

FRONTIER **MISSION** **NETWORK**



2024 **PROSPECTUS**

SUPPORT THE MISSION.

INTRODUCING THE FRONTIER MISSION NETWORK

On a per-capita basis, Illinois ranks in the bottom ten states in defense spending per resident and defense spending as a share of state GDP. Our region can and must play a greater role in strengthening American national security. That will require a greater commitment to licensing and commercializing inventions, building products, attracting federal grant funding, financing early-stage ventures with patient capital, and rapidly delivering solutions to the American national security and intelligence communities.

That's why we're building a network of researchers, entrepreneurs, corporate and civic partners, and investors to establish the Frontier Mission Network.

The moment is now. The Department of Defense is urgently seeking to engage with smaller suppliers – suppliers that are independent of large defense contractors – to quickly build technologies of strategic interest. In 2022, the Department of Defense opened an office of the Defense Innovation Unit (DIU) in Chicago; DIU is charged procuring technologies from alternative suppliers. The National Security Innovation Network (NSIN) and the Army Research Laboratory (ARL) have also built footprints in the region in recent years. Put simply, the American national security and intelligence communities are looking for partners in our region to deliver technology solutions. We need to mobilize regional stakeholders to make certain these investments produce outcomes, both for our national security and our own regional economic competitiveness.

According to Pitchbook, venture capital investors provided more than \$32 billion to defense tech early-stage companies in 2022, 17 times the volume of VC that defense tech startups received in 2013. This trend will continue in the coming years as the Department of Defense expands programs designed to procure technologies from small, alternative suppliers.

The history of America's technological leadership is so closely related to the Department of Defense that any serious strategy for growing the region's technology economy would need to recognize and address the strategic goals of the U.S. military. That is an imperative that we embrace. Ours is an organization of leaders committed to strengthening American global leadership. We fundamentally believe that American values need to be asserted in this time of global unrest and power competition. In a time of heightened geopolitical tensions, the Frontier Mission Network provides stakeholders in the region an avenue to actively support American interests.

This is a call to action. Will you join us?



THOMAS DAY
EXECUTIVE DIRECTOR, FRONTIER MISSION NETWORK

WHO WE ARE

The Frontier Mission Network is a nonprofit organization serving the region's national security sector, including research laboratories, startups and small- and medium-sized businesses, capital investors, and federal acquisitions authorities. We provide a unified process to catalyze growth of alternative defense suppliers and develop technologies of critical importance to our national security and the security of America's allies. We drive and accelerate value creation centered on national security imperatives through targeted operations, including:

- Understanding and disseminating national security technology concerns that can be addressed by regional stakeholders.
- Clarifying the defense procurement process for suppliers who may not have worked with the Pentagon or the Department of Defense before.
- Connecting applied research being conducted at our region's laboratories with defense interests.
- Supporting small businesses and new ventures that are competing for federal grants that frequently enable the development and prototyping of high-risk technologies.
- Supporting dual-use product development that answers national security and commercial demand signals.
- Facilitating knowledge sharing and retention among our portfolio companies and partners.
- Enabling long-term, patient capital financings of new ventures commercializing defense technologies.

OUTCOMES

The Frontier Mission Network is driven to deliver thematic outcomes *and* precise, quantifiable short- and long-term outputs. Specifically, the Frontier Mission Network will:

- Increase the number of technologies transitioned into the Department of Defense acquisitions process.
- Increase the number of Department of Defense expenditures in the region.
- Increase the number of federal grants awarded to small businesses and startups in the region, including Small Business Innovation Research (SBIR) grants.
- Increase the number of dual-use technologies acquired both by regional corporate partners and the Department of Defense.
- Increase the number of venture capital deals in the national security sector.

We will conclude 2024 with a year-end report, gathering and sharing the knowledge we gained during the previous year.

WHERE THE FRONTIER MISSION NETWORK FITS IN THE MIDWEST REGION

As is explored in detail later in this document, the Department of Defense has built several channels for nontraditional suppliers to engage in the procurement process. Concurrently, public and private stakeholders in the City of Chicago, the State of Illinois, and Midwest region have built an impressive infrastructure for supporting economic development and the growth of new ventures. The Frontier Mission Network does not seek to supplant any of these stakeholders. Rather, **we seek a supporting role, serving as the region's focal point for technology development in the national security industry.**

The process for developing a new technology to address a national security need frequently involves licensing and commercializing an invention, capturing federal grants to enable initial prototyping, exploring defense uses and commercial pathways, and private financing to enable completion of a product. We will enable this process by engaging all stakeholders along this value-creation chain, reaching into research laboratories at one end of the process and warfighter at the other end.

THE FRONTIER MODEL

Our model is not simply to merge startups with the national security sector and hope for the best. Rather we have a very intentional, detailed plan to commercialize inventions from research laboratories, compete for federal grant dollars, build products with defense applications, and rapidly transition technologies into the national security acquisitions process.

IDENTIFY AND UNDERSTAND COMMAND SIGNALS

The Frontier Mission Network will regularly engage Department of Defense procurement officials on urgent operational and technology needs of frontline commanders. We will then inform partners of Department of Defense needs through our email newsletter, conference calls, and in-person events.

LICENSE AND COMMERCIALIZE RESEARCH

Understanding the needs of the national security community, the Frontier Mission Network will then engage research laboratories to identify research projects and inventions that can address urgent operational requirements. We will also host regular showcase events featuring inventors discussing their research and potential commercial applications. Through our partners in the legal community, we will provide support in licensing patented technology from research laboratories.

SUPPORT FOR STARTUPS AND SMALL BUSINESSES COMPETING FOR FEDERAL GRANTS

Each year the federal government awards more than \$3 billion in grants under the Small Business Innovation Research (SBIR) program; the Department of Defense alone awards more than \$1 billion in SBIR grants. We will communicate to our partners current SBIR opportunities and other Department of Defense grant programs, upcoming deadlines, and requirements. We will also provide counsel and writing support to small businesses and startups with technologies of potential defense applications. And we will facilitate stakeholder support, including letters of recommendation from civic and corporate partners.

DRIVE DUAL-USE PRODUCT DEVELOPMENT

The Frontier Mission Network will guide a curated process to validate an idea and build a product that can achieve commercial sales *and* solve a defense challenge. This will include facilitating discovery-oriented conversations between a startup or small business and corporate partners and defense users to identify needs and requirements. To the most secure extent possible, we will support a product development process that responds to national security command signals. Finally, the Frontier Mission Network will build an organization of corporate partners that will actively discuss shared interests in product development that align with national security needs.

ENGAGE INVESTORS

The Frontier Mission Network will engage financial institutions, family offices, and corporations in the region to educate investors on the potential for value creation through new ventures in the national security industry. Defense technologies have unique funding requirements, and we will ensure investors in the region understand how patient investment strategies have rewarded investors in this sector.

REVENUES

As a nonprofit organization, our revenues will be tax deductible for the donor. We will seek philanthropic support, public grant funding, and funding from corporate partners with an interest in the fields of technologies that we are commercializing. We also plan on raising significant revenues from our Frontier Mission Forum event, planned for early 2024. More detail on our 2024 budget is provided in Appendix B.

Science, national security, and American strength: The endless frontier

Our organization, the **Frontier** Mission Network, pays homage to two influential figures in American science and national security. As the United States geared up for World War II, President Franklin D. Roosevelt assigned the task of overseeing all American scientific research related to the war effort to Vannevar Bush, the former Dean of Engineering at the Massachusetts Institute of Technology (MIT). Serving as the director of the U.S. Office of Scientific Research and Development, Bush coordinated scientific research efforts for the U.S. military, including the Manhattan Project, which resulted in the development of the atomic bomb.



Vannevar Bush

Shortly after the Allies' victory in Europe, Bush authored a memo titled "Science, The Endless Frontier," submitted to President Harry S. Truman. In this pivotal document, Bush advocated for substantial and sustained federal support for scientific research, emphasizing the importance of maintaining American global leadership in scientific progress and technological advancements. The establishment of the National Science Foundation in 1950 was a direct outcome of the recommendations in Bush's report.

Following this, Bush commissioned researchers across the United States to continue asserting American strength and leadership in science – including one in Northern California.

What followed is what entrepreneur and historian Steve Blank calls the “Secret History of Silicon Valley.” As the United States entered the Cold War era, the Department of Defense awarded massive research contracts to Stanford’s electronics research laboratories to design new technologies of national security importance, including semiconductors and microwave tubes that would later be used by fighter jet pilots to jam Soviet air defense systems. The research was overseen by Frederick Terman.

Terman, a proponent of open and fast licensing of technologies to commercializing firms, encouraged his students to pursue entrepreneurial careers. Notably, two of his top students, William Hewlett and David Packard, heeded this advice. More of Terman’s students would do the same during Silicon Valley’s formative years. By Steve Blank’s estimation, more than 100 startups in microwave technologies, funded by the U.S. Military, emerged from the Bay Area in the 1950s, laying the foundation for what we now know as Silicon Valley.

In the current era, we see both a challenge and an opportunity to draw insights from the historic work of Bush and Terman. Our vision is to construct a similar model that secures federal support for science, develops solutions for the national security industry, and fosters a more robust regional innovation economy. We believe, as Bush and Terman did, that science remains an endless frontier, and will continue to serve our national missions.

THE FRONTIER TEAM

The Frontier Mission Network has already formed a team that we believe can deliver the ambitious goals enumerated above. Thomas Day, the Frontier Mission Network executive director, is a lecturer in technology policy at the Harris School of Public Policy at the University of Chicago and has helped form two nonprofit organizations supporting technology-enabled new ventures.

The second member of our team, Lt. Col. (Ret.) George Vukotich, PhD, has helped build several tech hubs, including 1871. Dr. Vukotich has served as department chair at Roosevelt University and dean of the Concordia University college of business. He has authored five books on business strategy, startup development, and organizational culture, and is an instructor at the Defense Acquisitions University.

The Frontier Mission Network is also supported by a network of advisors, including Richard Gamble, board chairman of the Chicago Loop Alliance; Matthew Doubleday, a faculty member at Illinois Institute of Technology and Lake Forest Graduate School of Management; Brandon Bodor, business development manager with Parker Hannifin Corporation and Army reservist in the 75th Innovation Command; and Matthew Wren, founder of VRAR Chicago.

WORK BREAKDOWN STRUCTURE

The Frontier Mission Network launches with clearly defined roles for each staff member.

Thomas Day will oversee all operations and will manage the organizations' external communications, including the Frontier Mission Network's email communications and press releases. He will also design and lead laboratory engagement programs.

Dr. Vukotich will oversee all programs that support exploration of dual-use pathways to commercialize technologies with both defense and non-defense applications.

Both Mr. Day and Dr. Vukotich will design and oversee programs to support small businesses and new ventures to compete for federal grant support.

Function	Lead
Operations	Thomas Day
Laboratory engagement and technology transfer programs	Thomas Day
Federal government grant proposal support	Thomas Day/ George Vukotich
Dual-use development programs	George Vukotich
Venture capital engagement	George Vukotich
Fundraising	Development director
Finance	Contracted support
Communications	Thomas Day

The Frontier Mission Network will look to hire a full-time development director in the third or fourth quarter of 2024. Additionally, we intend to contract additional operational support to ensure quality control and proper management of funds. This will include an accountant and an audit of our organization after the first year of operations. We will also closely engage our board of directors. In addition to holding quarterly in-person meetings, the Frontier Mission Network leadership team will regularly leverage the board's unique perspectives to inform operations. Ours will be an active board.

This organization will continue to evolve and grow, informed by experiences, conversations, and scholarship. As we progress through 2024, the Frontier Mission Network will seek to engage additional advisors to inform our model, enrich programming, and advise companies participating in the network. It is worth noting that many tasks will be shared amongst the Frontier Mission Network team to address variation in operational requirements, and that as the organization grows the staff itself may grow to support additional needs.

INITIAL OPERATIONS

Our support for the region will begin with a regular email newsletter, informing recipients and regional stakeholders of upcoming events, federal and Department of Defense grant opportunities and requirements, and sources of support for startups seeking to grow in the national security sector.

We will also host small gathering, planned for late February or early January, to gather initial partners to discuss our model and ask for initial support.

LAUNCH EVENT

The growth of the Frontier Mission Network will accelerate with a one-day event, the **Frontier Mission Forum**, planned and designed to increase understanding of the defense procurement process, inform businesses of support resources, showcase regional defense tech, and understand DoD procurement priorities. It will initiate a channel connecting the region's tech community with Department of Defense acquisitions officials and front-line commanders. While the run of show will continue to be refined, the discussion topics will include:

FRONTIER MISSION FORUM

- **The region's place in the national security sector:** This discussion will convene leaders of the region's business and technology community in a conversation about our region's competitiveness in the national security sector, and how we can collectively better serve Department of Defense customers.
- **Defense technology and capital requirements:** A representative of the Department of Defense acquisitions community will provide a presentation on the unique early-stage capital financing needs in the national security space.

The event will also feature a keynote, introduced by the event's most generous sponsor. The keynote will be delivered by a senior leader of the U.S. Department of Defense. The speaker will be asked to provide an overview of current Department of Defense efforts to acquire technologies from small- and medium-sized businesses.

VALUE-CREATING ACTIVITIES

Our support will focus on four operational verticals: Technology transfer, federal grant capture, product development, and venture capital investor engagement. In each of these verticals, the Frontier Mission Network will support value-creating events in 2024.

During the first quarter, we will complete a series of tasks to establish our organization and our name in the regional economy; In the second, third, and fourth quarters of 2024, our operations will be more targeted. During the second quarter of 2024, we will introduce our **FMN Research Showcase** events, providing laboratories and researchers opportunities to discuss their work and inventions in front of an audience of industry stakeholders. We will also launch programming small businesses and startups that are commercializing technologies and competing for federal grant funding.

In the third quarter we will form our **FMN Technologist Circle**, an organization of technology professionals from leading employers in the region. The FMN Technologist Circle will drive dual-use technology development both through internal conversations and facilitated engagements with small companies participating in the network. We will also begin engaging venture capitalists interested in potential deal flow in the defense technology space.

At the end of 2024, the Frontier Mission Network will release our year-end report, providing our partners with a thorough overview of what we learned from our initial year of operations.

2024 CALENDAR

First Quarter

Launch events: The Frontier Mission Network will host an initial gathering of potential partners in a relaxed, after-work event in January or February. This will provide an opportunity to briefly discuss our plans and solicit initial support. Later in the first quarter, the Frontier Mission Network will host a larger, one-day event – the Frontier Mission Forum – explored earlier in this document.

Stakeholder engagement: A central focus of the first quarter is to build and expand relationships with stakeholder organizations, including research laboratories, communities of entrepreneurship, Department of Defense acquisitions officials, and corporations with interests in the national security sector.

Communications: The Frontier Mission Network will send regular email updates to our email list of more than 3,000 recipients. These emails will include updates on upcoming events, contracting opportunities for nontraditional defense technology suppliers, and general updates on national security procurement trends.

Program design: The Frontier Mission Network will continue refining our support model, ensuring programs deliver value in 2024 and beyond.

Second Quarter

Technology transfer: The Frontier Mission Network will host its first FMN Research Showcase event, where a researcher from a partner laboratory will discuss his or her work and field questions centered around commercial pathways and defense uses of the invention(s).

FMN
RESEARCH
SHOWCASE

Federal grant capture: We will begin designing the Frontier Mission Network’s federal grant support programs, engaging partners, advisors, and experts on program design. We will also map out a calendar of SBIR submission deadlines and requirements.

Product development: The Frontier Mission Network will begin engaging corporate partners with unique perspectives on product development, exploring where their interests may align with dual-use product development of technologies that may also address a national security need.

VC investor engagement: We will host an introductory social event to introduce ourselves to venture capitalists in the Chicago region.

Third Quarter

Technology transfer: We will host our second technology showcase event. We will maintain a close awareness of licensing activities that we have been able to support through this and the first quarter event. We will also gather insight from participants and, if necessary, amend the program’s design.

Federal grant capture: The Frontier Mission Network will support portfolio companies targeting Department of Defense SBIR grants. This support will be provided on a rolling basis; the calendar will be dependent on submission deadlines. We will also maintain awareness of Department of Defense Commercial Solutions Openings (CSOs), Broad Agency Announcements (BAAs), and other opportunities to do business with the U.S. military, and share requirements with partners and portfolio companies.

Third Quarter (cont.)

Product development: By the end of the third quarter, the Frontier Mission Network will seek to complete formation of our (separate) network of corporate partners – the FMN Technologist Circle – that will meet regularly to discuss its own technology needs and how a small business could develop a technology that has a defense use and a commercial use that addresses a business concern. This network will form the backbone of the Frontier Network’s dual-use product development support.

FMN TECHNOLOGIST CIRCLE

VC investor engagement: The Frontier Mission Network will begin hosting monthly conference calls to inform investors of recent trends in defense tech and the national security industry, and update participants on recent activity.

Fourth Quarter

Technology transfer: The Frontier Mission Network will host its fourth technology showcase event. We will also engage with partner laboratories to gain feedback on how our showcase events have supported their missions and how to strengthen the events to better catalyze technology transfers.

Federal grant capture: We will support our second cohort of portfolio companies competing for SBIR grants and other federal grant support.

Product development: We will convene another meeting of the FMN Technologist Circle, composed of representatives of our corporate partners, and facilitate direct engagement between our corporate partners and sub-tier suppliers that the Frontier Mission Network has supported.

VC investor engagement: In addition to continuing our regular conference calls with our network of venture capitalists, the Frontier Mission Network will convene an in-person conversation, bringing VC investors together with partner companies in the national security space that require long-term, patient capital to complete production of technologies. This curated event will provide a bridge into 2025 by providing a preview of the final leg of our model: Designing and facilitating VC deals that can create value for investors and maintain patient support for portfolio companies.

YEAR-END REPORT

The Frontier Mission Network will conclude our 2024 calendar year with a report that will provide an overview of our initial year of operations and a comprehensive inventory of lessons learned. The goal of this report will be to retain and advance the knowledge that our partners gained during the previous 12 months. Among additional topic matters, the report will examine:

- Specific practices to transfer technology from research laboratories.
- Federal and Department of Defense acquisitions trends, including specific contracting avenues most favored and strategies for best competing for federal awards.
- Best practices in dual-use technology development and how to most effectively facilitate product development with commercial and defense pathways.
- The structure of long-term, patient venture capital deals in the national security industry.

THE OPPORTUNITY FOR THE REGION

At present, the Midwest region and the State of Illinois are far behind our coastal peers in attracting Department of Defense expenditures, especially in new industries that the Pentagon eagerly needs to maintain American global leadership. The Frontier Mission Network aims to fix that, not only because of our interest in strengthening American security, but because the economic opportunity for the region is so clear.

The Department of Defense has long acted as a first customer for new technologies with commercial applications. By growing our regional presence in the national security industry, our partners can be in a profitable position to be a *second* customer of new technologies once the Pentagon has removed a measure of risk from the technology development process. If history is a guide, defense technologies inevitably find their way into the commercial sector – and the first to explore commercial applications of defense technologies profit.

UNDERSTANDING THE NEW DEFENSE INNOVATION MARKETPLACE

After World War II through the end of the Cold War, the Pentagon’s search for technologies didn’t need to go any further than the large defense contractors. Multinational defense companies served as an essential element not only of America’s defense industrial base, but of the entire American innovation engine. They spared no expense to hire America’s top engineers in leading technology fields, and commercialized research from defense and university laboratories. The commercial airline industry, the weather service, even the home microwave can trace roots back to major defense contractors.

This environment has changed sharply in the last two decades. The five largest defense contractors – Boeing, Lockheed Martin, Raytheon, Northrop Grumman, and General Dynamics -- were awarded nearly two-thirds of the Defense Department’s R&D contracts in 2006; by 2015, that number dropped to just 33 percent.

The defense innovation marketplace is now increasingly driven by smaller, more risk-embracing startups. A network of small defense firms silently emerged to supply the national security industry with critical technologies. It is largely unrecognized by Wall Street and even Silicon Valley. But this network is central to the Department of Defense’s technology acquisitions strategy in the coming years.

An array of new Department of Defense offices oriented on sourcing innovation from new sources has recently been established – these offices are explored in Appendix A – including several with a presence in the region. Each of these new Department of Defense organizations shares several commonalities in their core missions:

- Faster production of technology.
- Willingness to assume risk that the “cost-plus” suppliers cannot and will not.
- Direct and precise responsiveness to Department of Defense needs.

DEFENSE SPENDING IN THE STATE OF ILLINOIS

15th

Total defense contract awards in 2022

42nd

Defense spending per resident

44th

Defense spending as share of state GDP (National average is 2.3 percent; Illinois’ share is 1 percent)

(Source: DoD Office of Local Defense Community Cooperation)

THE CRITICAL IMPORTANCE OF RAPID PRODUCTION

Confronted with nearly daily reports of U.S. servicemembers being killed by roadside bombs in Iraq or Afghanistan, the newly appointed Secretary of Defense, Robert Gates, took charge of the Pentagon in 2006 and immediately called for the swift production and deployment of mine-resistant, ambush-protected (MRAP) vehicles. Designed just two years prior in 2004, the MRAPs featured a V-shaped hull that had proven effective in mitigating the lethality of improvised explosive devices. Recognizing the urgency of the situation and the potential to save lives on the front lines, the Pentagon and the national security industry had to act promptly to manufacture and ship MRAPs.



In response, the Pentagon and the national security industry demonstrated unprecedented urgency. Over a span of just three years, they produced and dispatched more than 14,000 MRAPs to Iraq and Afghanistan. According to one estimate, over 2,000 American lives were spared due to the deployment of MRAP vehicles, a testament to the rapid mobilization of the national security industry to address a critical operational need. During a visit to Walter Reed Medical Center in 2009, a wounded American servicemember told Gates, “Your MRAP saved my life.”

The imperative of urgency continues to drive the U.S. military's acquisitions process in current times. In 2023, Deputy Secretary of Defense Kathleen Hicks announced the initiation of the Replicator initiative, aiming to deploy autonomous systems within 18-24 months. In the forthcoming months and years, the Replicator initiative will support targeted efforts to acquire technologies in various domains.

THE ROAD AHEAD

In recent years, there has been a pronounced shift in American industrial policy, with a heightened focus on directing federal investments into pivotal industries and fortifying our supply chains to bolster national resilience. The Midwest region is positioned as a central hub for designing cutting-edge technologies and manufacturing products that reinforce American leadership on the global stage. However, the realization of this vision necessitates collaboration with Washington lawmakers and other key stakeholders.

The Frontier Mission Network has mapped out a strategy for aligning the interests of many different actors in our regional economy to support seamless production of technologies of national security interest. It will not be easy to accomplish all our goals. But it is achievable. And the benefits of our future success will drive value creation throughout the region, years into the future.

In Seattle and Ohio, organizations similar to the Frontier Mission Network have successfully merged local industry partners with the national security industry. In Austin, economic leaders have so successfully built a community of defense technologists that in 2018 the U.S. Army located the headquarters of the Army Futures Command next door to Capital Factory, the city's flagship entrepreneurial support center. We can do even better, building a value-creation process that reaches into our research centers, extends through new ventures, leverages corporate partners, provides access to capital, and rapidly delivers national security solutions.

AN AMERICAN NATIONAL SECURITY SUPPLY CHAIN HANGING IN THE BALANCE

With the March 2020 outbreak of COVID-19, then-Undersecretary of the Navy James Geurts issued a panicked memo instructing acquisitions officials to quickly pay outstanding invoices to small suppliers and speed up contract negotiations for future work. “The Nation needs them operating and supporting current and future technologies now and as we come out of this crisis,” Geurts wrote. “Engage in all activities to positively impact cash flow.”

Why was Geurts so concerned about the fate of small, sub-tier defense suppliers whose survival was uncertain during nationwide lockdowns? The answer lies in the central role these smaller suppliers now play in the Pentagon's supply chain. Any threat to their survival could have a profound impact on national security.

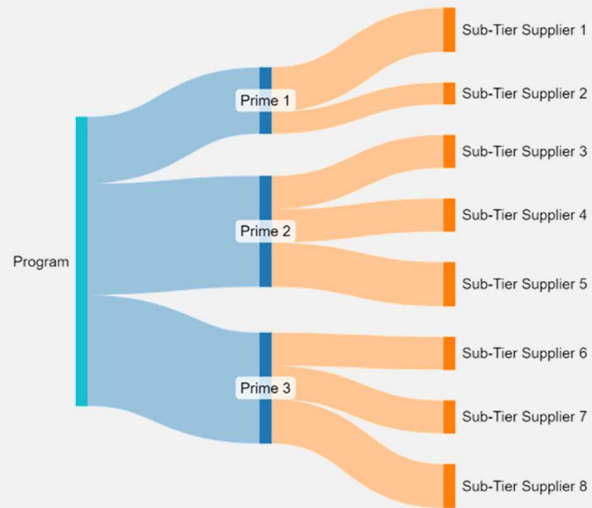
Geurts’ rush to sustain small defense suppliers reflected a dramatic shift in the defense industry. After World War II through the end of the Cold War, the Pentagon’s search for technologies didn’t need to go any further than the large defense contractors. Multinational defense companies served as an essential element not only of America’s defense industrial base, but of the entire American innovation engine. They spared no expense to hire America’s top engineers in leading technology fields, and commercialized research from defense and university laboratories.

The ground shifted in the 1990s after a wave of mergers dramatically restructured the Pentagon’s technology supply chain, leaving five mega-contractors: Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamics, collectively called the “big five” in defense circles. For large programs, the Defense Department now outsources management of the market to a confederation of “systems integrators” that oversee research and development projects handled by smaller suppliers. The U.S. government is expected to spend about \$1 trillion on the F-35 program before 2030. Most of that money will go to and through Lockheed Martin, the prime contractor.

Underneath Lockheed Martin is a layer of sub-tier suppliers. This is where the F-35 took shape. More than 200 subcontractors, many with no more than a few hundred employees, provided essential elements for the F-35 control panel, enabling software, chemical coatings, and a host of other technologies that make it the most advanced aircraft in human history. These sub-tier suppliers report to Lockheed Martin, which reports to the Pentagon.

At a basic level, this is the current structure of the defense industry, leaving opportunities and concerns. Take another example: hypersonic missiles that can travel faster than the speed of sound and that can hit a target within inches anywhere on the globe. Logically, no startup can design and produce this kind of advanced technology. But smaller elements – such as advanced materials capable of withstanding extreme heat – can be produced by sub-tier suppliers. In fact, many elements can’t be produced *without* the sub-tier suppliers.

Recognizing the growing strategic importance of these small defense suppliers, the Department of Defense now monitors potential sources of risk capital from adversarial entities. This includes the ability to relocate operations or impede the development of technologies critical for the Pentagon's acquisition needs.



APPENDIX A: DEPARTMENT OF DEFENSE OFFICES ENGAGING THE NATIONAL SECURITY INDUSTRY



The **Defense Innovation Unit (DIU)** bridges the gap between the Pentagon and American venture community, working with startups, researchers, and venture capitalists to develop and field technologies that address national security challenges.



The **National Security Innovation Network (NSIN)** is a US Department of Defense program office that connects innovators from defense, academia, and the venture community to solve national security problems, supporting a portfolio of programs and services designed to grow ventures relevant to the national security industry.



The **National Security Innovation Capital (NSIC)** program is a Department of Defense initiative that addresses the shortfall of trusted funding from private venture capital sources for the development of new technologies with national security applications.



NavalX oversees a range of efforts to scout and validate technologies, establish and engage local innovation networks, and streamline processes for businesses to partner with the U.S. Navy and U.S. Marine Corps. NavalX supports 18 collaborative spaces – called “Tech Bridges” – throughout the United States. (Only one Tech Bridge exists in the Midwest in Crane, Indiana.) NavalX also manages the U.S. Navy’s SBIR programs and helps expedite technology transfers from the Navy-supported research laboratories.



The **U.S. Naval Research Laboratory (NRL)** is a research institution commissioned a century ago to drive innovations that enhance capabilities of U.S. sailors and Marines. NRL supports basic and applied research, and is responsible for critical discoveries in new materials, radar, and autonomous systems.

U.S. ARMY



The **Army Futures Command** leads modernization of the Army in several targeted technological capabilities. They identify and validate technologies. Army Futures Command, headquartered near Capital Factory in Austin, Texas, is the senior command to the U.S. Army Combat Capabilities Development Command's Army Research Laboratory.



The **Army Futures and Concepts Center (FCC)** is an AFC office charged with setting and writing modernization requirements.



xTech is Army's engagement platform for non-traditional suppliers with innovative dual-use technologies. xTech regularly hosts xTechSearch competitions, where entrepreneurs pitch their solutions to a panel of Army acquisitions professionals and strategic experts.



Army Research Laboratory (under the U.S. Army Combat Capabilities Development Command, or "DEVCOM") is the U.S. Army's foundational research laboratory, responsible for generating new discoveries that result in real-world ground capabilities. They work closely with industry and academia to develop new technologies. Army Research Laboratory maintains a Midwest regional office at the Discovery Partners Institute in downtown Chicago.



The **Army Applications Laboratory** gathers and retains knowledge and works with industry to test and build models for modernizing the Army. One notable AAL program is the Special Program Awards for Required Technology Needs (SPARTN), which is credited for dramatically expediting contract awards to SBIR awardees.



The **Marine Innovation Unit** was activated in 2023 to drive the adoption of advanced capabilities. The MIU is, by design, composed of reservists. They bring to the Marine Corps experience and familiarity with the venture space and new technologies, including those in cyber, artificial intelligence, robotics, and data analytics.



U.S. AIR FORCE



AFWERX is an umbrella command, overseeing programs that circumvent bureaucracy and acquire technologies from non-traditional sources. They have partnered with TechStars to support an in-residence acceleration program for 10 defense tech startups.



AFWERX's **AFVENTURES** oversees the Air Force's small-business investment programs and SBIR grants. Notably, AFVENTURES offers Strategic and Tactical Funding Increase (STRATFI/TACFI) grants, providing bridge financing for small businesses who have completed an SBIR Phase II grant but are not yet prepared to deliver a Phase III contract.



SpaceWERX is a part of AFWERX, and (as the name suggests) serves the U.S. Space Force, overseeing more than \$30 million in SBIR grants awarded to advance space platforms and acquire space technologies.



Air Force Research Laboratory (AFRL) is commissioned to deliver new capabilities to the U.S. Air Force and Space Force. They have long advanced knowledge in the aerospace industry, and are now responsible for new discoveries in cyberspace, directed energy, and sensors, among many other fields of science. AFRL is based at Wright-Patterson Air Force Base in Dayton, Ohio.

APPENDIX B: FRONTIER MISSION NETWORK DRAFT 2024 BUDGET

Operating Expenses	Estimated
Rent	\$ 3,600.00
Board insurance	\$ 840.00
Travel	\$ 3,600.00
Trade shows	\$ 5,000.00
Miscellaneous office supplies	\$ 1,200.00
Contracted advocacy	\$ 6,000.00
Marketing (website costs, social media)	\$ 1,200.00
Subscriptions	\$ 2,000.00
Event costs	\$ 12,000.00
Legal and auditing	\$ 5,000.00
Total operating expenses	\$ 40,440.00

Personnel Expenses	Estimated
Executive Director	120,000.00
Deputy Director	100,000.00
Development Director	85,000.00
Social Security tax	13,640.00
Consultants	100,000.00
Total personnel expenses	418,640.00

APPENDIX C: LETTER OF SUPPORT FROM MAJ. GEN. RICHARD NEELY, ADJUTANT GENERAL OF THE STATE OF ILLINOIS



January 3, 2024

Mr. Day and Lt. Col. (Ret.) Vukotich:

As the Adjutant General of the State of Illinois, it is both an honor and a privilege to extend my appreciation to the Frontier Mission Network for its dedicated efforts in contributing to the growth of defense technology startups strengthening our defense industrial base.

Your organization's operational model aligns seamlessly with the evolving needs of the American warfighter and the national security industry. It also supports several recent Department of Defense efforts to engage smaller, sub-tier suppliers. Within the last ten years, the Defense Innovation Unit (DIU) and the National Security Innovation Network (NSIN) have been activated to engage smaller, technology-enabled companies for the procurement of mission-critical technologies, including those operating in our region. In 2022, DIU established a regional office in Chicago, and I am excited that the Frontier Mission Network could soon support the DIU mission.

As you know, while Illinois boasts a wealth of talent and potential in the technology sector, the Department of Defense has not frequently found business partners in our state and the broader Midwest region. The untapped potential for procuring cutting-edge technologies in this region is significant, and I believe that organizations like the Frontier Mission Network can play a pivotal role in bridging this gap.

In building an organization that supports innovation and collaboration, the Frontier Mission Network is not only contributing to the growth of local businesses but is also playing a vital role in ensuring the security and technological superiority of our nation.

I encourage the Frontier Mission Network to continue its valuable work and explore opportunities for collaboration with the Department of Defense. Thank you for your commitment to excellence and innovation.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Neely', is written over the word 'Sincerely,'.

RICHARD R. NEELY, Major General, ANG
The Adjutant General for Illinois

An aerial view of a city at dusk, featuring a river with several bridges. The sky is a deep blue with scattered clouds. The buildings are illuminated with warm lights, and the river reflects the city lights. The overall scene is a vibrant urban landscape.

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