

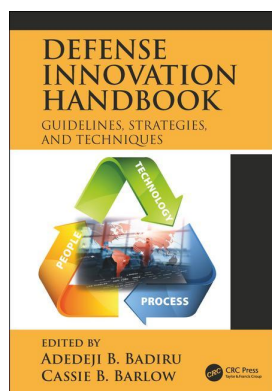
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## **Defense Innovation Handbook Guidelines, Strategies, and Techniques**

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### **Other transactions Increasing importance in the Department of Defense**

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chapter four

Other transactions

Increasing importance in the Department of Defense

Sally J. F. Baron

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“It is in the DOD’s interest to tap into the research and development being accomplished by non-traditional defense contractors, and to pursue commercial solutions to defense requirements.”

– Department of Defense, Other Transactions Guide for Prototype Projects, Version 1.2.0, January 2017, page 3

The other transaction

“An OT is best defined by what it is not. An OT is a transaction (other than a contract, grant, or cooperative agreement) to which most of the laws and regulations governing federal contracts – including the FAR – do not apply.”

– DIUx Commercial Solutions Opening How-To Guide, November 2016, page 2

Background

Sometimes desperate times indeed call for desperate measures. In the late 1950s the United States watched in horror as the Soviet Union reached into space—and not likely for peaceful purposes. Just two years before that, Nikita Khrushchev was quoted with his infamous “My vas pokhoronim!” translated: “We will bury you!” (1956). He later clarified: “... we

*will take a shovel, dig a deep grave and bury colonialism as deep as we can.*" A short year later, the USSR had tested its first intercontinental ballistic missile (ICBM) on August 26, 1957, and shortly after, Sputnik was successfully launched into orbit on October 4, 1957. The *space race* was on. On April 20, 1961, the USSR once again scored a first against the United States: Cosmonaut Yuri Gagarin became the first human to orbit the Earth. Volley to the US: Astronaut John Glenn orbited not quite a year later on February 20, 1962 in *Friendship 7*. These *firsts*, achieved by the then Soviet Union did not go over well in the United States. Given the Soviet stated goal of global superiority Americans were nervous they would achieve it.

Khrushchev was still in office and his threats loomed large. He promised the USSR would bury colonialism, and he had the tools to do it—literally. The United States was still behind, scared and desperate. No time for government regulations or piles of paperwork to get in the way of progress. The US took action to ensure this new era of space exploration would not be interrupted. The action was to streamline the regulations that would slow down our entry to space. Representative Sam Rayburn and Vice President Richard Nixon signed the *National Aeronautics and Space Act of 1958* (NASA, 1958). Within this act, Congress clearly stated that space would be used for peaceful purposes, and perhaps more importantly, that newly created NASA now had within its power the authority to get to space with whatever means and using whatever types of contracting it deemed most efficient and effective. We could not afford to lose this one for whatever reason. Note the wording of this act as follows:

*"to acquire (by purchase, lease, condemnation, or otherwise), construct, improve, repair, operate, and maintain laboratories, research and testing sites and facilities, aeronautical and space vehicles, quarters and related accommodations for employees and dependents of employees of the Administration, and such other real and personal property (including patents), or any interest therein, as the Administration deems necessary within and outside the continental United States; to lease to others such real and personal property; to sell and otherwise dispose of real and personal property (including patents and rights thereunder) in accordance with the provisions of the Federal Property and Administrative Service Act of 1949, as amended (40 U.S.C. 471 et seq.); and to provide by contract or otherwise for cafeterias and other necessary facilities for the welfare of employees of the Administration at its installations and purchase and maintain equipment therefor;*

*(4) to accept unconditional gifts or donations of services, money, or property, real, personal, or mixed, tangible or intangible;*

*(5) without regard to section 3648 of the Revised Statutes, as amended (31 U.S.C. 529), to enter into and perform such contracts, leases, cooperative agreements, or other transactions as may be necessary in the conduct of its work and on such terms as it may deem appropriate, with any agency or instrumentality of the United States, or with any State, Territory, or possession, or with any political subdivision thereof, or with any person, firm, association, corporation, educational institution. To the maximum extent practicable and consistent with the accomplishment of the purpose of this Act, such contracts, leases, agreements, and other transactions shall be allocated by the Administrator in a manner which will enable small-business concerns to participate equitably and proportionately in the conduct of the work of the Administration;" (NASA, 1958) (Emphasis added.)*

This probably does not sound much like the government wording to which most of us are accustomed, but it illustrates that when the US government understands that time is of the essence it is willing to do away with its own laws and regulations. That's the sign of an attentive and flexible government. We are a nation of immigrants who value freedom and have proven historically we will fight hard to protect it. If that means circumventing our own regulations, then that's what we'll do. The need to move fast was at the forefront, and having excellent engineers, test pilots and acquisition professionals who could make sound judgements was key.

The US responded huge. Following the USSR Sputnik (1957), the US successfully orbited Explorer I in 1958; and Gagarin's orbit (1961) was followed by Glenn in 1962. President Kennedy took office in January 1961 and was not ready to let the USSR have the next *first*. On May 25, 1961 he spoke to Congress asking them to appropriate funds for a human trip to the Moon: "I believe that this Nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to Earth." Not coincidentally, this speech was a month after Cosmonaut Yuri Gagarin orbited the Earth. His speech was serious and he regretted asking the taxpayers for more money, but he was dedicated to this task. On September 12, 1962 he re-dedicated his administration to this task with a now famous speech at Rice University, Texas. It was about four months after Glenn orbited the Earth and Kennedy's speech took on a decidedly more uplifting tone as he denounced the hostile use of space, and asserted that space exploration would go ahead with or without the United States, and the presence of the US in the space domain would help ensure space was used for peace. "Whether it will become a force for good or ill depends on man, and only if the United States occupies a position of pre-eminence can we help decide whether this new ocean will be a sea of peace or a new terrifying theater of war." *Note:* In the 1960s using the term *man* as gender-neutral was acceptable, but today, it is not. *Human* (not *man* or *manned*) mission and *humankind* (not *mankind*) are accepted gender-neutral terms. Indeed, his demeanor was much more positive: "I believe we can do it." The US was making great strides technologically and there was good reason for optimism. We would not be buried by anyone.



**Figure 4.1** President John F. Kennedy at Rice University. After Astronaut Glenn successfully orbited the Earth, Kennedy had reason to be optimistic. September 12, 1962. (Courtesy of Public domain.)

As we all know, the US lunar program had a remarkable and happy ending. Astronauts Neil Armstrong and Buzz Aldrin stepped foot on the Moon on July 20, 1969. Even after Kennedy's tragic assassination on November 22, 1963, the nation stayed committed to this goal. Ten missions were planned, but political pressure forced President Nixon to cut the last three. No human has walked on the Moon since Apollo 17 in December 1972. US actions to get there were decided, dedicated and swift. Using the OT as a tool to acquire technologies that were largely feasibility studies was critical to this success, and the government rightly and intentionally avoided unnecessary regulation. Without the use of the OT, it is not likely that this goal would have been achieved by the end of the decade, if at all. After the last Moon landing in 1972, and then the Skylab program, the space race was cooling off. During that time, however, the Cold War was heating up and an unprecedented defense build-up would mark the 1980s. With this fast ramp-up of defense spending, DOD was investigating improved acquisition methods, but it was not until 1989 that OTs were approved for use in the DOD. (See [Figure 4.1.](#)) Acquisition in the 1980s is discussed next.

### *Acquisition in the 1980s*

The Cold War reached its apex during the 1980s and under President Reagan the defense build-up stood in stark contrast to the previous decade. As we have seen historically, where there is money, there is often mismanagement and sometimes malfeasance. In 1985, reports of defense contractors charging \$400 for a hammer and \$600 for a toilet seat began investigations on mismanagement. While there were clearly issues with contractors, what the government discovered was that there were also issues with the *process* required to bring a product to fruition. Marching a defense contractor, or any company, through the massive bureaucracy, extensive accounting and oversight was costly and slowed the process. In contracting, time is money, so costs skyrocketed. The president instructed David Packard, co-founder of Hewlett Packard and former secretary of defense, to head a blue-ribbon committee and examine the problems with defense acquisition and procurement. Perhaps one of the most important outcomes of that report was getting Dr. William Perry, a member of the panel, re-engaged with defense acquisition. Dr. Perry was appointed secretary of defense in 1994 and set out to streamline procurement. His first action, the now famous "Perry Memo," was fundamentally a directive for acquisition professionals to better leverage the commercial market. Perry asserted that a government system, by nature, could never achieve the efficiencies found in the commercial market, and with technologies such as commercial computing, both hardware and software going non-linear, there was every reason for defense to adopt superior technologies from the public sector (Carter and Perry, 1999).

By 1989, the DOD was authorized to use OTs for *prototyping*. It was a step in the right direction, but it was limited both in scope and budget. By 2002, the OSD (Office the Secretary of Defense) released "*Other Transactions*" (OT) *Guide for Prototype Projects*. (Ref: Undersecretary of Defense for Acquisition, Technology and Logistics, "*Other Transactions*" (OT) *Guide for Prototype Projects*, August 2002) This guide capped the use of OTs to \$5M and again, only for prototype products. In 2009, the Undersecretary of Defense commissioned a report enunciating the rationale for the DOD to leverage the commercial market and additionally affirmed that the use of OTs would be essential to optimize the efficiency of commercial products. (Undersecretary of Defense, 2009) but the practice was still limited to prototyping. It is important for the acquisition professional to consider the meaning of prototyping. Was the Saturn V booster a prototype? Indeed it was. It was the workhorse of the

Apollo era; there was nothing like it before that and has been nothing like it since. Was Space Transportation System (STS), better known as the Space Shuttle, a prototype? It was a feasibility study that never met its original specifications, nor did it meet operational status. It was a failed attempt at fast, cheap access to space, and also a prototype (Report of Columbia Accident Investigation Board, 2003).

Beyond the 1980s and into the next century, commercial technology was undergoing a revolution. Computing not only became common in every workplace, but moved into the home as well. Mr. John Neer eventually won the fight to get satellite imagery into the commercial sector as well, and the public grabbed on to these new technologies that once existed only behind locked doors. Companies popped up everywhere and by the twenty-first century, citizens were able to map locations on the Internet to see where they were going and what would be the fastest routes. The private sector was accelerating to velocities never before seen and the public sector took notice. How could the DOD leverage these amazing commercial technologies? The Perry Memo, and congressional action that followed, mandated that when feasible, the DOD must purchase products off the shelf rather than build them. The DOD needed a tool other than the FAR to buy commercial and the OT would fill that gap. The marriage of the OT and COTS (commercial-off-the-shelf) has been essential to leveraging the commercial market. A 2002 RAND report assessed the use of COTS products and OTs as ultimately beneficial to DOD: "Two consistent themes in the Department of Defense's acquisition reform over the last several decades have been: streamlining the process by reducing the burden caused by regulations and oversight procedures and adopting commercial practices and products. One reason to adopt commercial practices was to broaden the direct participation of commercial industry to DOD projects." (Ref: Smith, Giles, Jeffrey Drezner, Irving Lachow, *Assessing the Use of Other Transactions Authority for Prototype Projects*, RAND, National Defense Research Institute, 2002. [https://www.rand.org/pubs/documented\\_briefings/DB375.readonline.html](https://www.rand.org/pubs/documented_briefings/DB375.readonline.html)). More than that, the report concludes that this new system has brought a broader range of products to DOD *faster* and *cheaper*. It relies on the procurement officer to negotiate an appropriate agreement with the provider, rather than crawling through mounds of regulations that may not be relevant or helpful.

A recent article (Maucione, 2017) calls OTs *new* and *cool*. For those who are making good use of this "new" authority, they *are* new and cool and most importantly *fast*. According to Lt Gen Jay Raymond, the Air Force has lost its ability to go fast, and we need it back. The OT is a tangible step that will help get us there, if utilized appropriately. Former Assistant Secretary of the Air Force for Acquisition the Honorable Sue C. Payton said, "The process is intended to be free of the FAR, but the acquisition profession is still expected to apply best business practices," during our interview. She continued, "We are not training OT officers. We *don't want* to train OT officers. We would rather have officers with good judgement who have an excellent understanding of the market, the needs of the warfighter, and technical expertise. Then they need to go figure out what to buy and how to buy it. Moreover, we know that cranking any product through the *horse blanket* (a colloquialism for the FAR process) will increase the cost and time to field multifold. We cannot afford to do this; either from a cost or strategic perspective."

Moving the focus away from the process (how we produce) and into the product (what we deliver) is vital. Many Air Force acquisition professionals have been frustrated for years watching their efforts go through years of reviews and processes that add nothing to the final outcome. Some critics say that slugging through the FAR process can add 20% to the final cost (Dunn, 2009); others say it's higher. Perhaps more importantly, though, is the valuable time lost in getting new technologies to the field.

### *Case study: Boosters and the other transaction*

This section examines the evolution of US Air Force launch vehicles from the 1990s to present. The Evolved Expendable Launch Vehicle (EELV) was an attempt by the Air Force to make boosters more efficient. The concept was borne in 1994 and was postulated based on traditional government-industry relationships with several companies who were, at that time, the only companies to manufacture boosters. It is instructive to review the political climate of that era. The Cold War ended in 1989, the Berlin Wall came down: it was the end of the Soviet Union, and defense spending went from a high of about 26.5% of the federal budget to 16.1% in 1999 (<https://www.learner.org/workshops/primarysources/coldwar/docs/dspend.html>). In ten years defense spending dropped by over 10% of federal outlay. This was a huge change and had to be well managed so that critical resources remained stable while Cold War defenses were strategically handled. In the Defense Department, the 1990s would be defined by the term *downsizing*.

The idea of merging industrial capability in boosters was originally devised in *The Space Launch Modernization Plan* (Moorman, 1994) in an attempt to respond to decreasing budgets and, as the report notes, the fact that on-orbit assets were more robust and capable than expected—that they stayed on orbit and functioned longer than originally planned. The future did not have a need, the committee thought, to have multiple industries competing for launches. EELV was a good-faith effort by the Air Force to maintain access to space, but to do so within looming budget constraints. The Air Force would depend on legacy systems from traditional defense contractors—the only option in those days. In the beginning, there were four bidders: Lockheed Martin, Boeing, McDonnell Douglas and Alliant Techsystems (ATK). By 2003, Boeing had acquired McDonnell Douglas, and ATK merged with Orbital Sciences. This left Lockheed Martin and Boeing as the national launch providers, but rather than competing, the two companies merged their booster capabilities by creating the United Launch Alliance (ULA), a joint venture with each company owning a 50% stake. ULA was a monopoly, but the Air Force and DOD assured Congress this would ultimately result in a 25% reduction in recurring launch costs between 2002 and 2020 (GAO, 1998).

Meanwhile, changes in EELV contracting were a sign of the times. Initially EELV was planned as a cost-plus-award-fee contract with four competitors; however, when only two companies were left in the era of downsizing, the Air Force decided this would be more efficient with the use of the OT instrument. In 1998, GAO responded with a report noting that the Air Force and DOD analysis of cost savings was incomplete. They noted that the defense agencies would need to perform a thorough net present value analysis (NPV) with the best forecast data possible, to include not only government military satellites, but the growing requirement for commercial satellites as well. What both the DOD and GAO failed to predict was the entry of commercial boosters. Under President Reagan, the Commercial Space Launch Act of 1984 was passed to facilitate private enterprise finding a way to space. Many commercial companies were manufacturing satellites which would ride on US government boosters, but none had, as of 1984, successfully launched commercially. US commercial companies seeking affordable access to space looked to Europe, Russia and China for cheap, reliable rockets.

The following two decades (1990s–2000s) saw remarkable efforts to change that. A few companies met with limited success: *Scaled Composites* was the first US company to succeed when in 2004 they launched human beings into space (defined as 100 km) twice within two weeks. They won the AnsariX prize of \$10M on October 4, 2004, though they spent considerably more on their SpaceShipOne and White Knight that got them there.

Research on this continues under Virgin Galactic. *Andrews Space* was founded in 1999 and attempted commercial access to space with space planes. They have since been bought out, and efforts continue. In 2000, Amazon entrepreneur Jeff Bezos founded *Blue Origin*. The company has had considerable success on traditional booster launches and landings, and expect their first crewed commercial flights in 2018, with commercial services following. But as of this writing, the most successful 100% commercial access to space company is Space Exploration Technologies Corporation, best known as *SpaceX*, founded in 2002 by entrepreneur Elon Musk.

Over the past two decades, the EELV government/ULA booster program has been successful, and booster technology is mature as launch failures are at an all-time low (Figure 4.2). The OT purchasing philosophy has proven more efficient than other FAR-based contracting, but EELV is still the most expensive access to space, and commercial satellite companies have looked overseas, and now to *SpaceX*. *SpaceX* has built boosters completely in-house as a true all-American company, constructing its boosters, engines and capsules in the United States. So when EELV programs sought new engines, *SpaceX* cried foul when they looked to legacy technology in the Pratt & Whitney RD-180 engine made with Russian technology. On October 19, 2017, *SpaceX* was awarded a \$40,766,512 OT for its Raptor rocket engine to be integrated to the EELV (Foust, 2017). As of this writing, this was one of the latest in an OT authority and a win for the Air Force, taxpayers and commercial industry. The current phase is expected to be completed by April 2018—a remarkably fast turnaround for any government project, least of all space.

The OT authority has proven instrumental in bringing the EELV to maturity, as well as engaging commercial technology to improve it. It will continue to be an important tool for known and unforeseen technologies of the future.



**Figure 4.2** The Atlas V is a primary workhorse of EELV, a joint Air Force and ULA program. It has been one of the great success stories of the OT concept.



## *How to leverage the other transaction—Implications for the acquisition professional*

The name is deliberately vague. It is not a contract, but simply an agreement where, in this case, the Air Force has permission to make a transaction with a supplier, vendor, company or whomever to furnish a product or service.

It is important for the acquisition professional to understand the utility and implications of the OT. Who might have guessed that the OT could have been employed for the EELV? Though specifically stated for a prototype, the EELV could indeed be considered a prototype. What else is a prototype? In areas of unknown technology, as space and air often are, nearly anything is a prototype. What about stealth technology? How much have stealth aircraft been used? As much as boosters? This is a matter of good management and excellent judgement that the acquisition officer must employ. In this section, we examine two avenues created to best leverage the use of OTs with rising technologies.

### *Defense Innovation Unit Experimental (DIUx)*

*“We’re a fast-moving government entity that provides non-dilutive capital to companies to solve national defense problems.” – DIUx website*

Then Secretary of Defense Ashton Carter began *The Defense Innovation Unit Experimental* (DIUx) in 2015 to provide a channel between DOD and bleeding edge technology in the commercial market. It is no surprise that DIUx offices are in the heart of important US technology centers: Silicon Valley, Boston, Austin, and the Pentagon. This proximity gives highest tech companies an easy path to the DOD as DIUx reports directly to the Secretary of Defense. Removing barriers to entry and allowing non-traditional defense contractors to play in the defense industry is a way to allow access for superior technologies. Typically these types of technologies require no long development time, and save the taxpayers the cost of research. In the past, a few such technologies “dropped out” of selling to the military as they would have been required to go through lengthy approval processes which offered these companies no profit or advantage.

In November 2016 DIUx released a 16-page “how-to” guide. *Sixteen pages*. This is unprecedented for a government document. The introduction rightly acknowledges that commercial companies with technology of significance to DOD often avoid the government and focus on commercial customers.

While still for prototypes, the DIUx definition is as follows: “A prototype project can generally be described as preliminary pilot, test, evaluation, demonstration or agile development activity used to assess the viability, technical feasibility, application or military utility of a technology, process, concept, end item, system, methodology or other discrete feature. The quantity or tenure should be limited to that needed to effectively assess the prototype” (DIUx, 2016). Once again, the DOD has used an intentionally broad definition to facilitate creative use of prototyping and the incorporation of technologies that do not fit traditional protocols and mind-sets.

The acquisition professional first needs to study requirements from the end user then be ridiculously thorough about market research. We are living in a time where technologies are everywhere, not just behind concrete walls. If you want it, it probably already exists. And even if it does not exist, countless entrepreneurs could probably figure it out. This is where the acquisitioner earns his or her keep. DIUx is an excellent place to begin if you are looking to fill a need in the Air Force that has not been filled.

## System of Systems Consortium (SOSSEC)

The SOSSEC is another excellent place to begin (Nunziato, 2016). This is a non-governmental organization that has been successful working with defense agencies, including the Air Force, Army, Navy, Coast Guard, Marine Corps, and others, getting their products to the end user with the ten-step process. *Ten steps*. Once again they follow the philosophy of keeping the focus on the product, not the process.

SOSSEC walks the acquisition professional through a flexible process, ensuring cost and product are sound and superior.

## Naysayers and supporters

*“The hardest thing is not to get new thoughts in to people’s minds, but to get old thoughts out.” – Dr. William LaPlante (Assistant Secretary of the Air Force for Acquisition, 2013–2015)*

The OT process has both critics and fans. Critics are often people who have been accustomed to old ways of doing business, and the mindset that the DOD must control every step of acquisition; indeed focusing on process rather than product. For example, “In March 1998, the Inspector General testified about a continuing concern regarding the lack of controls over the other transaction process since normal rules and procedures generally do not apply” (Hill, 1998). Consider this: the DOD purchases commercial software so that we can all use word processing, email, and other essential office applications. Would it make sense for government workers to oversee and have control over every step of the process with commercial software companies, such as Microsoft or Apple? What about other DOD commercial providers? There are countless companies who build remarkable software with military applications. Should the services oversee every line of code that they write? It would be impossible and ridiculous. Yet, some have suggested that the services need source code for critical products. If that is true, then why doesn’t the military require source code for word processing or spreadsheets applications? How much oversight do we need or want? With too much of it, we can count on delays in getting superior technology to the warfighters, and can count on potential adversaries, without long approval processes, to have commercial technology first.

Another critic wrote: “OTAs, from the outset, lack process, procedure and forms. Each OTA requires hundreds of hours of consideration and negotiation of terms. OTAs lack a comprehensive body of case law supplying interpretation of specific regulatory contract language. OTAs require expert personnel; critical and creative thinkers and astute negotiators” (McMartin, 2016). This writer understands it *precisely*. Yes—it is an instrument by which the DOD will require smart, creative acquisition expert professionals to be inquisitive, tough, and imaginative. Though his remarks are intended to criticize the process, to OT supporters, it looks like a directive. All military processes, including contracting through the FAR, *should* have experts running them—in what case should this not be true? It is tempting to believe that Defense should control every step of the process that creates products critical to success, but this is not practical, possible or even ideal. This is certainly not a new concept as it was introduced in 1956 by scholar Herbert Simon in his concept of *bounded rationality* (Simon, 1947). Humans are rational, he postulates, but we are bounded by what we can control and a single human can only control or know a finite amount. We succeed, therefore, by a process called *satisficing*, Simon writes, where we must rely on others to operate what we cannot. For example: most of us travel by air. We rely on the airlines

to operate each part of the flight, from management to mechanics to the pilots. We must count on that—and we stake our lives on it each time we step on a commercial aircraft. We do not go about inspecting every aircraft we board or interview every pilot. Why would using commercial products in the military be any different?

That any process does not use the FAR scares some people since it is a regulatory process that has evolved over decades. With it has evolved an immunity system with antibodies from the people who benefit from residing in a large bureaucracy. Many have argued that a bureaucracy is necessary for accountability, but others have argued that within a bureaucracy, accountability is diffused (Light, 1995). There are countless cases where the government has failed and no one has been held accountable, for if everyone is accountable, then really, no one is accountable. This works well for the people trying to preserve the bureaucracy and their role in it and benefit from it, but for the people fighting a war, or the taxpayers supporting it, it is abuse of power.

Many others in DOD are much more enthusiastic. Secretary of Defense James Mattis spoke of the DIUx as a channel to commercial companies and superior technologies to the warfighter: “I don’t embrace it; I enthusiastically embrace it... there is no doubt in my mind that DIUx will continue to exist, it will grow in its influence and its impact on the Department of Defense” (Goldstein, 2017). Major General Sarah Zabel, Air Force Director of IT Acquisition Process Development, remarked: “This mechanism is just so much faster and so much more attuned to getting something quickly that we want today and not have to spend a couple years going through a protest, going through this huge process to get something we wanted two years ago” (Maucione, 2017).

General Zabel is speaking not only of the FAR, but of the much practiced process of contractor protests. Former Secretary Payton also spoke of this: “We cannot allow this process of protests to continue. It slows us down tremendously. The problem is that there is no incentive for a contractor to *not* file a protest; because we allow it. Look what has happened with the tanker. A protest has cost the Air Force a decade so far in getting a tanker on the runway and we are still using tankers that could be up to 80 years old. This is completely unfair to pilots and warfighters that depend on tanking support. We have failed them completely. A process that allows this is completely flawed and it is time to change. (Payton, 2017)”

## Conclusion

Oddly enough, in 1963, when the United States space programs were well on their way, both civilian (NASA) and military (DOD), Khrushchev backed off of his initial promise: “I once said ‘we will bury you’ and I got in trouble with it. Of course we will not bury you with a shovel. Your own working class will bury you.”

Any social scientist will say that bullies only pick on someone they are not afraid of—someone without a weapon—and that’s exactly what the Soviet Union leaders did. Lots of big talk when they had the upper hand in space, but when we matched them point for point, and then moved beyond, Khrushchev backed down. His Soviet successors did the same when the US with its free society, strong economy and innovation, built a defense so strong that the USSR was finally out-spent and out-smarted, they gave up and the Berlin Wall fell in 1989. It was a curious strategy that many questioned at the time, but it is difficult to argue with success.

In the 1950s when the United States government realized we were about to be overcome by communist bullies it reacted with the *other transaction* authority. *Other* means any and everything we needed to get into space. The programs that followed—Corona, Mercury, Gemini, Apollo, and others—were highly successful and came about quickly,

and they were all acquired using the *other transaction* tool. There were failures, but failures bring us merely a step closer to success. Our adversaries then as now have only made us stronger.

Public servants exist to be stewards of the taxpayer dollar and advocates for the warfighter, not to perpetuate and even grow huge empires in which they can spend an entire career working on a single project. That's what we've grown to and it's time to stop. It's time to go fast again. The OT is a tool by which this can be done. The Defense Department can now use it to the benefit of the taxpayer and warfighter.

As with any tool, the acquisition professional will require expertise, diligence, tenacity and creativity to make new technologies, often in the commercial market, work for the warfighter. To suggest, as some have, that the OT tool will require *increased* expertise is flawed. Any military project requires expertise to bring a superior technology to the battlefield quickly. Small groups of experts work better than large groups of bureaucrats and overseers. Famous aerospace engineer Clarence "Kelly" Johnson said it best in his seven rules of management. "*Strong but small project offices must be provided both by the military and industry,*" and "*No reports longer than 20 pages or meetings with more than 15 people.*" He probably would have been proud of the DIUx 16-page instructions for OTs, and perhaps the SOSSEC Ten-step process. Kelly applauded the small, fast team, and worked during a time when the US was able to design and build aircraft, and even spacecraft, within a few years and not a few decades.

Technology has come far since then, and management processes are beginning to catch up by allowing superior commercial technology to the warfighters without unnecessary bureaucracy. It is time to go fast again.

### List of acronyms for Chapter 4

ARPA-E	Advanced Research Projects Agency
CAS	Cost accounting standards
COTS	Commercial-off-the-shelf
DHS	Department of Homeland Security
DIUx	Defense Innovation Unit Experimental
DNDO	Domestic Nuclear Detonation Office
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
EELV	Evolved Expendable Launch Vehicle
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulation
GAO	Government Accounting Office
HHS	Department of Health and Human Services
IR&D	Independent research and development
NASA	National Aeronautics and Space Administration
NIH	National Institutes of Health
OSD	Office of the Secretary of Defense
OT	Other transaction
OTA	Other transaction authority, other transaction agreement
SOSSEC	The Systems of Systems Consortium
TSA	Transportation Security Administration
ULA	United Launch Alliance

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