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## BRINGING THE FUTURE FASTER

by

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A Research Report Submitted to the Air Force Fellows  
in Partial Fulfillment of the Graduation Requirements

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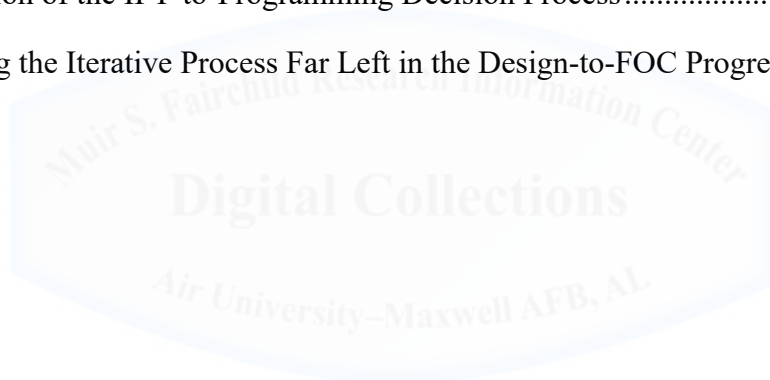
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## ***Abstract***

The principle objective of this research is to inform the process in part to enable a quicker, more integrated, and informed transition from idea to implementation within the USAF, or put differently, to bring the future faster. The specific area in the focus of this paper is the process by which updates and improvements are made to the Combat Air Forces and the various Mission Design Series (MDS) contained therein. “Integration and proper resourcing of incredibly complex individual capability roadmaps at the Service and Joint Level has proven increasingly difficult, especially with decreased operational expertise on the staffs.”<sup>1</sup> The *Summary of the National Defense Strategy* (NDS) and *National Security Strategy* (NSS) use fairly plain language to state the issue is not one of current outmatch in relation to our adversaries, but an acknowledgement that “we are emerging from a period of strategic atrophy, aware that our competitive military advantage has been eroding.”<sup>2</sup> While organizations such as the Air Force Warfighting Integration Capability (AFWIC) have been strategically chartered to bring about “a more lethal, resilient, and rapidly innovating Joint Force,”<sup>3</sup> this process involves detailed integration with the operational and tactical experts to bring about the desired change. Three prongs of effort on which will hinge the ability to more rapidly affect change are developing appropriate integration processes and venues; developing and equipping personnel with detailed knowledge of combat processes, capabilities and capability gaps; and altering platform engineering requirements.<sup>4</sup>

## Notes

<sup>1</sup> LtCol Kiwedin Cornell, *USAF Acquisition & Test Proposal*, PowerPoint presentation, from the USAF Warfare Center, slide 6, accessed 26 August 2019.

<sup>2</sup> Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*, Washington, D.C., 2018, 1, [https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy\\_Summary.pdf](https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy_Summary.pdf).

<sup>3</sup> Air Force Warfighting Integration Capability (AFWIC), *Concept of Operations (CONOPS)*, 1, <https://www.afwic.af.mil/>.

<sup>4</sup> LtCol Cornell, *USAF Acquisition & Test Proposal*, slide 6.



# Chapter 1

## *Introduction*

The USAF has been losing ground through an organizational inability to modernize at the speed of our competitors. Over the course of the last eighteen years, the focus on counter terrorism and associated wars in Afghanistan and Iraq have engendered a false sense of military superiority and a subsequent belief that “American power would be unchallenged and self-sustaining”<sup>1</sup>. In the interim, our adversaries have been watching how we conduct war and have rapidly been developing strategies to offset previously uncontested advantages. Whether through Anti-Access and Area Denial strategies, competition in space, or a number of other points of contention, the USAF currently finds itself in uncharted waters. The environment in which the USAF currently operates is increasingly *complex*, as opposed to *complicated*. Complicated systems involve intuitive and deterministic relationships. The difference of a complex environment, as stated in Gen Stanley McChrystal’s *Team of Teams* is, “complexity occurs when the number of interactions between components increases dramatically”<sup>2</sup>. Other characteristics of a complex environment are “escalating nonlinearity, complexity, and unpredictability”<sup>3</sup>.

To meet the challenges of this increasingly complex environment, the Department of Defense (DoD) has called upon Department leaders to “adapt their organizational structure to best support the Joint Force... or restructure as needed. Streamline rapid, iterative approaches from

development to fielding... and enable design tradeoffs in the requirements process.”<sup>4</sup> The ultimate goal is to reverse this systemic atrophy and not simply retain our current advantage but increase our advantage amongst the “scope and pace of our competitors’ and adversaries’ ambitions and capabilities.”<sup>5</sup>

The five reform efforts to ensure greater performance and affordability within the Department of Defense are: deliver performance at the speed of relevance; organize for innovation; drive budget discipline and affordability to achieve solvency; streamline rapid, iterative approaches from development to fielding; and harness and protect the National Security Innovation Base. As part of organizing for innovation, the document reminds its readers that “the Department’s management structure and processes are not written in stone, they are a means to an end—empowering the warfighter with the knowledge, equipment and support systems to fight and win.”<sup>6</sup> Of importance in this statement is the end-state user, the warfighter. If the warfighter is not being empowered to fight and win with the knowledge, equipment and support systems at the speed of relevance, the structure and processes must change.

As a result of this call to organizational action, the USAF has stood up AFWIC and defined its mission as “Develop Total Force, multi-domain operating concepts to implement the National Defense Strategy and drive integration through centralized enterprise design and capability planning. AFWIC identifies prioritized ways and means to guide resourcing priorities improving Air Force lethality and enhancing the joint and coalition fight.”<sup>7</sup> Specifically, AFWIC has been designed to “bridge the current gap between strategy and planning by performing the critical future force design function across a 15-year timeframe.”<sup>8</sup> While intended to take the burden of integrated future force design and planning off of the major commands (MAJCOMs) to enable MAJCOMs to focus on “readiness and lethality of the joint and coalition force, especially against peer

adversaries,”<sup>9</sup> there exists a chasm between the end state of the force we need and the force we currently have. Without a foot planted firmly in the force we have now and intentional plans and processes to transition between the two; future goals and visions will be unachievable. This is especially true when specifically applied to how we currently update and add new capabilities across our Combat Air Forces (CAF).

### Notes

<sup>1</sup> White House, *National Security Strategy of the United States of America*, Washington, D.C., 05 September 2017, 2, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

<sup>2</sup> McCrystal, Stanley, *Team of Teams: New Rules of Engagement for a Complex World* (New York, NY: Penguin, 2015), 57.

<sup>3</sup> Ibid, 61.

<sup>4</sup> Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*, Washington, D.C., 2018, 10-11, [https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy\\_Summary.pdf](https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy_Summary.pdf).

<sup>5</sup> Ibid, 6.

<sup>6</sup> Ibid, 10-11.

<sup>7</sup> Air Force Warfighting Integration Capability (AFWIC), *Concept of Operations (CONOPS)*, 1, <https://www.afwic.af.mil/>.

<sup>8</sup> Ibid, 2.

<sup>9</sup> Ibid, 2.

## **Chapter 2**

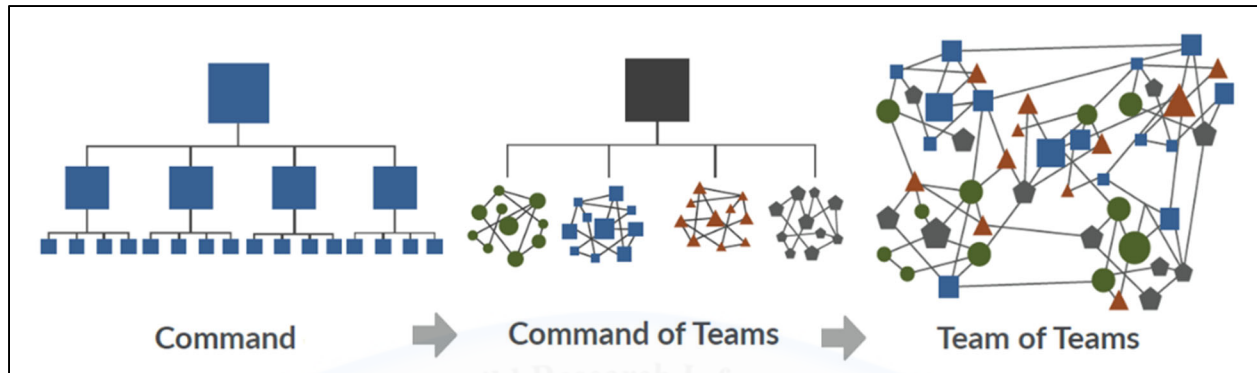
### ***The Problem Defined***

In AFTTP 3-3.IPE, *Combat Aircraft Fundamentals Integrated Planning and Employment (IPE)*, the methodology of ME3C(PC)<sup>2</sup> is laid out as a target-backwards approach to solving a tactical problem. This acronym stands for Mission, Enemy, Environment, Effects, Capabilities, Plan, Phasing, Contracts and Contingencies.<sup>1</sup> This methodology focuses first on what the mission and desired effects are. In the case of this paper, the mission is “Bringing the Future Faster” to the warfighter. An analysis must be made of the constraints and potential impediments placed upon the accomplishment of the mission by the enemy within the operating environment. To understand the environment that works against bringing the future faster, a brief analysis must be accomplished of the DoD acquisitions process.

### **From Complicated to Complex**

In his book, *Team of Teams*, Gen (Ret) Stanley McChrystal describes his difficulty developing an organization within a complex system that required information sharing at a speed of relevance across organizational boundaries with security risks. The lessons he learned and describes in his book provide a framework for the challenges faced between the numerous organizations and personnel involved in the design-to-operations process. The hierarchical chain of command structure of the United States military historically has provided a great edifice upon which to

guarantee unity of command, but builds in inherent difficulties related to information sharing. The “chains of command that once guaranteed reliability now constrained our pace; the departmental dividers and security clearances that had kept our data safe now inhibited the exchanges we needed.”<sup>2</sup> Figure 1 demonstrates the difference between the historical model of military command, and the organizational structure enacted by Gen (Ret) McCrystal’s Task Force.



**Figure 1. From Command to Team of Teams in a Complex Environment<sup>3</sup>**

McCrystal uses the National Aeronautics and Space Administration (NASA) in the 1960s during the Apollo project to illustrate his point. NASA found itself in a situation where it had to “develop and perfect all of these individual technologies simultaneously.”<sup>4</sup> Those involved in managing the Apollo project had to find a solution to “exploit the innovative abilities of a small team at the scale of a large organization.”<sup>5</sup> “Those who were in leadership had to embrace and understand the Apollo project in its entirety. Specialists continued to do specialized work, but they needed an understanding of the project as a whole, even if establishing that understanding took time away from other duties and was, in some ways, inefficient. NASA leadership understood that, when creating an interactive product, confining specialists to a silo as stupid: high-level success depended on low-level inefficiencies.”<sup>6</sup> As an emphasis for this call to organizational change, Mr. Elbridge Colby, during his testimony to the Senate Armed Services Committee, stated, “the Strategy requires ‘urgent change at a significant scale’ for our national interests to be protected.”<sup>7</sup>

The last line is exactly the case for applying advances to capabilities in combat power. Modern day innovations rarely, if ever, involve stand-alone systems. Innovations now apply to a system-of-systems or new technologies which can be incorporated across a multitude of combat systems. In order to ensure viability of a new product in this epoch, interactions amongst professionals versed in numerous fields must occur at a highly recurring rate early in the development process. The environment quickly transforms from complicated to complex. In such a system, “continuing to function under the illusion that we can understand and foresee exactly what will be relevant to whom is hubris.”<sup>8</sup> Instead of a system that involves centralized control with decentralized execution, the process requires “decentralized operations with coordinated control.”<sup>9</sup>

An additional barrier that must be surmounted in this interwoven team-of-teams is security. The Air Force in general has made classification so much of a concern that it has made integration nearly impossible in certain spheres. While security is incredibly important, some amount of calculated risk must be accepted to keep stove-piping from continuing to be the *modus operandi*. “Massive leaks are *not* an inevitable consequence of the current level of information sharing, but even if they were, the benefits vastly outweigh the potential costs.”<sup>10</sup>

### **The Changing Shape of the Acquisitions Process**

In order to understand the way forward, one must first understand how the current process functions. The acquisitions system has recently seen major updates. DoD Instruction 5000.02, *Operation of the Adaptive Acquisition Framework*, was rewritten and published 23 January 2020. This update was primarily in response to 2018 NDS direction, and “supports the National Defense Strategy through the development of a lethal and effective force based on U.S. technological innovation and a culture of performance that yields decisive and sustained U.S. military advantage.”<sup>11</sup> This document, “restructures defense acquisition guidance to improve process



## **Figure 2. 53<sup>rd</sup> Wing Consolidation of Legacy DODI 5000.02 Processes<sup>13</sup>**

At the top are triangles with A, B, and C at the center. These triangles depict milestones in the acquisition process. Understanding these milestones is key to identifying key decision points along this complex process. A Milestone marks the start or finish of a phase and has defined entrance and exit criteria.

“Milestone A, also referred to as the Risk Reduction Decision, is an investment decision to pursue specific product or design concepts, and to commit the resources required to mature technology and/or reduce any risk that must be mitigated prior to committing the resources needed for development, production, and fielding.”<sup>14</sup> It occurs as a Milestone Decision Authority (MDA) led review to transition a program from the Materiel Solutions Analysis Phase to the Technology Maturation and Risk Reduction Phase. Part of this decision involves whether a technology or material already exists to meet the requirement. If no such technology or material is identified, then the program proceeds past Milestone A to develop a new technology or material solution to meet the capability gap.<sup>15</sup>

“The purpose of Milestone B, also called the Development Decision, is to authorize entry into the Engineering and Manufacturing Development (EMD) Phase. This will permit the contract award needed to continue development of the system and manufacturing processes that lead to production and fielding of the product.”<sup>16</sup> Further cost analysis, research into other capabilities already in existence similar to the proposed program, and a determination on the likelihood of the program to meet intended objectives all contribute to the MDA making the certification decision.<sup>17</sup>

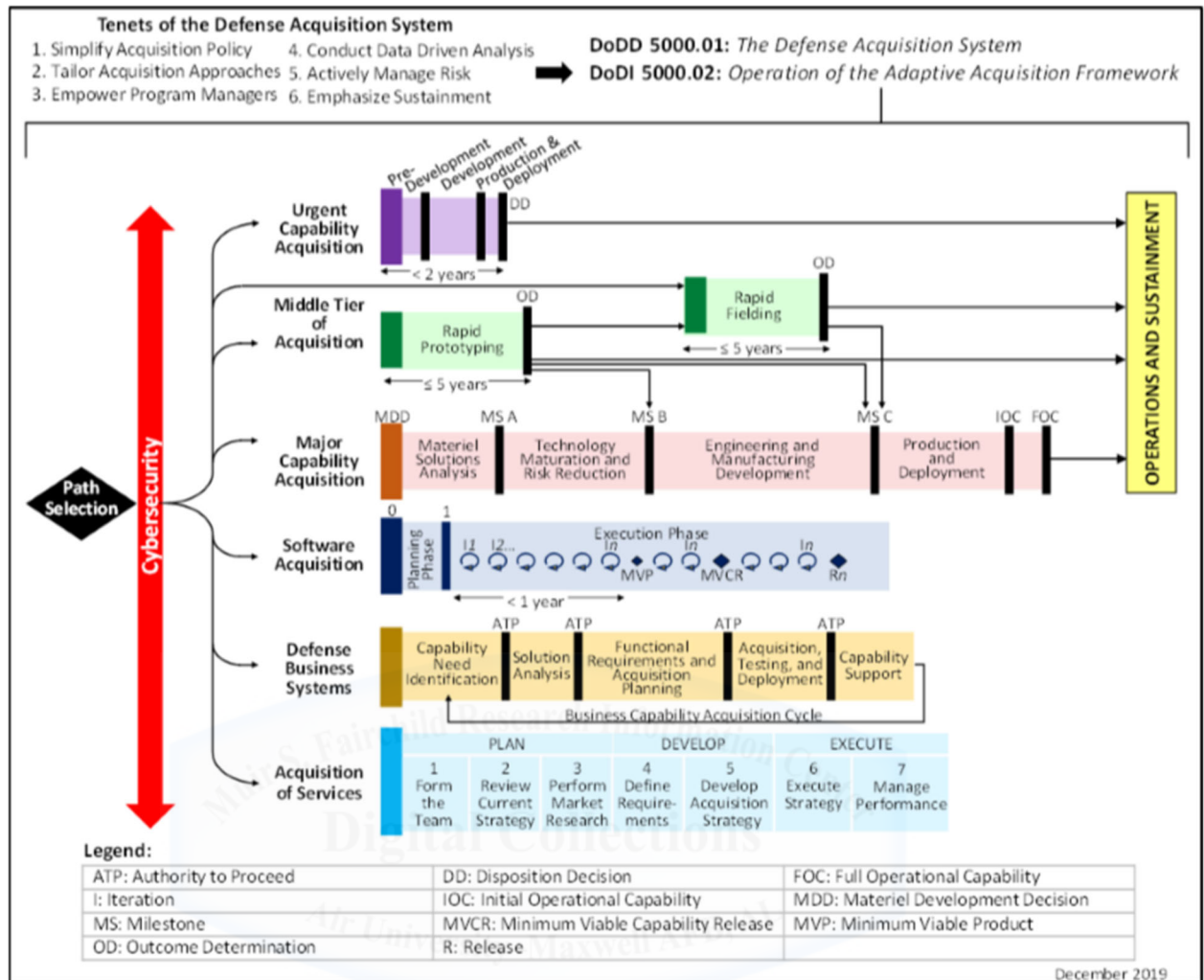
Milestone C is an MDA led review at the end of the EMD Phase with the purpose of moving a program into the Production and Development Phase. This MDA decision will commit the DoD to production of the system. Ultimately, this will pave the way for production at a level appropriate

to begin Initial Operational Test and Evaluation (IOT&E) and will set the stage for a lead-in to full-rate production upon successful completion of Operational Test (OT).<sup>18</sup>

Specifically focusing on the Capability Requirements Development from Figure 2, there are multiple references to “HPT” which is a High-Performance Team. The intent of these HPTs is to inject subject matter expert (SME) input into the process. This is primarily a Systems Program Office (SPO) function in coordination with their respective MAJCOM A5s. While acquisitions courses consistently teach to include test and users as early in the acquisition process as possible, it is truly only realized if the Program Manager (PM) goes out of their way to make this happen.<sup>19</sup>

These HPT individuals are key to ensuring SME expertise and input into the acquisitions process. Ensuring the right mix of individuals with a high-level of knowledge is imperative to identifying warfighter related shortfalls as early in the process as possible. If problems or shortfalls are not caught early enough in a program of record, they will need to be mitigated or corrected later in the process. Correcting these issues takes time and prolongs the timeline to Full Operational Capability (FOC).

The new version of DODI 5000.02, in an attempt to build in processes that allow for a much quicker transition of emerging technologies, has codified a new middle tier of acquisitions (MTA) policy, which includes a “MTA rapid prototyping policy and MTA rapid fielding policy.”<sup>20</sup> Figure 3 shows the new Adaptive Acquisition Framework from DODI 5000.02.



**Figure 3. Adaptive Acquisition Framework, 23 Jan 2020<sup>21</sup>**

While new mechanisms exist for rapid prototyping and rapid fielding, the only place in the entire DODI 5000.02 where the warfighter is mentioned is under “Urgent Capability Acquisition.” In a timeline that necessitates a reaction of less than two years, it states “the DoD’s highest priority is to provide warfighters with the capabilities urgently needed to overcome unforeseen threats, achieve mission success, and reduce risk of casualties.”<sup>22</sup> Nowhere in this document is there a process that specifically calls for warfighter input, it just mentions the warfighter as the end-state user in this one instance. The closest verbiage relates to PM responsibilities, where it states, “PMs will design program and business strategies to facilitate the acquisition of appropriate and cost

effective technology solutions.”<sup>23</sup> Shortly thereafter, reference is made to a user representative, without a discussion of what experience this user representative will have. It is therefore left up to the PM to determine what this business strategy would be and who should be consulted.

The previous DODI 5000.02 chart which depicted “Capability Requirement Development” can be compared to the “Major Capability Acquisition” chart in the new document. This is a system designed to “acquire and modernize military unique programs that provide enduring capability.”<sup>24</sup> It can be seen in comparing these charts that the process looks relatively unchanged for a major capability acquisition.

The increased complexity of the warfighting environment, including the advanced technologies contained therein, require that this process be informed not only by personnel with an understanding of an individual MDS or combat capability, but that they are versed in a wide-spectrum of warfare across the Joint Force. This includes how various platforms process, exploit, and disseminate data. Without understanding how information is shared across platforms and how that information is integrated towards achieving common objectives, one cannot adequately diagnose problems or shortfalls in a program’s early stages.

## Notes

<sup>1</sup> Air Force Tactics, Techniques and Procedures (AFTTP) 3-3.IPE, *Combat Aircraft Fundamentals Integrated Planning & Employment*, 27 August 2018, 2-1.

<sup>2</sup> McCrystal, Stanley, *Team of Teams: New Rules of Engagement for a Complex World* (New York, NY: Penguin, 2015), 83.

<sup>3</sup> “Book Summary - Team of Teams: New Rules of Engagement for a Complex World,” Readinggraphics.com, accessed 16 March 2020, <https://readinggraphics.com/book-summary-team-of-teams/>.

<sup>4</sup> McCrystal, *Team of Teams*, 147.

<sup>5</sup> Ibid, 147.

<sup>6</sup> Ibid, 149.

<sup>7</sup> Senate, *Testimony Before the Senate Armed Services Committee: Hearing on Implementation of the National Defense Strategy By Elbridge A. Colby*, 116<sup>th</sup> Cong., 1st sess., 29 January 2019. [https://www.armed-services.senate.gov/imo/media/doc/Colby\\_01-29-19.pdf](https://www.armed-services.senate.gov/imo/media/doc/Colby_01-29-19.pdf).

<sup>8</sup> McCrystal, *Team of Teams*, 141.

## Notes

<sup>9</sup> Ibid, 188.

<sup>10</sup> Ibid, 171.

<sup>11</sup> DoD Instruction (DODI) 5000.02, *Operation of the Adaptive Acquisition Framework*, 23 January 2020, 3.

<sup>12</sup> Ibid, 1.

<sup>13</sup> Maj Gen Charles Corcoran, *USAF Test Enterprise*, PowerPoint presentation, from the USAF Warfare Center, slide 5, accessed 26 August 2019.

<sup>14</sup> “ACQ101: Fundamentals of System Acquisition Management”, Defense Acquisitions University, 18 February 2020, Lesson 4.3, <https://icatalog.dau.edu/onlinecatalog/tabnav.aspx>.

<sup>15</sup> Maj Jonathan Tellefsen, Chief Test Engineer 417<sup>th</sup> Flight Test Squadron, Eglin AFB, FL, to the author, e-mail, 13 March 2020.

<sup>16</sup> “ACQ101,” Lesson 4.5.

<sup>17</sup> Ibid.

<sup>18</sup> “ACQ101,” Lesson 4.6.

<sup>19</sup> Maj Tellefsen, e-mail, 13 March 2020.

<sup>20</sup> DoDI 5000.02, 6.

<sup>21</sup> Ibid, 9.

<sup>22</sup> Ibid, 11.

<sup>23</sup> Ibid, 10.

<sup>24</sup> Ibid, 12.



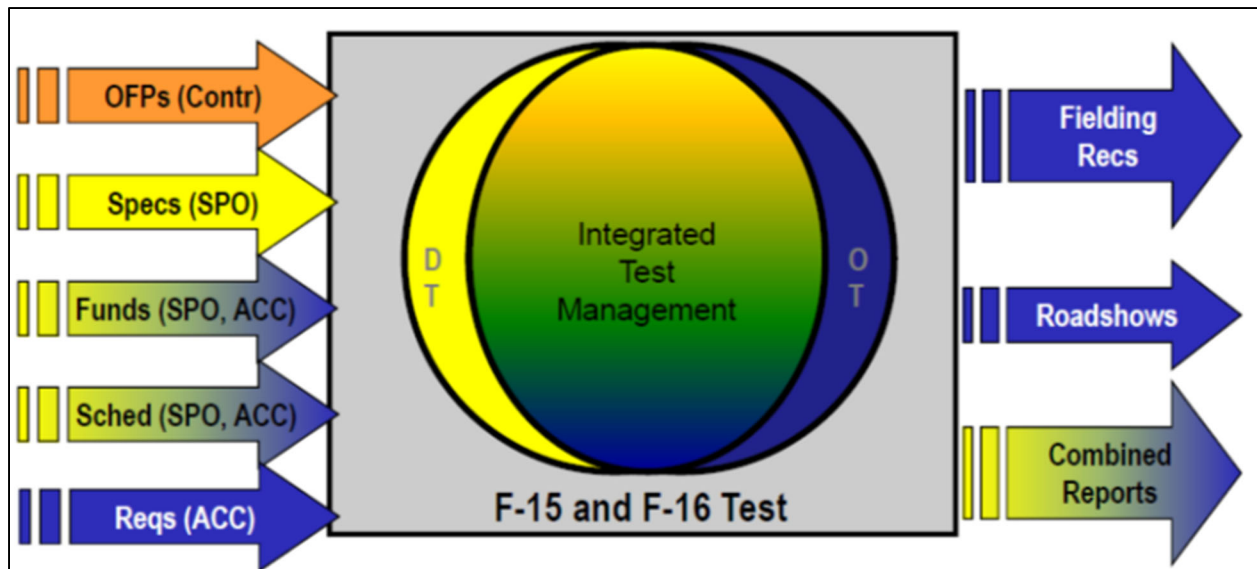
## **Chapter 3**

### ***Effectively Integrating Acquisitions and Operations***

“Success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting.”<sup>1</sup> If combat power is therefore no longer measured solely by individual capabilities but rather how they communicate and interact, then a mechanism must be enacted to ensure cross-talk amongst affected stakeholders.

#### **Leveraging Current Efforts**

Streamlining the process from design, through development, to FOC can be aided by leveraging concepts from current efforts. Historically, the Developmental Test (DT) and OT functions have been disaggregated. A current effort focused on breaking down historical barriers is the combining of DT and OT in the recent Combined Test Force (CTF) Strategy. Figure 4 depicts the F-15 and F-16 CTF construct.



**Figure 5. Depiction of F-15 and F-16 Combined Test Force Strategy<sup>2</sup>**

To allow this concept to function correctly requires an incredible level of experience and expertise. As an example, the current CTF director for the F-16, LtCol Benjamin “Rex” Wysack has approximately seven years of experience in the test community following assignments as an instructor at the F-16 Weapons Instructor Course and a transition to Air Force Reserve Command. In his role, he is “required to speak fluently on F-16 Tactics, Techniques, and Procedures (TTPs), understand Headquarters Air Force and MAJCOM current and future requirements for the airframe, as well as possess a high level of understanding of how the F-16 needs to integrate with other platforms.”<sup>3</sup> In addition to his high level of expertise, he also has an entire staff of experts in fields ranging from future capabilities, future sensors, test modification plans, and engineers. He has successfully built a team of experts that are capable of synchronizing efforts across the F-16 community.

The combination of the OT and DT communities is simply one example along the process from design-to-FOC where there is room for change. This strategy has enabled the F-15 and F-16 DT and OT communities to find areas of overlapping effort, yielding proven efficiencies.<sup>4</sup> Despite

these efficiencies, government DT and OT only contributes a small portion of time to the overall acquisition development, much of which occurs prior to Milestone C. While efficiencies in all aspects of this timeline are helpful, the CTF efforts only minimally reduce the time required for solutions to get to the warfighter.<sup>5</sup>

### **The Integrated Planning and Test Team**

This CTF strategy helps address and streamline the process later in the Initial Operational Capability (IOC) to FOC timeframe. Earlier in the timeline, changes must be made to ensure similar integration efforts include other stakeholders as well. As it relates to USAF combat capability in platforms, integration must occur across the SPO at the Air Force Life Cycle Management Center (AFLCMC), MAJCOM Core Function Support Teams (CFST), Functional Integration Directorate at AFWIC, platform engineers, Operational Flight Program (OFP) Developers, the Simulator Enterprise, and warfighters. These effected stake-holders are what would make up the Integrated Planning and Test Teams (IPTs) in the new model. The IPT exists as the backbone for a warfighting platform to keep awareness of its current status, and its proposed roadmap for advancement in relation to Air Force strategic goals. The formation of these teams would require buy-in and direction from Higher Head Quarters and Air Force Materiel Command (AFMC) elements to guarantee participation.

The USAF SPO is the first of the organizations targeted for placement in the IPT. The SPO is “the government office responsible for managing the acquisition and development of weapons systems. Working alongside the SPOs are functional organizations such as engineering, contracting, and logistics.”<sup>6</sup> AFLCMC is the over-arching organization within which the SPO falls. AFLCMC is one of six centers that report to the AFMC, and “is charged with life-cycle management of Air Force weapon systems from their inception to retirement.”<sup>7</sup> The SPO needs to

be included in the IPT for purposes of maintaining continuity and funding on a given weapons system.

USAF MAJCOM Core Function Support Teams are also designated as an organization critical to this new construct. The MAJCOM CFST structure was developed to align strategy, operating concepts, and capability development with requirements and programmatic decisions about the USAF twelve core functions.<sup>8</sup> These twelve core functions are air superiority, space superiority, special operations, nuclear deterrence, cyberspace superiority, rapid global mobility, command and control, globally integrated ISR, global precision attack, personnel recovery, agile combat support, and talent management and force development. The purpose of including elements of the MAJCOM CFST in the IPT is to ensure budgeting and programming alignment with the USAF strategic vision. In addition, this will keep the IPT informed of all MAJCOM capability development efforts.

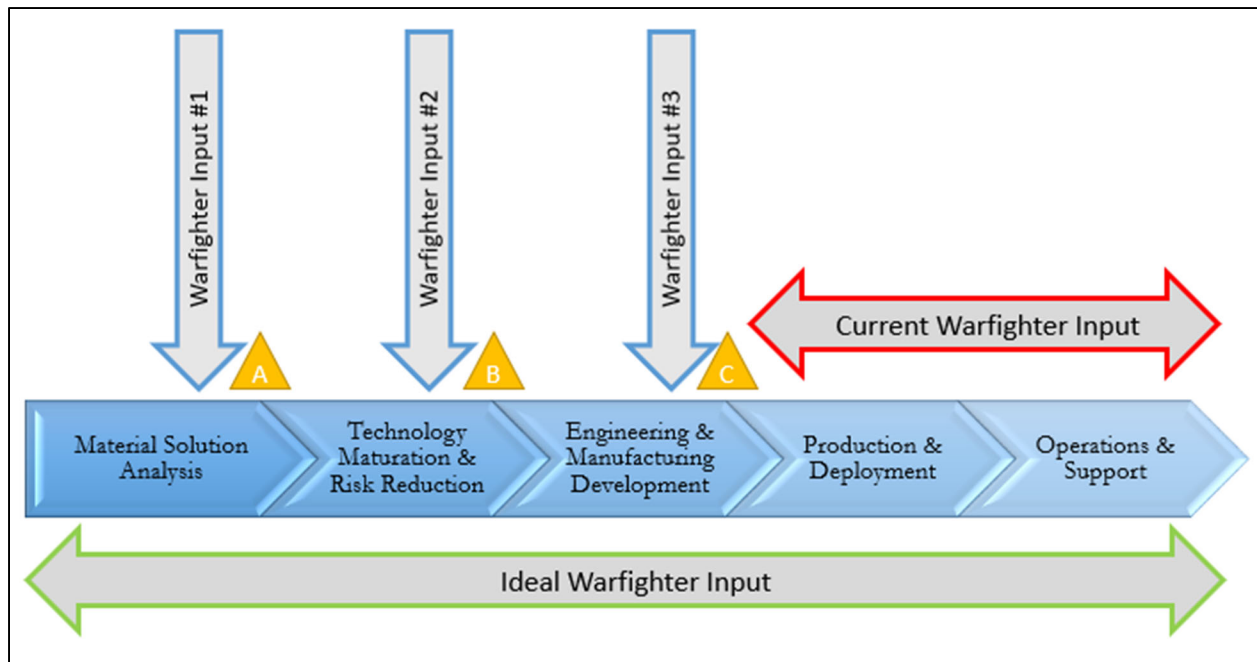
At AFWIC, the Functional Integration Directorate “partner with process experts to form Design Teams that provide integrated functional expertise and support to continuously work on new and emerging concepts, capability development, and design.”<sup>9</sup> This will provide an additional layer of Air Force-wide situational awareness and alignment with future force designs and vision. It will also help to lay the bedrock for a strategic view and long-term look at where the Air Force is going to keep the shorter-term processes in check.

The remaining members of the IPT are platform engineers, OFP developers, the simulator enterprise and the warfighter. Platform engineers and OFP developers provide a sanity check on discussions to ensure that discussions can be translated into reality, and are not in the purely theoretical. When discussions must involve a deep-dive into the constraints of physics and computer coding, these individuals will provide the expertise. The simulator enterprise is included

to ensure continuity between programs and their corresponding virtual environment. Lastly, the warfighter is included to provide the best grasp on the current state of integrated planning and employment on the large scale.

### **Bringing the Warfighter Left**

In the current process, warfighter input is not achieved in full until after Milestone C. This is when a program enters its IOT&E phase. In this context, when the word “warfighter” is used it denotes an expert immersed in the current operational and tactical levels of applied airpower. The warfighter is then being called upon to take a program and progress it to the point where it has achieved Initial Operational Capability. Ideal warfighter input occurs well prior to this point. This enables a vote after the determination of initial viability of a program in meeting DoD needs. Figure 5 depicts a conceptual representation of these concepts. The red arrow shows current warfighter input which is not achieved until after Milestone C. The green arrow depicts the best-case warfighter input across the entire spectrum. This is not a realistic expectation due to pace and quality of life concerns as this tasking would be in addition to normal operational tempo.



**Figure 6. Warfighter Input along the Acquisitions Timeline**

The blue arrows represent a compromise between the other two graphics. Each of the blue arrows would necessitate a one-to-two-week requirement by the individuals identified as liaisons. The SPO could work along with the USAFWC to identify who meets the qualifications to attend on behalf of the warfighter and include them as a go-no-go prior to each of the milestones. Additional flexibility could be included to facilitate interactions for other important programmatic decision points.

This warfighter input has to be highly experienced warfighters who have an in-depth knowledge of how the USAF integrates, plans and employs current combat capability. This does not require program manager experience, but is rather an advisory role. The warfighter input needed is much more like a modern consulting firm. As a result, the individuals chosen to fulfill this role should have a range of expertise across the Air Force twelve core functions, and how these core functions interact within the operational level of war.

The Warfighter Integration Office at the USAF Warfare Center, Nellis AFB was chartered with the explicit purpose of “ensuring the competitive advantage tomorrow through collaboration and integration to inform investment.”<sup>10</sup> The points of contact within the USAFWC WIO mirror the AFWIC Core Function Leads. This function-to-mission integration expertise is meant to aid USAF enterprise-level efforts of CFSTs. Also, it has been chartered to identify the “best venues to assess functional integration of platforms and combat processes and codify integrated warfighting TTPs.”<sup>11</sup>

The WIO maintains dynamic external engagements amongst DoD, civilian, and other government agencies. Some of the specific agencies listed are the Strategic Capabilities Office, Rapid Capabilities Office, Defense Advanced Research Projects Agency, Joint Staff (J3/J9), Checkmate, various Secretary of the Air Force offices, AFWIC, AF Wargaming Division, AFWERX, Air Combat Command (specifically A3/5/8/9), Title 50 agencies, Combatant Commands, Office of the Secretary of Defense (OSD) Special Access Programs Central Office, Combat Air Forces Special Access Programs Management Office, and a variety of contacts within industry.<sup>12</sup> These engagements occur both as required and on a regular scheduled basis. One of the specific goals of the outreach strategy is to provide “unity of effort in operational testing, tactics development, and training to increase efficiency and leverage capability improvements.”<sup>13</sup> This is the mindset and expertise needed to inform the acquisitions process from a warfighter input perspective.

Security has proven to be a huge facilitator of, or detractor from, all of these efforts and conflicts and changes within the security enterprise are ongoing. Especially as one moves farther left in the acquisitions process, security access becomes much more difficult for the warfighter. The WIO has been engaging at the MAJCOM and OSD levels to put in place security measures

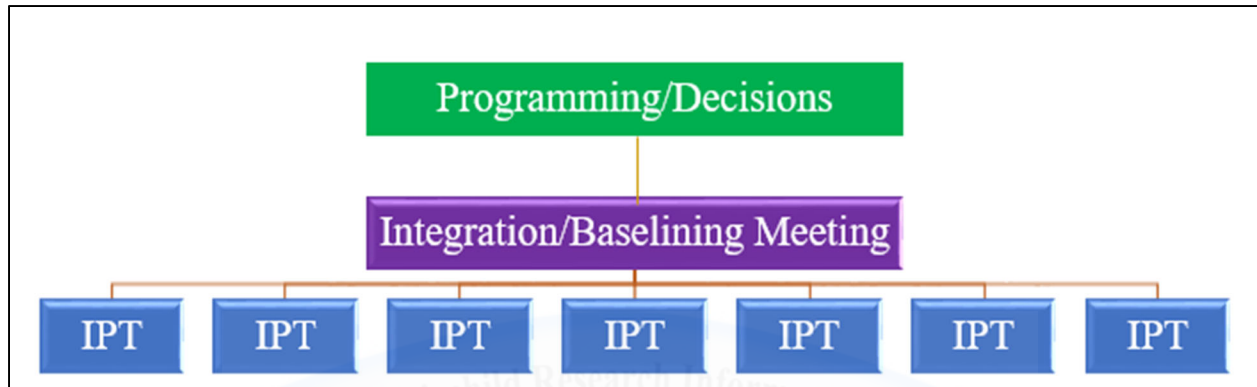
that accomplish the objectives of maintaining appropriate levels of security from a programmatic standpoint, but do not inhibit the sharing of vital information across the Joint Force in a timely fashion. The integrated nature of warfighting necessitates an OSD level solution to break down previous barriers and restructure some current processes in accordance with the guidance from the NDS.

### **Integration Processes and Venues**

With IPTs as the baseline building block to enable process streamlining, it will allow for an increase in strategic integration. It is designed to bring the right mix between the future vision of the force with the force we currently have to bridge the gap in capabilities. It also allows current platform experts the earliest opportunity to integrate within the process, to help bound the discussion on what future capabilities should be. This will help to avoid two potential downfalls. One downfall is developing a capability that is either obsolete or lacks applicability in the true combat environment. The second downfall it can help to avoid is the lack of integration with other platforms that, if built in early, could avoid future program delays.

The first goal of this methodology would be to build up IPTs for the various capabilities. Once this is accomplished, a built-in mechanism must exist for enabling cross talk amongst the various IPTs. While continuous conversations could be had at a much more informal level, as per McCrystal's *Team of Teams* concept, the Integration/Baselining meeting would be a status update as for what each of the IPTs are currently focusing on. The personnel at this meeting would not need to be the entire IPT, but a few key designated individuals who could speak on behalf of the entire IPT. As IPTs discuss emerging capabilities, this would be a venue to ensure integration among platforms and reduce duplicate effort. Identification of the applicability of emerging capabilities across warfighting platforms would be of particular interest in this venue. In addition,

if a means of communication is being advocated, other MDS could attempt to develop the infrastructure to obtain the information. Figure 5 shows how the IPTs could be formally funneled at regular intervals to force integration with a common goal of informing budgeting via programming decisions. What is not shown in Figure 6 is all of the interactions of convenience or necessity that could and would occur outside of the pre-planned cycle.



**Figure 7. Depiction of the IPT-to-Programming Decision Process**

The frequency with which these meetings happen would be approximately three times a year. The first two meetings would be primarily status updates, occurring in January and July respectively. The final meeting would occur mid-October to feed the Program Objective Memorandum (POM) process.<sup>14</sup>

### **Syncing with the Budgeting Process**

A POM is “the final product of the programming process within the DoD. The DoD component’s POM displays the resource allocation decisions of the Military Departments in response to and in accordance with planning and programming guidance.”<sup>15</sup> This programming guidance is ultimately derived from the NSS, translated through OSD via the NDS, and further refined through the National Military Strategy (NMS) and Defense Planning Guidance.<sup>16</sup> The POM is part the programming phase of the Program, Planning, Budget and Execution process,

whereby the DoD creates its annual input to the President's Budget (PB) request to Congress.<sup>17</sup> The POM is a prioritization of funding which covers the 5-year Future Year Defense Program (FYDP). The prioritization occurs through an adjustment of each service regarding how they will balance their allocation of available resources which is communicated by disconnects, initiatives, and offsets.<sup>18</sup>

The key dates for each POM cycle can be found in the POM Preparation Instruction. Generally, key dates in each POM cycle occur in February, end of June, and December. February marks when the PB is presented to congress, and thus the FYDP is updated. The end of June marks when the Secretary of the Air Force and Chief of Staff of the Air Force approve the POM and send it to OSD for review and approval. December approximates the beginning of USAF POM or Amended POM (APOM) which continues through April.<sup>19</sup>

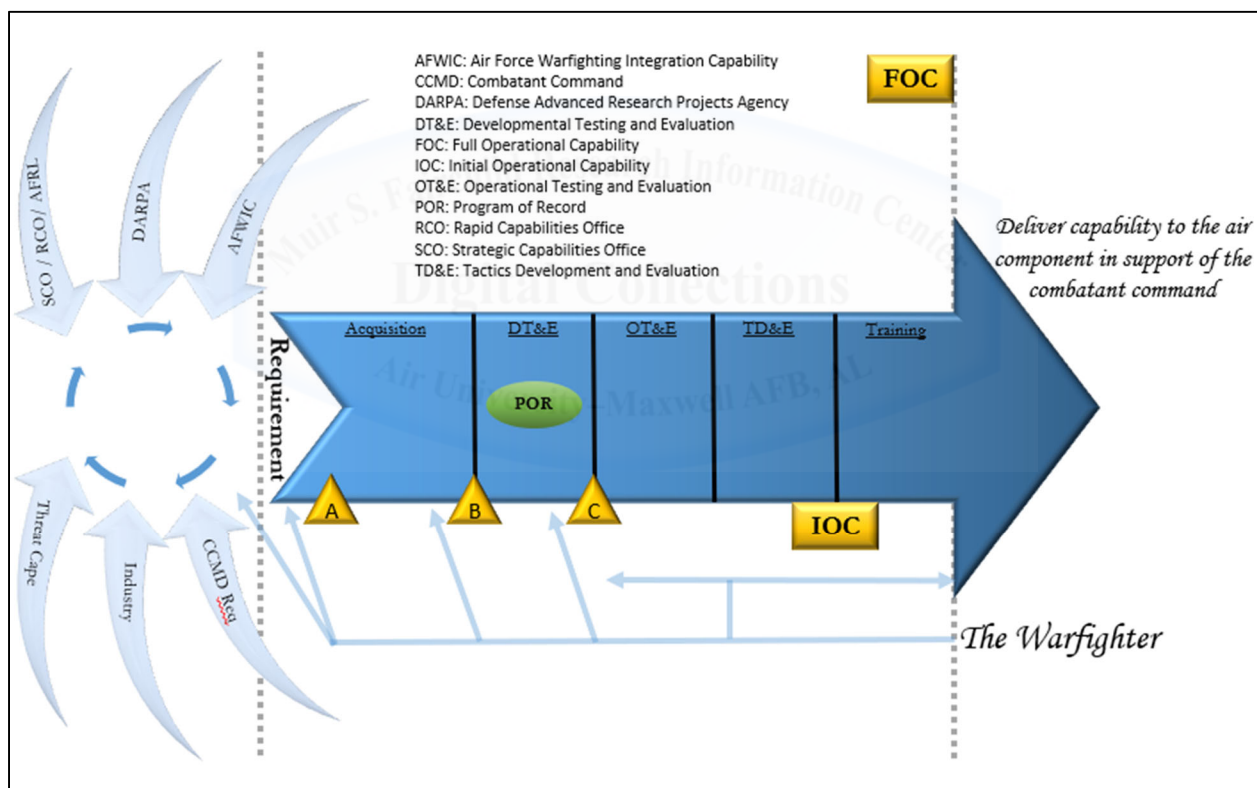
As a result of this DoD budgeting process, the first two Integration meetings would be informational and could include inputs from funding updates. The final Integration meeting, occurring in October, would be a decisional meeting where recommendations are made to the next POM/APOM to be included in the next cycle of budgeting decisions.

## **The End Result**

Combining all of these concepts, the end result is to enable as much of the cyclical or iterative processes at the very beginning of the design-to-FOC progression. These cyclical processes have been inherent in this progression, but have routinely occurred later in the timeline. The later in the progression this iterative process occurs, the more the entire timeline is elongated and the greater the potential for the final product to be diluted. Decisions made prior to current tester involvement (OT/DT) limit the ability to address key performance or capability gaps found

during the testing process. The end result is typically fielding the system “as is” because it is better than the current capability even if it does not exactly address the need or initial requirement.<sup>20</sup>

Figure 7 shows a theoretical depiction of how these processes could function to bring about efficiencies. The circular diagram prior to the requirement line depicts the iterative process discussed previously. Warfighter input already occurs after Milestone C in the form of OT, Tactics Development and Evaluation, and routine training. In the new model, Warfighter input is inserted at additional key points prior to Milestone C.



**Figure 8. Shifting the Iterative Process Far Left in the Design-to-FOC Progression**

Building up the IPTs, enabling cross-talk amongst IPTs via appropriate security measures, facilitating warfighter input very early in the acquisitions process, and synchronizing the efforts of the IPTs in relation to the budgeting cycle are all key elements in this

organizational change. Ultimately, moving the iterative process all the way left allows “investing in the right technologies in the right order to build the required backbone and then quickly fielding on multiple platforms.”<sup>21</sup>

## Notes

<sup>1</sup> Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge*, Washington, D.C., 2018, 10, [https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy\\_Summary.pdf](https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy_Summary.pdf).

<sup>2</sup> Maj Gen Charles Corcoran, *USAF Test Enterprise*, PowerPoint presentation, from the USAF Warfare Center, slide 13, accessed 26 August 2019.

<sup>3</sup> LtCol Benjamin Wysack, F-16 Director of Test and Operational Flight Program Combined Test Force, Eglin AFB, FL, to LtCol Kiwedin Cornell, e-mail, August 2019.

<sup>4</sup> LtCol Kiwedin Cornell, *USAF Acquisition & Test Proposal*, PowerPoint presentation, from the USAF Warfare Center, slide 8, accessed 26 August 2019.

<sup>5</sup> Maj Jonathan Tellefsen, Chief Test Engineer 417<sup>th</sup> Flight Test Squadron, Eglin AFB, FL, to the author, e-mail, 13 March 2020.

<sup>6</sup> Capt Jeffrey Carstens, *Is Transformational Leadership Effective in a System Program Office?*, Report no. AD-A201 467 (Wright Patterson AFB, OH: Air Force Institute of Technology, 21 December 1988), 2.

<sup>7</sup> “AFLCMC- Air Force Life Cycle Management Center,” Air Force Materiel Command, 01 July 2016, <https://www.afmc.af.mil/About-Us/Fact-Sheets/Display/Article/1561728/aflcmc-air-force-life-cycle-management-center/>.

<sup>8</sup> Munday, Stephen, *Development Planning: A Strategic Approach to Future Air Force Capabilities*, (Washington, D.C.: National Academy of Sciences, 2014), 24, [https://www.nap.edu/read/18971/chapter/4#chapter02\\_m1](https://www.nap.edu/read/18971/chapter/4#chapter02_m1)

<sup>9</sup> Air Force Warfighting Integration Capability (AFWIC), *Concept of Operations (CONOPS)*, 3, <https://www.afwic.af.mil/>.

<sup>10</sup> LtCol Brian Beears, *The USAFWC Warfighter Integration Office*, PowerPoint presentation, slide 10, accessed 16 January 2020.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> LtCol Cornell, *USAF Acquisition & Test Proposal*, slide 25.

<sup>15</sup> Department of Defense Directive (DODD) 7045.14, *The Planning, Programming, Budgeting, and Execution (PPBE) Process*, 29 August 2017, 12.

<sup>16</sup> Williamson, David, “Executive PPBE Overview: USAF Fellows” (training course and materiel presented by Science Applications International Corporation to the USAF Academic Year 2020 class, Washington, D.C.), 2 August 2019, 30.

<sup>17</sup> Ibid, 7.

<sup>18</sup> Ibid, 12.

<sup>19</sup> Ibid, 24.

## Notes

<sup>20</sup> Maj Jonathan Tellefsen, Chief Test Engineer 417<sup>th</sup> Flight Test Squadron, Eglin AFB, FL, to the author, e-mail, 13 March 2020.

<sup>21</sup> LtCol Cornell, *USAF Acquisition & Test Proposal*, slide 19.



## Chapter 4

### *Conclusion*

“It is increasingly clear that China and Russia want to shape a world consistent with their authoritarian model—gaining veto authority over other nations’ economic, diplomatic, and security decisions.”<sup>1</sup> This authoritarian model, while “undermining the international order from within the system by exploiting its benefits while simultaneously undercutting its principles and ‘rules of the road,’”<sup>2</sup> has gained an advantage for these two countries. The “pace of our competitors’ and adversaries’ ambitions and capabilities” has vastly exceeded our own. Our competitors, not us, have found a way to “Bring the Future Faster.” The United States must continue to operate in a way that upholds its historic democratic values, maintains intellectual property rights, and adheres to international order and norms, but the DoD must take paradigm changing measures to end the continuance in a state of atrophy and erosion of our competitive military advantage.<sup>3</sup> Moving the warfighter left in the acquisitions timeline is one concept that can be employed to make this a reality. It will help catch problems and inefficiencies earlier, and effectively move the iterative process inherent in this acquisition progression to its earliest possible moment. The buildup of Integration Planning Teams, a meeting venue and structure which aligns itself with the PPBE process, a feedback mechanism that informs future development and purchasing, and security measures and policies that enable conversations and integration at the

appropriate levels on a relevant timeline will do their part to adhere to the five reforms efforts of the DoD, ultimately bringing about greater performance, integration, and affordability.

### Notes

<sup>1</sup> Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*, Washington, D.C., 2018, 2, [https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy\\_Summary.pdf](https://222.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy_Summary.pdf).

<sup>2</sup> Ibid, 2.

<sup>3</sup> Ibid, 1.



## *Glossary*

|        |                                               |
|--------|-----------------------------------------------|
| AFB    | Air Force Base                                |
| AFF    | Air Force Fellow                              |
| AFLCMC | Air Force Life Cycle Management Center        |
| AFMC   | Air Force Materiel Command                    |
| AFWIC  | Air Force Warfighting Integration Capability  |
| APOM   | Amended Program Objective Memorandum          |
| CAF    | Combat Air Forces                             |
| CFST   | Core Function Support Team                    |
| CTF    | Combined Test Force                           |
| DoD    | Department of Defense                         |
| DODI   | Department of Defense Instruction             |
| DT     | Developmental Test                            |
| EMD    | Engineering and Manufacturing Development     |
| FOC    | Full Operational Capability                   |
| FYDP   | Future Year Defense Program                   |
| HPT    | High Performance Team                         |
| IOC    | Initial Operational Capability                |
| IOT&E  | Initial Operational Test and Evaluation       |
| IPT    | Integrated Planning and Test Team             |
| MAJCOM | Major Command                                 |
| MDA    | Milestone Decision Authority                  |
| MDS    | Mission Design Series                         |
| MTA    | Middle Tier of Acquisitions                   |
| NASA   | National Aeronautics and Space Administration |
| NDS    | National Defense Strategy                     |
| NMS    | National Military Strategy                    |
| NSS    | National Security Strategy                    |
| OFP    | Operational Flight Program                    |
| OSD    | Office of the Secretary of Defense            |
| OT     | Operational Test                              |
| PB     | President's Budget                            |
| PM     | Program Manager                               |
| POM    | Program Objective Memorandum                  |
| SME    | Subject Matter Expert                         |
| SPO    | System Program Office                         |
| TTP    | Tactics, Techniques, and Procedures           |
| USAFWC | United States Air Force Warfare Center        |
| WIO    | Warfighter Integration Office                 |

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