjust their expectations and work with those around them to create and implement their innovations within this context.⁸⁴

In the mid-1980s, Drucker argued, that the previous several decades had seen a shift in the United States from a managerial economy to an entrepreneurial economy dominated by the emergence of opportunity, growth, and choice and that this would lead to a shift towards an entrepreneurial society over time.⁸⁵ Drucker describes how innovation fits within entrepreneurship, and this is a useful start point for understanding its potential application to SOF.

Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service. It is capable of being presented as a discipline, capable of being learned, capable of being practiced. Entrepreneurs need to search

⁸² Neal Thornberry, *Lead Like an Entrepreneur* (New York: McGraw-Hill, 2006), 153.

⁸³ Peter F. Drucker, “The Discipline of Innovation,” *Harvard Business Review*, no. Best of HBR (August 2002): 5.

⁸⁴ Saras D. Sarasvathy, “What Makes Entrepreneurs Entrepreneurial?,” no. Darden Case No. UVA-ENT-0065 (n.d.), <https://ssrn.com/abstract=909038>, 9.

⁸⁵ Peter F. Drucker, *Innovation and Entrepreneurship* (New York: Harper, 1993), 1–2.

purposefully for the sources of innovation, the changes and their symptoms that indicate opportunities for successful innovation.⁸⁶

Innovation is thus a flexible concept that is capable of development through a deliberate shift towards entrepreneurship. It need not be of one character or another and SOF would do well to frame innovation in these terms to enable broad appreciation for its role in organizational change.

In most discussions about military innovation, the underlying theme is technology or research and development. “Technology sets the parameters for the possibility of change” and creates the potential for change in military affairs and, in some cases, revolution.⁸⁷ What enables actual change over time is the extent to which an organization recognizes and exploits the opportunities technology provide and changes structure and doctrine accordingly.⁸⁸ True entrepreneurship is a behavior rooted in societal and economic perspectives as opposed to a high-risk personality trait possessed by a select few, as is often perceived.⁸⁹ In entrepreneurship, change is viewed as normal and essential in responding to the complex system inputs and efforts are focused on developing something different rather than working at doing something incrementally better.⁹⁰ It is clear then, that the deliberate practice of entrepreneurship leading to purposeful innovation is advantageous and relevant to SOF. Further, the historically perceived high-risk nature of the entrepreneurial organization and its endeavors is not a pure gamble, but rather a managed-risk calculation looking towards the future and where SOF can excel.

Bureaucratic realities make entrepreneurship an imperfect solution for SOF. That said, the potential positive outcomes from the adoption of entrepreneurship are striking. Like entrepreneurs or startups, SOF must find or create a competitive advantage in existing and emerging arenas to remain relevant. While entrepreneurship provides a novel

⁸⁶ Drucker, *Innovation and Entrepreneurship*, 19.

⁸⁷ Dima Adamsky, *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the U.S., and Israel*. (Stanford, CA: Stanford University Press, 2010), 1.

⁸⁸ Adamsky, *The Culture of Military Innovation*, 1.

⁸⁹ Drucker, *Innovation and Entrepreneurship*, 27.

⁹⁰ Drucker, 27.

approach, it also inherently involves working outside the system and beyond the established norms - both challenges in the public service institution. The earlier discussion of bureaucracy suggested that rigidity also serves to manage chaos and in SOF context does provide advantages in some respects. The rigidity imposed under bureaucracy serves in opposition to the potential chaos from perfect entrepreneurship. It is possible that in exploring this opposition, the balance to be struck between these two forces could provide an amplifying effect for innovative capacity within SOF when understood.

VI. A BETTER PATHWAY: INTRAPRENEURSHIP

SOF requires *freedom* through an entrepreneurial approach that deliberately pursues innovation in response to the environment but also must thrive within *rigidity* inherent in the bureaucratic framework that supports them. These two concepts, freedom and rigidity, are in tension but both forces ultimately serve to manage complexity albeit in different ways. The principle of freedom refers to the SOF intrapreneur's freedom to imagine, act, and fail. The freedom to imagine can be summarized as the ability to challenge the status quo without mental and cultural barriers. If SOF intrapreneurs are to find solutions to problems or exploit opportunities, they need the freedom to challenge the status quo. On the contrary, strong central doctrine and cultural stigma to change inhibits intrapreneurs from doing exactly that—two characteristics often used by militaries.⁹¹

Bureaucracy seeks to simplify and stabilize organizations to maintain resilience while entrepreneurship seeks to enable constant adjustment to the complex demands of the environment and customers. In a SOF context, finding relative balance and mutual support between these forces is what will determine an organization's innovative capacity. Bureaucratic rigidity makes changing course difficult and reinforces existing choices while entrepreneurial freedom allows flexibility between multiple potential choices but degrades ability to implement at scale quickly. Determining where SOF should sit on this spectrum is critical. The balance described is illustrated in Figure 3. Depicted on the Y axis is innovative capacity or *actual potential for development and realization of innovation in response to the environment*. Innovative capacity will provide a reference point for relating innovation to intrapreneurship in general and SOF response to the environment. It is inspired by the balance between order and disorder, in Figure 2, and illustrates how SOF should balance the advantages of the military bureaucracy and entrepreneurship.

⁹¹ Raphael D. Marcus, "Military Innovation and Tactical Adaptation in the Israel–Hizballah Conflict: The Institutionalization of Lesson-Learning in the IDF," *Journal of Strategic Studies* 38, no. 4 (June 2015): 500–528.

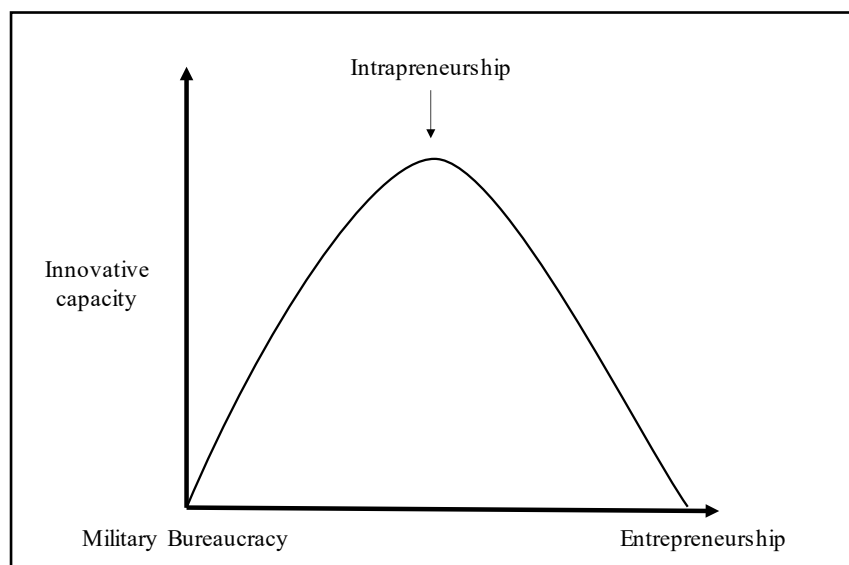


Figure 3. Intrapreneurship leverages entrepreneurial practices within the military bureaucracy to increase innovative capacity in SOF.

While deliberately combining bureaucracy and entrepreneurship affords a distinctive advantage to SOF, it is not a simple proposition, and there are three main distinctions between the approaches. First, the government bureaucratic machine requires certain policy and administrative conditions that cannot simply be shed in favor of free enterprise. SOF must remain relevant and accountable within the broader military system to maintain credibility and resourcing. As such, it should be considered that there are system rules and impositions that will continue to exist regardless of any entrepreneurial approaches adopted. This has implications on business processes, timelines for innovation, legalities, and so forth.

Second, SOF will be responsive to conditions higher in the system and will be impacted not only by environmental and adversarial inputs, but also political and economic shifts at the national and strategic level. While businesses also respond to environmental, political, and market inputs, they have much more latitude in identifying potential space to expand or partner with other organizations. SOF will have to adjust its perceptions of the environment with the direction and framing established at higher and flanking levels. This

mutual adjustment is vital for developing synergies with agencies, allies, and partners in a multi-domain complex environment with multiple adversaries.⁹²

Finally, SOF is constrained by the incentive structures and communication networks available within the public domain. This includes limitations on hiring, HR timelines, salaries and benefits, and geographic locations. While this may seem obvious, it has implications for the ability of the SOF to recruit and retain talent in some of the less traditionally operational senses.

Fundamentally, the reality of these constraints is that the trappings of bureaucracy cannot be simply stripped away. They must be acknowledged, leveraged, or mitigated where possible, and accepted where not. According to James Q. Wilson, “Innovation is not inevitably good; there are at least as many bad changes as good. And government agencies are especially vulnerable to bad changes because, absent a market that would impose a fitness test on any organizational change, a changed public bureaucracy can persist in doing the wrong thing for years.”⁹³ Intrapreneurship enables an approach that reduces the vulnerability Wilson describes by enabling certain elements of a market fitness test to improve responsiveness. Military organizations provide some inherent challenges, but they also provide consistent resources, a degree of certainty in structure and function, and the administrative support that many entrepreneurial organizations lack. This has the potential to establish safe havens for intrapreneurs, people and teams that seek change from within the organization. It is important to remember the role of the bureaucracy in the public domain which is also to guard against degrading SOF credibility and accountability.

Through the application of some of the lessons of business, it may be possible to establish an environment ripe for intrapreneurial individuals and teams to thrive. As Gifford Pinchot suggests,

Intrapreneurs will make all the difference between your firm’s success and failure. The cost of losing entrepreneurial talent is more than just losing a skilled technologist or effective marketer. Intrapreneurs are the integrators

⁹² Robert Toguchi and Michael Krivdo, eds., *The Competitive Advantage: Special Operations Forces in Large-Scale Combat Operations* (Fort Leavenworth, Kansas: Army University Press, 2019), 249.

⁹³ Wilson, *Bureaucracy*, 227.

who combine the talents of both the technologists and the marketers by establishing new products, processes, and services. Without them innovation remains potential, or moves at the glacial pace of bureaucratic processes that no longer suffice in an environment filled with entrepreneurial competition.⁹⁴

Like bureaucracies, not all SOF are organized, resourced, and developed equally. The USSOCOM enterprise, as an example, is larger than some other NATO national armed forces. Conversely, many national SOF organizations within NATO member states and other connected partnerships are very small and maintain niche capabilities that are regionally or uniquely focused. It is simple to look at these leaner organizations as a template for intrapreneurship, but the model developed here can be applied equally to small and large nation SOF alike. Although there may be resource or policy distinctions between SOF, they all tend to have high potential in seeking to change in response to sensing environmental or adversarial feedback.

SOF has predominantly recognized the value of the entrepreneur and this manifests through outreach to industry, academia, and the creation of incubators such as SOFWERX or Defense Innovation Unit in the U.S. and comparable organizations for other nations.⁹⁵ They are fundamentally organized to take ideas or problems within the organization and find solutions externally. An approach that deliberately supports identifying problems internally through fostering of creativity, the establishment of process and resourcing to enable the development of ideas, and integration into practice across SOF will make a difference in output. To be clear, this does not need to be a revolutionary change. The existing approaches to change and leveraging entrepreneurs outside the organization can still provide solutions. Adopting intrapreneurship within the SOF enterprise at any level will improve capacity to create and affect change but can be as simple or complex as is appropriate for that force. It is the capacity created by combining intrapreneurship and

⁹⁴ Pinchot III, *Intrapreneuring: Why You Dont Have to Leave the Corporation to Become an Entrepreneur*, xi.

⁹⁵ SOFWERX and Defense Innovation Unit (DIU) are U.S. DOD-specific entities designed as accelerators of innovation through working with service requirements and specific industry and academia connections. SOFWERX has a 501c designation as a non-profit entity and thus has unique authorities for collaboration and funding with partners.

entrepreneurship under bureaucracy that will generate maximum potential. The lessons to be explored here are suggestions at best practices for SOF from a headquarters level, down to the individual tactical leader seeking options to improve competitive advantage in operations.

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VII. A FRAMEWORK FOR SOF INTRAPRENEURSHIP

SOF intrapreneurship leverages SOF characteristics to increase innovative capacity. SOF intrapreneurship harnesses the benefits from both entrepreneurship and the military bureaucracy, while simultaneously seeking to reduce the negatives. While entrepreneurship moves SOF towards disorder and agility, military bureaucracy leans towards order and stability. Thus, SOF intrapreneurship harvests the best from two worlds and, ultimately, increases innovative capacity, the actual potential for development and realization of innovation in response to the environment.

The following three steps of SOF intrapreneurship provide the tools to navigate, iterate, and pivot (see Figure 4). The purpose of step 1, navigate, is to put innovation into the context of the complex environment and establish organizational framing. Step 2, iterate, leverages testing and experimentation to find the “right” innovation and then develop it into potential capabilities. Step 3, pivot, is about implementing the innovation in accordance with environmental feedback. For illustrative purposes, navigate, iterate, and pivot are similar to the varying areas of proficiency that Adamsky identified in his study of military innovation within the Soviet Union, The United States, and Israel, respectively. The Soviet Union was well versed in a holistic and dialectic approach to navigating the complex environment, the United States excelled in iterating innovations, and Israel’s pragmatic approach to implementation made them pivot with speed. SOF intrapreneurship fuses the advantages of each of these approaches into one.

The triangle in Figure 4 illustrates an inverted funnel, where outputs are being funneled through deliberate practice to create responsive outcomes. Unlike a funnel that sees product flow downwards as output by gravity, SOF intrapreneurship requires deliberate effort to filter through high volume demands and select outputs for furtherance up the framework.

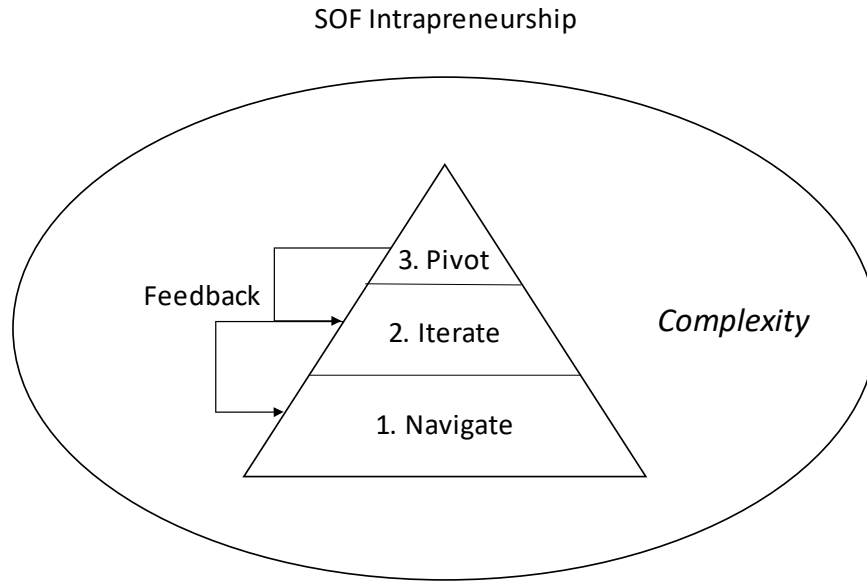


Figure 4. A framework for SOF intrapreneurship

Complexity, encompassing the effects of friction, wicked problems, and complex adaptive systems on the process, impacts SOF intrapreneurship. Innovations are often solutions to wicked problems, emerging within complex adaptive systems, with friction impacting the process of innovation development. The framework for SOF intrapreneurship is less linear than depicted because the complex environment does not allow for the process to unfold linearly. Continuous feedback throughout the process leaves the steps interconnected. For instance, informational uncertainties may be revealed at later stages in the process, leaving assumptions or developments obsolete or wrong. The framework we use here depends therefore on continuous feedback loops that should be considered. Making sense of this complexity, nevertheless, is the crucial first step of the framework, to navigate.

A. NAVIGATE: PUTTING INNOVATIONS INTO CONTEXT

Navigating is the vital first step of intrapreneurship as it puts all subsequent efforts towards innovation into context. This challenges SOF approach as bureaucracy limits flexibility and independent assessment while the inherent complexity of the environment demands both. Typical strategic assessments within SOF are often done on an infrequent basis and lack sufficient depth, framing, and communication to provide meaningful

representation of the environment to the organization. This leads to intrapreneurs potentially misaligned with organizational goals, lack of capacity to siphon through myriad problems and opportunities, and slow pivot speed as it relates to shifting priorities. In order to resolve this fundamental issue, SOF intrapreneurship requires an approach to navigation consisting of four connected and cyclical elements: interpreting, experimenting, effectuating, and networking; see Table 1.

Table 1. Overview navigate

Step	Element	Purpose and Output
Navigate	1) Interpret 2) Experiment 3) Effectuate 4) Network	Purpose: Putting innovations into context. Output: - Create mental and formal models - Imagine and experiment to improve and develop model - Prioritize problems, challenges, threats, and opportunities - Continuously updating understanding/interpretation - Communication of mental models, problems, and opportunities

The first element to navigating is *interpreting* the environment, how it will develop, and the SOF role in it. The interpretation of the environment, therefore, should honestly explore trends, constants, and potential shocks that shape our environment leveraging diverse sources. Further, SOF should incorporate parameters established by political and strategic levels to appreciate bounds. From a synthesis of these factors, SOF should build and develop models for articulation of context for innovation.⁹⁶ While independent SOF assessment may be preferred by the organization, SOF should also be mindful of the limitations imposed through rigidity and control of a bureaucracy. Navigating should also consider that the actions and preparations taken by SOF may change and manipulate the broader environment. As an example, an adversary also navigating may respond pre-emptively by shifting their own capability mix and fundamentally changing the

⁹⁶ Millett and Murray, *Military Innovation in the Interwar Period*, 305.

environment. Understanding feedback loops and accepting emergence are most critical in this step is most critical and should be a never-ending endeavor. SOF interpretation of the environment results in bounding the problem into discrete and actionable parameters for subordinate elements.

Through realistic analysis of empirically derived data, preferably from several sources, SOF can develop an understanding of how the future might unfold.⁹⁷ Successful navigation of complexity has often been due to the creativity and imagination of select military professionals, industry leaders, academics, and outliers developing future visions of warfare and the environment.⁹⁸ While such visions will never be perfect, they are, nevertheless, an important element of what Adamsky calls a dialectic and holistic approach to exploring how the future character of war might unfold.⁹⁹ Such an approach is curious by nature, constantly searching, debating, and exploring the potential of future conflict. It requires intellectual and institutional inclination and will usually be imprecise.¹⁰⁰ This synthesis should be free from both biases and politics, as impossible as that may be. While biases often are useful shortcuts to rapid decision-making, they also make humans prone to judgment errors.¹⁰¹

Diversity is critical to enabling accurate depiction of the environment and developing effective models for action. Diverse sources are understood as the degree of variety in the information sources gathered. Diversity contributes to distinct and creative solutions.¹⁰² At times, inventing something new is the least favorable approach. Being a market follower has inherent advantages in resource and capacity management in some

⁹⁷ Williamson Murray and Barry Watts, "Military Innovation in Peacetime," in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millett (New York: Cambridge University Press, 1996), 406–7.

⁹⁸ Murray and Watts, 406.

⁹⁹ Adamsky, *The Culture of Military Innovation*, 37.

¹⁰⁰ Dima Adamsky and Kjell Inge Bjerga, *Contemporary Military Innovation: Between Anticipation and Adaption* (London: Taylor & Francis Group, 2012), 189.

¹⁰¹ Emily Spencer, *Thinking for Impact: A Practical Guide for Special Operations Forces* (Ottawa: Department of National Defence, 2018), 87.

¹⁰² Murray, "Innovation: Past and Future," 312–18; Everett M. Rogers, *Diffusion of Innovations*, 5th ed. (New York: Free Press, 2003), 305–8.

instances. In these cases, simply emulating or imitating innovation can enable SOF to prioritize development of in-house innovations for specific requirements where truly needed. Competing everywhere has a cost, and selection of competitive terrain is important. Leveraging civ-mil relationships and private sector spending along with the relationships with other services and allies can deliver efficiencies for SOF. Other activities increasing diversity include small unit exchanges with other units (national or foreign), engagement with academia (both when in PME and when not), and skunkworks—where a diverse team gathers to solve problems without bureaucratic intervention.¹⁰³

These initial environmental parameters should be established before a crisis occurs in order to be adapted when one arises. Most initial phases of new wars are spent fighting with frameworks of old wars overlaid with new technology. Neustadt and May describe history as a useful tool but one that must be considered with broader perspective of things that have happened while imagining the future by connecting discrete phenomena.¹⁰⁴ SOF should first and foremost make sense of the environment inclusive of historical perspectives and potential emerging trends, constants, and shocks. Drucker points out that often, “basic innovations in the military in this century, whether in structure or strategy, have followed an ignominious malfunction or crushing defeat.”¹⁰⁵ While this perspective is not always the case, most innovations have derived from hard lessons that were painfully obvious with realistic interpretation of the environment. Most of these environmental responses are manifested through the cumbersome development of doctrine in a process that flows from delayed analysis and lacks flexibility and feedback for adjustment.¹⁰⁶ Arguably, SOF have been forced to take on some degree of this linear process to mirror the requirements of the conventional force and it is vital to pursue more responsive means to interpret.

¹⁰³ Henry Mintzberg, James Brian Quinn, and Sumantra Ghoshal, “The Innovation Context,” in *The Strategy Process* (Prentice-Hall, 1988), 731.

¹⁰⁴ Richard E. Neustadt and Ernest R. May, *Thinking in Time: The Uses of History for Decision-Makers* (New York: The Free Press, 1988).

¹⁰⁵ Drucker, *Innovation and Entrepreneurship*, 178.

¹⁰⁶ Jensen, *Forging the Sword*.

SOF should search out lessons from unexpected success and failure and continue to consider the most unlikely or surprising options.¹⁰⁷ In these, SOF may find counterexamples or entirely new approaches that fundamentally change the environment in their favor. From this first step, SOF leadership should develop an output consisting of an evolving mental model that informs further action and interpretation subordinates in an articulated formal model. Sterman describes mental models as useful ways to learn and understand complex dynamic systems.¹⁰⁸ These mental models are intended to represent “our beliefs about the networks of causes and effects that describe how a system operates, along with the boundary of the model (which variables are included and which are excluded) and the time horizon we consider relevant [for] framing or articulation of a problem.”¹⁰⁹ This approach will suffice for leadership framing, but more formal articulation is required across the organization to align efforts.

The second element to SOF navigation is *experimenting*. Sterman would further elaborate on this step as a “means to sharpen scientific reasoning skills, improve group processes, and overcome defensive outlines for individuals and teams.”¹¹⁰ From the formal models articulated to the organization, testing and simulation options should be developed to and improve, adjust, or validate prior to constructing approaches and capabilities to deal with them.¹¹¹ While acknowledging there is a degree of uncertainty in the models selected, they are intended to simplify and provide options for action. SOF must fundamentally make choices in moving forward or find themselves irrelevant. These approaches can be managed at any level from SOCOM to detachment and the experimentation to derive best advantage should be deliberate.

Therefore, an organizational bias towards experimentation has proven paramount in exploring and refining an understanding of the environment and how it might impact

¹⁰⁷ Drucker, *Innovation and Entrepreneurship*.

¹⁰⁸ John D. Sterman, *Business Dynamics: Systems Thinking and Modeling for a Complex World* (Boston: The McGraw-Hill Companies, Inc, 2000), 5.

¹⁰⁹ Sterman, 16.

¹¹⁰ Sterman, 5.

¹¹¹ Sterman, 5.

performance. Testing and experimentation are contradictory to the conventional bureaucratic and reductionist attempt at analyzing a path to success. Such reductionist approaches aim to get it right in one attempt with cumbersome procedural assessments. These are often counterproductive, however, as they attempt explaining, analyzing, and predicting variables that themselves impossible to grasp. To be clear, this degree of testing and experimentation is different from the concept of innovation iteration, to be explored later.

The third element of navigating is *effectuation*. Models should be continuously assessed and updated as conditions change through the practice of effectual reasoning. Military leaders are conditioned to use causal rationality as the underlying frame for developing plans and operations. This approach involves starting with a goal or vision of the end state and assigning means and resources to achieve the optimal alternative to achieve that goal.¹¹² As discussed earlier, though, with shifting and changing environmental factors and uncertain resources, establishing clear goals and means inhibits change. What is needed is a paradigm shift to effectual reasoning. Successful intrapreneurs do this well, “they believe in a yet-to-be-made future that can be substantially shaped by human action... it is not much use in trying to predict [the future] but better to understand and work with people and organizations engaged in the decisions and actions that bring it into existence.”¹¹³ This suggests a more exploratory approach that involves co-creation: understanding the resources and means of multiple agents and combining them in novel ways to meet emerging and shifting goals in response to the environment.¹¹⁴

Effectuation relies much more heavily on human capital of the intrapreneur to use personal strengths and resources on hand to develop goals as they emerge—a concept with high potential given the selection and mindset inherent in SOF.¹¹⁵ This is a classical

¹¹² Saras D. Sarasvathy, “What Makes Entrepreneurs Entrepreneurial?,” no. Darden Case No. UVA-ENT-0065 (n.d.), <https://ssrn.com/abstract=909038>, 2.

¹¹³ Sarasvathy, “What Makes Entrepreneurs Entrepreneurial?,” 9.

¹¹⁴ Sarasvathy.

¹¹⁵ Leigh Buchanan, “How Great Entrepreneurs Think,” *Inc.Com*, February 2001, <https://www.inc.com/magazine/20110201/how-great-entrepreneurs-think.html>.

reinforcement of the SOF truth that people are more important than hardware. One of the most critical aspects of navigation is the notion of sensing or effectuation. The term effectuation is derived from effectual reasoning which is a method of reasoning that begins with a set of means and emerges over time as new inputs and environmental changes occur. It is distinct from causal reasoning which seeks to pursue specific objectives or goals using pre-determined resources and approaches.¹¹⁶ Effectuation is like co-creation. It is distinct from exploration in that it involves envisioning something not yet in existence.

Finally, *networking* ties together all elements of intrapreneurship but is critical to navigation. This includes formal networks such as chains of command and control but also informal networks such as advocacy and opinion networks. In many cases, informal networks bear more weight on innovative capacity than formal hierarchical ones. As Jensen describes, “advocacy networks, the pathways along which new ideas circulated through the broader defense community, provided the connective tissue. The networks acted as contagion vectors, infecting other officers and defense officials with new ideas.”¹¹⁷ Group structure, systems, and leader selection will inform the degree and speed of diffusion in and between groups bridged in a network and fundamentally drive the capacity to communicate and collect information on the environment. Understanding how these connections are made and between which individuals and groups are critical for understanding the power of networks in enabling navigation and subsequent action. Network structure and connections matter and there are numerous laws or approaches to confirm that the more nodes connected in a network, the more effective it can be at managing complexity. Metcalfe’s Law (named for Robert Metcalfe, the founder of the ethernet) for instance, posits that the value or strength “of a network is proportional to the square of the” number of connections in the network.¹¹⁸ This suggests that the hierarchical nature of military bureaucracy may not be ideal for dealing with complexity in all cases.

¹¹⁶ Sarasvathy, 2.

¹¹⁷ Jensen, *Forging the Sword*, 142.

¹¹⁸ Zhang Xing-Zhou, “Tencent and Facebook Data Validate Metcalfe’s Law,” *Journal of Computer Science and Technology* 2 (January 2015): 1.

To summarize, SOF intrapreneurship requires an approach to navigating constituting of four elements: interpretation, experimentation, effectuation, and networking. Navigation is, importantly, process agnostic because there are numerous options and concepts for how to navigate complexity: design thinking, joint operational planning, OODA loop, capability-based planning, or simply strategic corporate business planning methods. Each approach will have advantages and disadvantages depending on the organization, leadership, environment, and bureaucratic demands. Regardless, the process chosen should develop interpretation of the environment and enable decision making regarding potential actions therein. Fundamentally, the navigational approach should be considered as what we have termed “environment-based planning.” Developing and iterating the innovations that arise as a result of navigation are the next steps in intrapreneurship. By continuously refining and updating our understanding of the complex environment based on feedback loops, SOF will be better prepared to act within it through iteration.

B. ITERATE: IDENTIFYING AND DEVELOPING INNOVATIONS

Iterating involves the deliberate adjustment of innovations and processes over time in response to environmental feedback. It will enable SOF to filter through the volume of inventions and ideas developed by intrapreneurs and the bureaucratic process in order to prioritize the most impactful for improving competitive advantage. Current intrapreneurs are not deliberately identified nor supported and thus many innovations lack capacity to iterate within the system forcing them to either wither, delay, or leave the organization. Further, those that make the cut for prioritization for resources and support often lack capacity for experimentation and adjustment over time. This leads to innovation that are inappropriate or irrelevant by the time they are diffused through the force. Organizations can develop minimum viable product required to initially demonstrate and prove concepts that are hypothesized to be valuable. This exploration of iteration will describe three elements: sourcing and selecting opportunities, organizing teams, and conducting rapid prototyping; see Table 2.

Table 2. Overview iterate

Step	Element	Purpose /output
Iterate	1) Source and Select 2) Organize 3) Conduct Rapid Prototyping	Purpose: Identifying and developing innovations Output: - Problems and opportunities prioritized and resourced - Organize (and re-organize) for innovative capacity - Fail quickly for minimal resources to identify and develop innovations

First, SOF should conduct a deliberate search for opportunities and prioritize their development, resourcing, implementation, and adjustment based on the context established during navigation. These opportunities exist all around and within the organization but many of them are missed or fail to develop either due to bureaucratic process, lack of leadership investment, or poor timing. Creating an opportunity-focused organization can enable the iteration of meaningful innovations by enabling the best opportunities to gain resourcing and support. McGrath and MacMillan describe the importance of sourcing and registering opportunities into a meaningful, shareable, and traceable library. As intrapreneurial ideas are generated within the organization, it is critical to ensure they are noted and saved as many are often not relevant at the time but become so as the environment changes. What is needed is the combination of experience and opportunity and the gradual shaping of those opportunities by intrapreneurs understanding the resources and limitations around them. There is a fine line between an idea and an opportunity and the delineation amounts to research, testing, resourcing, potential practical applicability, and relevance to organizational tasks.¹¹⁹ The source of these opportunities is less important than the organizational management of them.

As opportunities are nurtured from problems into ideas and potential options, SOF should have a mechanism to collect and track them, assess against resourcing criteria, and

¹¹⁹ Thornberry, *Lead Like an Entrepreneur*, 39.

winnow down to those high-potential opportunities that could be implemented.¹²⁰ Many of these opportunities will be time sensitive as competitors or environmental conditions adapt and potentially overtake relevance or shift requirements. These opportunities could be as complicated as investments in technology, partnering with industry or academia for specific initiatives, or testing tactics through exercises and deployments. They could also be as simple as a new process for administration in a unit, recruitment messaging for a target audience, or revised authorities for training at the troop level. Managing opportunities is conducted much in the way that investors look at real options reasoning.¹²¹ Leadership should assess the likelihood of investment in an opportunity paying off in the environment by also understanding the degrees of uncertainty impacting those investments and be prepared for alternative possibilities. If SOF can sense and respond to environmental changes by selecting and developing the right opportunities, it will flourish. If not, SOF will see decline.¹²² Opportunities in SOF intrapreneurship only exist if they are identified, developed, and captured.¹²³ This will be developed further through portfolio management in the third element of SOF intrapreneurship.

Second, increasing innovative capacity requires creating the organization with the intrapreneurial characteristics and mindset required to support both individuals and teams in developing these opportunities. This involves shifting resources, people, and networks from those organizational elements that do not meet criteria for continuously adding value to those that are higher value-added in practice or potential.¹²⁴ In bureaucracies, the internal processes are entrenched and, in some cases, become barriers to reconfiguration. One solution is the creation and empowerment of small and autonomous teams to develop diverse, holistic solutions. Small teams are understood as a dedicated number of individuals tasked with solving specific problems, often on an ad-hoc basis and often with diverse or

¹²⁰ Rita Gunther McGrath and Ian MacMillan, *The Entrepreneurial Mindset* (Boston: Harvard Business School Press, 2000), 163.

¹²¹ McGrath and MacMillan, 163–83.

¹²² Richard Luecke, *Scuttle Your Ships Before Advancing* (New York: Oxford University Press, 1994).

¹²³ Thornberry, *Lead Like an Entrepreneur*, 57.

¹²⁴ McGrath, 22.

multi-disciplinary composition. While a diverse pool of personnel, with varying backgrounds, experiences, education, training, and cultures, is fundamental to internal diversity, one can make up for lack of diversity internally with external sources. It could be civilian sources, sources from allies and partners, or even sources from the adversary.¹²⁵ This approach enables focused effort on specific issues that individuals or groups have a personal investment in. These teams are designed to develop the opportunities identified during the navigation stage while also sensing potential breakout options for further.

Autonomous teams are diverse in composition, structure, and formality. They should be established with sufficient leadership support or patronage and freedom to develop solutions. Indeed, the team should have the support to challenge the status quo, if necessary. They should be empowered to share, exchange and gather information internally and externally with the necessary authority to plan and act. These teams can be assigned formal responsibilities for specific opportunities or can exist within their existing task environment and given slack. The concept of slack has emerged in business literature as “potentially utilizable resources that can be diverted or redeployed for the achievement of organizational goals.”¹²⁶ In simple terms, slack refers to the freedom of the intrapreneur to manage a degree of human, material, and temporal resources to pursue innovation. Slack is a prerequisite for SOF intrapreneurs, as it provides space in which creativity can grow and opportunities can be exploited.¹²⁷ One of the challenges for such teams in a bureaucracy is policy, focus and capacity given the competing requirements of sustaining the organization. The solution to the problem is one of focus—the ambidextrous organization.

Weaving autonomous teams into an ambidextrous organizational construct enables SOF to serve more than one distinct functional capacity such as bureaucratic institutional business with mandated processes and existing tasks, while also looking forward to ground-

¹²⁵ Murray, “Innovation: Past and Future,” 325–28; Allan R. Millett, “Patterns of Military Innovation in the Interwar Period,” in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millett (New York: Cambridge University Press, 1996), 359.

¹²⁶ Gerard George, “Slack Resources and the Performance of Privately Held Firms,” *Academy of Management Journal* 48, no. 4 (2005): 661.

¹²⁷ Murray, “Innovation: Past and Future,” 325–28.

breaking change supported by intrapreneurship.¹²⁸ As an example, such an organization relates to the concept to the Roman god Janus, known for having two sets of eyes, one looking backward and another looking forward.¹²⁹ Conscious separation of the exploratory (forward-leaning) segments of the enterprise from exploitative (rearward-leaning) ones with allowances for distinct culture, rules, structure, and processes may allow for better potential for success.¹³⁰ To ensure strategic direction and alignment though, these distinct elements should be harmonized through leadership, vision, and central purpose. Such decisions are not always simple or popular as they establish unique environments for elements of the same organization and can challenge leaders in their commitment and incentives. Success requires a network strategy that is founded on leaders with united and consistent messaging supportive of the same overall purpose, but with a degree of latitude to plan, manage and execute in their unique functional area.¹³¹

¹²⁸ Charles A. O'Reilly III and Michael L. Tushman, "The Ambidextrous Organization," *Harvard Business Review*, April 2004, <https://hbr.org/2004/04/the-ambidextrous-organization>.

¹²⁹ O'Reilly III and Tushman.

¹³⁰ O'Reilly III and Tushman.

¹³¹ O'Reilly III and Tushman.

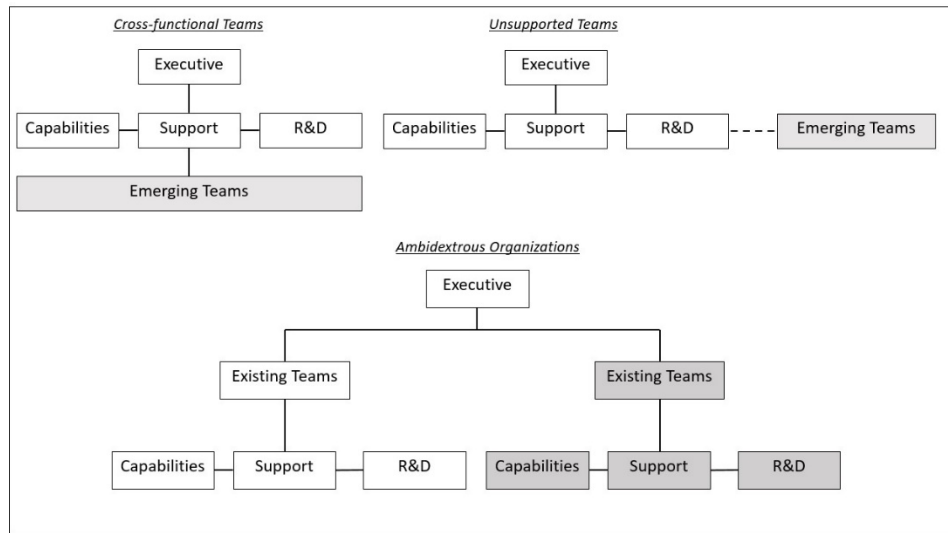


Figure 5. Organizational design options.¹³²

SOF consist of different sub-organizations with different mission statements and structures but it is important to consider their relative intrapreneurial requirements uniquely. The ambidextrous organization concept allows practitioners to carefully consider their sub-organizations and align them accordingly. This could result in a SOCOM-like headquarters specifically organized and aligned with interface in the broader conventional force while maintaining the forward-looking capability to enable sub-organizations. It could also be managed within the sub-organizations or units themselves. At the unit level, this could entail sub-units or teams with unique structure and purpose as part of a transient design effort to ensure the right organizations are enabled to maximum effect depending on task and environment. Finally, these teams should be structured and designed with capacity to restructure. Just like the ability to reconfigure physical resources to support innovation, SOF should be willing and able to reconfigure teams to that end.

Responding to changing environmental conditions and emerging situations requires an organizational formation that is responsive to change without excessive resistance, evolving and shifting in and out of focus as feedback demands.¹³³ It requires a willingness

¹³² Adapted from O'Reilly III and Tushman.

¹³³ Mintzberg, Quinn, and Ghoshal, "The Innovation Context."

to change, the ability to reconceptualize risk and costs, flexibility, and a willingness to divest capabilities and concepts that no longer contribute to meaningful outputs. It requires an acceptance that there are no solutions in the sense of objective or definitive outcomes. The issue is fundamentally organizational vice environmental as “the stagnation of innovation in large organizations is the almost inevitable result of the currently fashionable systems of analysis and control.”¹³⁴ There is great resistance to changing core tasks or imposing new ones that are inconsistent with historic values or process regardless of the environmental or market inputs.¹³⁵ Organizations that tend towards structures or tasks will inevitably choose environments or problems to suit them. This is unforgivable in the realm of emerging private industry startups that have no choice but to adapt or die yet SOF seem to accept this condition. Thus, SOF organizational design is vital to the successful conduct of intrapreneurship.

Third, the teams should *conduct rapid prototyping* to solve problems because simply, trial and error lead to identifying failure early.¹³⁶ For the purposes of this element, our definition of “rapid prototyping” will include both pretotyping and prototyping as distinct yet linked concepts. Pretotyping and prototyping are two critical avenues for iteration. Pretotyping is defined by Savoia as “testing the initial appeal and actual usage of a potential new product or service by simulating its core experience with the smallest possible investment of time and money.”¹³⁷ It is distinct from prototyping in that it can use a bare-minimum surrogate or mock-up to test and validate concepts well before actual prototypes are required. The best tests fail early, avoiding spending time, energy, and resources on the wrong things poorly. This requires revised appreciation of risk in development but also in fielding.

For prototyping to become a relevant component of military doctrine, promising weapon systems will need to be delivered quickly to the operational forces in limited quantities, with the option of building or

¹³⁴ Wilson, *Bureaucracy*, 224–26.

¹³⁵ Mintzberg, Quinn, and Ghoshal, “The Innovation Context.”

¹³⁶ Terry Pierce, *Warfighting and Disruptive Technologies*, 30.

¹³⁷ Alberto Savoia, *Pretotype It*, (October, 2011), 21. Alberto Savoia, *Pretotype It*, (October, 2011), 21.

modifying the base design for future use. These prototypes may be produced at a lower cost and may only need to be operational for a short time period.¹³⁸

In the military, bureaucratic tendencies typical of large governmental organizations, tend to create incentive structures that seldom favor uncertainty and risk.¹³⁹ In fact, failure is often counterfactual to military culture. Yet, iterative approaches are designed to fail early in order to evolve and succeed quickly and “using special operations forces as the laboratory could leverage the military community most comfortable with the rapidity, cognitive flexibility, and risk tolerance necessary for prototyping.”¹⁴⁰

Testing, trial, and experimentation are vital to iteration. Murray and Millett state that innovation demands “that military organizations judge the potential and possibilities of future war in a realistic fashion. Here the...business of exercises and realistic war games lay at the heart of effective innovation.”¹⁴¹ There is an important distinction to be made between lessons identified and lessons learned. How SOF conducts its testing, trial, and experimentation is less important than its ability to draw and learn from lessons identified. Rapid prototyping allows intrapreneurs to utilize progressive testing to determine if an approach or concept is even the right one before investing resources and capacity to develop further or gain inertia in bureaucratic processes. Fundamentally, these efforts will seek to determine if it is the right thing to build then also build it the right way. Both are essential processes to ensure that innovations are suitable and appropriate for solving the problems or opportunities identified through navigation.

Beyond building, experimenting, and testing, failing is of vital importance. Through failure, hard organizational lessons are observed and should be learned from. Savoia describes “the Law of Failure” as the notion that most “new its” will fail—even if

¹³⁸ Robert Kozloski, “The Path to Prototype Warfare,” *War On the Rocks*, July 17, 2017, <https://warontherocks.com/2017/07/the-path-to-prototype-warfare/>.

¹³⁹ Hasselbladh and Ydén, “Why Military Organizations Are Cautious About Learning?”

¹⁴⁰ Leo Blanken, Philip Swintek, and Justin Davis, “Special Operations as an Innovation Laboratory,” *War on the Rocks*, February 25, 2020, <https://warontherocks.com/2020/02/special-operations-as-an-innovation-laboratory/>.

¹⁴¹ Millett and Murray, *Military Innovation in the Interwar Period*, 325–326.

they are flawlessly executed.”¹⁴² This becomes increasingly problematic for high-reliability organizations that are acculturated to success and assign negative value connotations to failure. In most militaries, the individual and organizational reward system are structured to support success and punish failure. This is at odds with the requirements for intrapreneurship. SOF should reconsider incentives and allowances for failure and encourage it early in iteration.

To summarize, iteration enables SOF to identify and develop innovations to environmental problems, and shift resources quickly. Current practices often tie resources and organizational commitment to outcomes that may not be appropriate in conditions of change or uncertainty. In order to successfully convert navigation into outcomes, SOF should deliberately source opportunity, establish focused autonomous teams through organizational design, and emphasize rapid prototyping to develop minimum viable product as part of gradual experimentation. Maintaining these practices will enable SOF to pivot when required.

C. PIVOT: IMPLEMENTING INNOVATIONS

Pivoting is concerned with implementing the good innovations. Since all innovations involve change, yet all innovations are not good, pivoting is focused on choosing what innovations to implement and changing the organization. The challenge, however, is that complexity makes measuring the effectiveness of innovations difficult. When a decision is made, moreover, militaries are ill-suited to change; bureaucracies are to a certain degree built not to change. Even SOF are prone to many of the same challenges as the conventional part of the military. To succeed in pivoting, SOF require a decision and the necessary financial and organizational capacity to change. To be sure, when the scope of change of an innovation increases, the decision often proves harder to make and the required financial and/or organizational capacity to pivot increases as well.¹⁴³

¹⁴² Savoia, *Prototype It*. Savoia.

¹⁴³ Michael C. Horowitz, *The Diffusion of Military Power: Causes and Consequences for International Politics* (Princeton, NJ: Princeton University Press, 2010), 209. Horowitz, 209.

Table 3. Overview pivot

Step	Element	Purpose /output
Pivot	1) Decide 2) Change	Purpose: Implementing innovations Output: - Decision to implement innovation - Innovation implemented

The first element of pivoting is deciding to do so. The decision to pivot is often clouded with uncertainty, risk, and opportunity costs. Opportunity costs for instance—what is lost by pursuing a specific innovation—may present difficulties for decision-makers, especially under resource constraints. Opportunity costs are further exacerbated by the fact that there might be uncertainty related to whether or not the innovation will prove effective; after all, there are as many bad changes as good and bureaucracies are especially vulnerable.¹⁴⁴ And where there is uncertainty, there is usually also risk. In a risk-averse organization, such as the military, this proposes a challenge for decision-makers. Not only are uncertainty and risk associated with the actual decision from an organizational perspective, but also a cultural and individual risk to the individual making the decision. These challenges to the decision of pivoting are real. They require individuals and organizations to be able to cope with uncertainty and risk. However, those that successfully navigate and iterate, will already have deliberately developed an innovation for a specific context and be better positioned to decide.

Managing a portfolio of emerging opportunities balanced with core business can enable decision-making.¹⁴⁵ Like a venture capital firm, SOF should constantly assess their investments to ensure they continue to deliver value or potential value in a changing marketplace. Given an organizational context bounded by policy and resource capacity limitations, it is critical to ensure that investment in both financial and human capital is delivered to the right opportunities. Portfolio management refers to gaining “an understanding of which business opportunities would make the most substantial

¹⁴⁴ Wilson, *Bureaucracy*, 227–28.

¹⁴⁵ McGrath and MacMillan, *The Entrepreneurial Mindset*, 2000, 193–95.

contribution to the future for your organization. The next challenge is to figure out how you are going to allocate resources to those opportunities you elect to pursue.”¹⁴⁶ The key element here is understanding that the opportunities may be almost endless but that SOF must make choices in pursuit of advantage lest they get overwhelmed in the noise or degrade resources impacting core operations.

It is important to understand that there is an underlying carrying capacity within each SOF system and within the broader bureaucracy that supports it. Like an ecosystem, the cost for each constituent opportunity or capability will impact the carrying capacity of the system and it may be forced to self-regulate if exceeded. Without prioritization or increased resourcing, this regulation will lead to either broad degradation, specific failure or omission, or success at the expense of another opportunity. Once assessed, the carrying capacity becomes one of the foundational elements of the process of portfolio management. Thorough systems analysis should be conducted to understand this capacity in more than just resource terms. Networks, communication, authorities, funding, training time and access, and strategy are simple examples of factors affecting this capacity and should be managed deliberately to ensure that the right opportunities are receiving focus while those less significant are either divested or diminished.¹⁴⁷

Portfolio management requires thresholds for performance, timelines, metrics for adjustment, and feedback loops to decision-makers. First and foremost, however, SOF should select which opportunities to pursue, to what extent, and at what time. The process of portfolio management requires disciplined focus resulting in hard choices. At times, these choices require balancing existing and emerging activities and at times, abandoning ongoing efforts in favor of higher payoff opportunities.¹⁴⁸ In a SOF context, this means that training activities and affiliations, equipment procurements, recruiting focus, operational targets and tasks, and force development should all be rooted in the objective mapping of opportunities over capabilities. Portfolio management is a concept that is not

¹⁴⁶ McGrath and MacMillan, *The Entrepreneurial Mindset*, 2000, 163.

¹⁴⁷ McGrath and MacMillan, *The Entrepreneurial Mindset*, 2000, 180–84.

¹⁴⁸ McGrath and MacMillan, 131–33.

well understood in military domains as the resourcing and investment into products and activities is rarely shifted or terminated prematurely based on emerging conditions on short time horizons as the modern operating environment now demands.

Some operational mandates will inevitably be a resource sink but must be conducted due to strategic importance or specific direction. When looking at current practices and future opportunities, it is important to assess their potential as winners or losers in the context of improving potential competitive advantage in the environment. To make room for new opportunities and capabilities in the portfolio, disengagement should be continuous and deliberate. According to McGrath, “disengagement—the process of moving out of an exhausted opportunity—is as core to the business as innovation, growth, and exploitation are.”¹⁴⁹ Managing a portfolio of capabilities involves more than simply identifying them and assigning tangible resources. Rather, it is a deliberate assessment of capacity followed by intentional management of resources and attention over time. This should be done continuously with realistic decisions determining when to invest more and when to cut losses.

Understanding the limitations of time and resources inherent in all SOF organizations, prioritizing investment in opportunities to develop capabilities and outputs is key. This is done through iteration and enables SOF to ebb and flow with the shifting environmental assessment conducted while navigating. Testing and trialing all manner of innovations at the lowest possible cost through rapid prototyping preserve capacity for operational outputs and other innovations critical to the enterprise. Finally, managing capabilities and innovations in a deliberate portfolio approach enables decision making that supports implementation of change.

The second element to pivoting is the capacity to change. SOF require the financial and organizational capacity to change once a decision is made (see Figure 6). On the one hand, financial capacity refers to the total financial resources required for the successful

¹⁴⁹ McGrath, *The End of Competitive Advantage*, 21.

implementation of an innovation.¹⁵⁰ The higher the cost, the lower the probability of implementation.

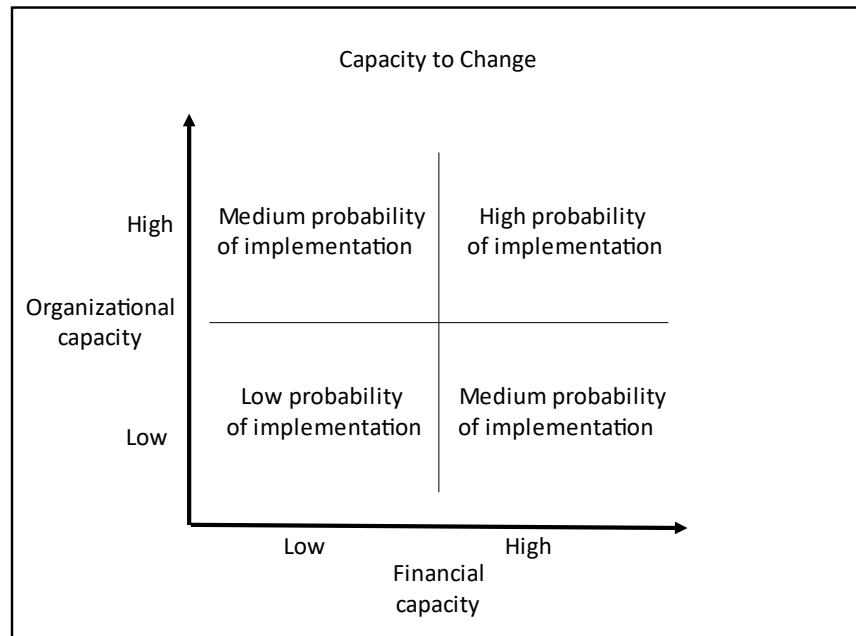


Figure 6. Capacity to change depends on financial and organizational capacity.¹⁵¹

Organizational capacity, on the other hand, is understood as the organizational ability to implement an innovation.¹⁵² We will explore four indicators of organizational capacity to change: organizational age, formulation of tasks, amount of experimentation, and leadership support. First, since increasing organizational age slows the rate of change due to increasing bureaucratization and rigidity, organizations with high capacity to change, work around bureaucratization to maintain agility.¹⁵³ An illustration of such bureaucratization is the creation of hierarchical “gatekeepers”—key individuals within the organization—with the power to inhibit implementation “by filtering, sidelining, and

¹⁵⁰ Horowitz, *The Diffusion of Military Power*, 30–32.

¹⁵¹ Adapted from Horowitz, 49.

¹⁵² Horowitz, 39.

¹⁵³ Horowitz, 37.

ignoring competing sources of advice and information.”¹⁵⁴ These gatekeepers can impose large amounts of bureaucratic power resisting change, simply because more veto points slow decision making and decrease the likelihood of change.¹⁵⁵ The creation of small, autonomous, and protected teams described in step 2, iterate, is one example to work around organizational age. Second, the broader the organization’s formulation of tasks, the higher the capacity to change because changes in accordance with the existing perception of tasks meet less resistance when implemented.¹⁵⁶ The formulation of tasks shapes the internal processes and methods of organizations.¹⁵⁷ As such, when change is in accordance with these processes and methods, the bureaucratic resistance is reduced because disrupting innovations often meet more resistance; as they often change tasks or processes, instead of just improving the current way of doing business.¹⁵⁸ Some have even argued for disguising disruptive innovations as sustaining innovations, so that bureaucratic resistance does not hamper implementation.¹⁵⁹ The broader an organization’s formulation of tasks, the higher the capacity to change. Third, an organizational praxis of experimentation increases the capacity to pivot, because it increases organizational willingness to change.¹⁶⁰ Organizations spending resources on experimentation, such as experimentation in step 1 and rapid prototyping in step 2, are more likely to obtain feedback from the environment and the organizational willingness to change are likely to increase.¹⁶¹ Fourth, leadership support is critical, because leadership has an important role in protecting, diffusing, and

¹⁵⁴ Adam M. Jungdahl and Julia M. Macdonald, “Innovation Inhibitors in War: Overcoming Obstacles in the Pursuit of Military Effectiveness,” *Journal of Strategic Studies* 38, no. 4 (June 7, 2015): 467.

¹⁵⁵ Horowitz, *The Diffusion of Military Power*, 38.

¹⁵⁶ Wilson, *Bureaucracy*, 222.

¹⁵⁷ Horowitz, *The Diffusion of Military Power*, 36.

¹⁵⁸ Terry Pierce, *Warfighting and Disruptive Technologies*, 20–21.

¹⁵⁹ Terry Pierce, 32.

¹⁶⁰ Horowitz, *The Diffusion of Military Power*, 37.

¹⁶¹ Horowitz, 37.

legitimizing change.¹⁶² In some cases, both senior civilian and military leadership intervention is required for successful implementation.¹⁶³ In shorter-term implementation processes, leadership's role is important for protecting and legitimizing ideas and individuals.¹⁶⁴ In longer-term implementation processes, career paths for individuals and personnel management become more important, since politics matter in organizations.¹⁶⁵

To summarize, as the scale of the innovation increases, the probability of successful implementation decreases. Decisions to implement innovations are likely to entail a degree of uncertainty and risk. The capacity to change once a decision is made, on the other hand, involves both financial and organizational capacity. At this stage, an innovation will either be successfully implemented or not. SOF Intrapreneurs will then return to step 1 to navigate and assess the effectiveness of the innovation in the complex environment.

¹⁶² Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (New York: Cornell University Press, 1984), 225; Stephen Peter Rosen, *Winning the Next War* (Ithaca: Cornell University Press, 1991), 19–21, 252; Murray, "Innovation: Past and Future," 325–28; Jensen, *Forging the Sword*, 23, 145.

¹⁶³ Posen, *The Sources of Military Doctrine*, 225; Rosen, *Winning the Next War*, 21.

¹⁶⁴ Jensen, *Forging the Sword*, 23, 145.

¹⁶⁵ Rosen, *Winning the Next War*, 19–20, 252.

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VIII. CRITIQUES

Throughout the process of developing the framework for SOF intrapreneurship, we have identified and resolved a number of challenges. While these challenges have been of the utmost value for reflection and improvement, some could prove useful for others and will be addressed here.

First, some would argue that SOF are already doing all of this.¹⁶⁶ While SOF are certainly better poised than conventional forces to adopt SOF intrapreneurship, we hold that there is still a lot of potential for SOF to become more innovative. There are also differences between various SOF and some are certainly more advanced in SOF intrapreneurship than others. For instance, education is paramount to creating an intrapreneurial organization.¹⁶⁷ Yet, in our experience, professional military education is still disproportionally focused on producing orderly officers through institutionalization, instead of responsive and change-prone leaders through innovation. While elements of the institutionalization disappear through selection processes to SOF and cultural differences in SOF, true adoption of a concept like, or similar to, SOF intrapreneurship requires specific education of personnel of all categories in the organization. At present, such education is lacking, both for conventional forces and SOF. While SOF, therefore, to varying degrees have adopted elements of SOF intrapreneurship, this is more due to experience and lucky coincidence, than due to a coherent and academically attributed approach.

Second, some would argue that SOF intrapreneurship is not SOF-specific and could be adopted by conventional military organizations alike. To a certain degree, we agree. There is no one thing that conventional military organizations could not do in the

¹⁶⁶ See for instance the works of Spulak, Schultz, and Blanken et al.: Robert G. Spulak, Jr, "Innovate or Die: Innovation and Technology for Special Operations," JSOU Report (MacDill Air Force Base, Florida: Joint Special Operations University, December 2010), https://www.socom.mil/JSOU/JSOUPublications/JSOU10-7spulakInnovate_final.pdf; Richard Schultz, "Military Innovation in War: It Takes a Learning Organization," JSOU Report (MacDill Air Force Base, Florida: Joint Special Operations University, 2016); Blanken, Swintek, and Davis, "Special Operations as an Innovation Laboratory."

¹⁶⁷ Murray, "Innovation: Past and Future," 325–28.

framework presented. However, as explored in THE MILITARY BUREAUCRACY AND SOF, ENTREPRENEURSHIP AND SOF, and A BETTER PATHWAY: INTRAPRENEURSHIP, there are differences between SOF and conventional forces making the framework of SOF intrapreneurship easier and more likely to be adopted and implemented by SOF. Moreover, if larger-sized conventional units were to adopt SOF intrapreneurship, it would move the organization towards *disorder* and remove some of the stability and rigidity that military organizations impose to reduce the impact of friction. Depending on the specific military organization, of course, such a move could increase organizational complexity and move the organization towards a better balance between order and disorder, yet it would never achieve the same level of organizational complexity that a relatively smaller SOF element could achieve.

Third, detailed attempts at producing standard operating procedures for innovation may very well end up suffocating it (often due to an ill-placed tension towards order—rigidity, procedures, and bureaucracy).¹⁶⁸ Since we are aware of this fact, the framework is purposefully generalized. We have taken care to give users of the framework room to interpret and employ it in the most fitting way to their distinct organization and environment.

Fourth, it might be asked if the framework generally explains successful innovation. We believe that adopting a framework of SOF intrapreneurship increases the likelihood of successful innovation. However, to paraphrase a famous saying, while the framework of SOF intrapreneurship is certainly wrong, it might still be useful.¹⁶⁹ SOF intrapreneurship, moreover, is only one way of describing the process of innovation. And while both of us have spent close to two years studying the phenomena, we certainly do not believe this is the last word; the framework could certainly be developed further through additional research.

¹⁶⁸ Murray, 320.

¹⁶⁹ The quote “all models are wrong, but some are useful” is often attributed to statistician Box in this article: George E. P. Box, “Science and Statistics,” *Journal of the American Statistical Association* 71, no. 356 (1976): 791–99, <https://doi.org/10.2307/2286841>.

Last, does literature from the business world really lend itself to military organizations? If we have not convinced the reader at this point, then this paragraph will likely not change someone's mind. We do, of course, acknowledge that there are fundamental distinctions between SOF and business endeavors, the most obvious being that risk of failure presents very different consequences—financial loss versus the loss of life, or, going bankrupt versus losing the war. Despite the differences, there are many similarities between the demands for innovation in complex environments. We believe it would be ignorant, arrogant, and foolish to dismiss the hard-earned experiences made in the fields of business if there is the slightest chance that they might reduce loss of life, or even make the marginal difference to avoid losing the next war.

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IX. CONCLUSION

As Eric Schmidt stated in his address to the Armed Services Committee, “success no longer goes to the country that creates a tech-first, but to the country, that better integrates and adapts its way of fighting.”¹⁷⁰ We have seen through our development of SOF intrapreneurship that invention is not enough—innovation is the what and intrapreneurship is the how. Deliberately creating an ecosystem that balances the freedom of entrepreneurship with the rigidity of bureaucracy is vital to both creative destruction and preservation of institutional capacity. Ultimately, strategy drives where the SOF fits on that spectrum and thus define the character of intrapreneurship best suited to compete in the environment. Navigating establishes fundamental parameters for the organization, iteration ensures smart investment and capacity to refine with changing demands and pivoting ensures SOF can apply the highest degree of advantage at a time of its choosing.

It is clear that SOF already possess many of the underlying characteristics of intrapreneurship, having been built or evolved into distinct entities from the conventional force over a period of time. While these features of SOF have not arisen from a deliberate attempt to learn and apply the lessons described herein, they are strikingly suitable to adopt SOF intrapreneurship. In studying the literature on innovation and entrepreneurship, we have suggested that SOF intrapreneurship provides a meaningful mechanism for aligning efforts of an organization over time to improve innovative capacity. As Western senior military and civilian leadership emphasize emerging challenges of Great Power Competition, SOF can continue to remain “special” and be the intrapreneur of the military domain of national power.

¹⁷⁰ Schmidt, “Statement to House Armed Services Committee.”

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APPENDIX A: LITERATURE USED IN THE FRAMEWORK

Table 4. Literature used in the framework for SOF intrapreneurship

Literature	Navigate	Iterate	Pivot
Adamsky (2010)	X		
Adamsky & Bjerga (2012)	X		
Blanken et al. (2020)		X	
Buchanan (2001)	X		
Drucker (1993)	X		
George (2005)		X	
Hasselbladh & Yden (2019)		X	
Horowitz (2010)			X
Jensen (2016)	X		X
Jungdahl & Macdonald (2015)			X
Kozloski (2017)		X	
Luecke (1994)		X	
McGrath (2013)		X	X
McGrath and MacMillian (2000)		X	X
Millett & Murray (1996)	X	X	
Mintzberg et. al. (1988)	X	X	
Murray (1996)	X		
Murray & Watts (1996)	X		
Neustadt and May (1988)	X		
O'Reilly III and Tushman (2004)		X	
Pierce (2004)		X	X
Posen (1984)			X
Rogers (2003)	X		
Rosen (1991)			X
Savoia (2011)		X	
Sarasvathy (2008)	X		
Spencer (2018)	X		
Sterman (2000)	X		
Thornberry (2006)		X	
Wilson (2000)		X	X

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APPENDIX B: OVERVIEW OF SOF INTRAPRENEURSHIP

Table 5. Overview of SOF intrapreneurship

Step	Element	Purpose /output
Navigate	1) Interpret 2) Experiment 3) Effectuate 4) Network	Purpose: Putting innovations into context. Output: - Create mental and formal models - Imagine and experiment to improve and develop model - Prioritize problems, challenges, threats, and opportunities - Continuously updating understanding/interpretation - Communication of mental models, problems, and opportunities
Iterate	1) Source and Select 2) Organize 3) Conduct Rapid Prototyping	Purpose: Identifying and developing innovations Output: - Problems and opportunities prioritized and resourced - Organize (and re-organize) for innovative capacity - Fail quickly for minimal resources to identify and develop innovations
Pivot	1) Decide 2) Change	Purpose: Implementing innovations Output: - Decision to implement innovation - Innovation implemented

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APPENDIX C: DEFINITIONS

Complexity: Understood as the effects of friction, wicked problems, and complex adaptive systems on the process.

Entrepreneurship: The practice of systemic innovation.¹⁷¹

Entrepreneur: Any individual or organization that constantly searches for change in uncertainty, responds to it, and exploits it as an opportunity.¹⁷²

Innovation: “The successful exploitation of new ideas.”¹⁷³

Innovative capacity: Actual potential for development and realization of innovation in response to the environment.

Intrapreneurship: Enabling freedom of experimentation and co-creation within a bureaucracy.

Iterate: Step 2 of SOF intrapreneurship, identifies and develops innovations.

Military Bureaucracy: Designed to “exercise large-scale violence as the ultimate tool of sovereign nation-states,” leaving military organizations distinct from other bureaucracies, yet still portraying traditional bureaucratic characteristics such as formalization, hierarchy, and institutionalization.¹⁷⁴

Navigate: Step 1 of SOF intrapreneurship, puts innovations into context.

Pivot: Step 3 of SOF intrapreneurship, implements innovations.

¹⁷¹ Peter F. Drucker, “The Discipline of Innovation,” *Harvard Business Review*, no. Best of HBR (August 2002): 10.

¹⁷² Drucker, *Innovation and Entrepreneurship*, 28.

¹⁷³ Baregheh, Rowley, and Sambrook, “Towards a Multidisciplinary Definition of Innovation.”

¹⁷⁴ Hasselblad and Ydén, “Why Military Organizations Are Cautious About Learning?,” 5.

Special Operations Forces (SOF): “Small, specially organized units manned by carefully selected people using modified equipment and trained in unconventional applications of tactics.”¹⁷⁵

SOF intrapreneurship: Leverages SOF characteristics to increase innovative capacity.

¹⁷⁵ Spulak, Jr, “A Theory of Special Operations,” 1.

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