Funding Cyberspace

The Case for an Air Force Venture Capital Initiative

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> *I think frugality drives innovation, just like other constraints do. One of the only ways to get out of a tight box is to invent your way out.*
>
> —Jeff Bezos

The Air Force needs a cyberspace investment strategy. Facing a 20 percent decrease in research and development (R&D) funding from fiscal year 2012, the service remains responsible for innovating with effect amid the hyperdynamic, commercially intertwined, entrepreneurially driven cyberspace business environment.[1] Though daunting, the situation presents an opportunity to explore the use of creative solutions. The government already makes limited use of one such mechanism—the venture capital initiative (VCI). Privately owned and guided by government-specific direction, In-Q-Tel and On-Point Technologies give the Central Intelligence Agency (CIA) and Army, respectively, access to emerging technologies through investment tools common to the venture capital (VC) community. Though uncommon in the defense acquisition community and fraught with challenges, VCIs are relevant funding mechanisms in the entrepreneurial world of cyber innovation. By producing the following effects, an Air Force–specific VCI would keep the service in the forefront of cyber creativity:

- Maximizing funding. Modest investments in start-up companies can yield tangible results. Additionally, an Air Force–branded VCI would likely attract additional private capital for technological advancement. The service can in fact innovate on a budget.

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- Developing new partners. Competition is the backbone of the defense acquisition system. By developing businesses, the Air Force stands to gain viable partners for years to come.
- Providing access to the newest technologies. Cyberspace innovation lies at the heart of today's information economy. Access to people and organizations at the leading edge of these technologies is imperative. An Air Force VCI can provide that access.

Venture Capital as an Acquisition Tool

The Air Force commands a robust R&D framework, but, like all cyber businesses, it must compete in a commercial economy subject to Moore's law, which maintains that "the number of transistors incorporated in a chip will approximately double every 24 months."[2] Subsequently, direct access to the entrepreneurial world of cyber innovation has become increasingly important. Many organizations "believe that corporate R&D no longer offers the level of innovation that [previously] allowed firms to dominate their markets."[3] For some organizations, access to external innovation comes via a VC relationship. Offering funding and business mentorship, a VC organization bridges the gap between raw technological innovation and commercialization, investing in promising start-ups to share in the technological and/or financial success of their efforts. Accordingly, corporations and government entities, including the CIA and Army, have set a precedent for incorporating VC funding into their overall R&D strategies. The CIA and Army pursued the novel concept of VCIs with the understanding that the entrepreneurial private sector was pacing advances in military information technology.[4] Their leaders understood that in order to access the commercial market, they needed a tool unfamiliar to the government acquisition community.

Incorporated in 1999 by private citizens at the request and with the support of Congress and the CIA, In-Q-Tel would supply a necessary link between the agency and the innovation of Silicon Valley, as envi-

sioned by CIA leadership.[5] An autonomous entity, In-Q-Tel takes strategic direction from the government and has the authority to invest its resources using mechanisms common to the VC industry.[6] Those mechanisms, such as capital investments, joint ventures, and sole-source awards, benefit from fewer bureaucratic constraints, the absence of federal acquisition regulations, the ability to obligate funds in multiyear increments, freedom from the restrictions of civil service personnel policies, and the distinction that comes with CIA association.[7] Funded by the CIA through congressional other-transaction authority, the firm quickly attracted attention for its unique relationship and product-focused strategy.[8] A 2001 report by the Business Executives for National Security concluded "that creating a model like In-Q-Tel makes good business sense . . . [and] that the risk associated with such a venture is worth taking, from a taxpayer perspective, considering the technology access that could be overlooked—or denied."[9] Through a strategy of modest investment, often on the order of $500,000 to $2,000,000 per effort, In-Q-Tel established its Silicon Valley cachet by investing in 37 start-up companies from 2003 to 2012—of which 36 were acquired.[10] That sort of investment track record has given the CIA unparalleled government access to the newest of the new while helping enlarge the company's investment fund to more than $170 million.[11] In-Q-Tel has proven that the audacity of innovative investment can be fruitful. Although the firm's success was certainly not a foregone conclusion, the Army took the CIA's lead and established a VCI of its own.

In 2002, Public Law 107-117, which legislated a "non-profit Army venture capital corporation," led to the establishment of OnPoint Technologies.[12] Initially authorized to spend $25 million from the Army's existing basic and applied research funding, the secretary of the Army sought to establish "better collaborative ties with young, small, growth-oriented companies that take risks and push innovation."[13] Thus, the service initiated OnPoint Technologies to pursue improvements in Soldier-carried power and energy sources that the RAND Corporation called a "model for development of relevant advanced technologies [that] could significantly help the Army . . . [in] affordably acquiring

the leading-edge technologies it needs."[14] Now publicly invested in 12 companies as of December 2012, OnPoint Technologies' VC strategy has made possible advanced products for Soldiers. The following excerpt from the sale announcement of PowerPrecise Solutions (PPS) to Texas Instruments outlines the role played by OnPoint in bringing a value-added Soldier product to fruition:

> *The success of PPS is a prime example of the value of OnPoint Technologies and the Army Venture Capital Initiative*. OnPoint identified PPS in 2003, led the company's financing, and with management, built a powerful syndicate to accelerate the company's growth. In 2004 in cooperation with the Army, PPS and OnPoint spearheaded efforts to develop a costeffective [*sic*] state-of-charge indicator for the Army and the Department of Defense's most prevalent primary batteries. In 2005, the Army Audit Agency estimated that this technology could save the Department of Defense . . . approximately $375M over a five year period. The Army moved to aggressively adopt this technology and to date, the company's solution is the only one to meet Army specifications, with hundreds of thousands already shipped to battery vendors. *According to feedback from Iraq and Afghanistan, the "return on technology" to the soldiers and marines is tremendous*.[15] (emphases added)

OnPoint Technologies' investment in PPS proved the value of the VCI to the Army, just as In-Q-Tel's many successes did for the CIA. Although their pursuits differ, these two unique entities share the same principles and benefits of investment. Both supply modest funding at the right time, develop new government business partners, and access valuable technologies. By investing in an appropriately structured VCI of its own, the Air Force could undoubtedly enjoy the funding, partnership, and technology benefits realized by the CIA and Army.

Funding

An Air Force VCI would maximize service funding of R&D for cyberspace. By financially establishing a VC organization, the Air Force stands to leverage private investment while reaping the benefits of underwriting a start-up commercial success, yielding additional portfolio

funding for a nonprofit VCI. In effect, through modest Air Force investment, a cyberspace-focused VCI could become financially independent and continue to meet the service's need for innovation in cyberspace.

Looking to the precedent set by OnPoint, the Air Force could establish a VCI with an initial investment of about $25 million or 18 percent of the service's cyberspace R&D budget for fiscal year 2013.[16] However, one has reason to believe that this proposed financing truly exhibits the potential for growth not currently realized in the Air Force's other R&D activities. Inherent in the government VCI is the ability to attract and leverage nongovernmental funding (i.e., capital). In 2001 In-Q-Tel, after only two years in business, was leveraging $2.15 of private capital for every dollar provided by the CIA.[17] According to the agency's director, in March 2012, that number had grown to more than nine dollars for every CIA dollar invested.[18] Both OnPoint's and In-Q-Tel's modest funding strategy nurtures this attraction of external capital. By supplying typically no more than $2 million per effort, the VCIs limit liability yet leverage partnered investment. Beyond funding by the government and private investors, a VC could recoup capital when the businesses it funds experience commercial success. Under a nonprofit structure, this means more money to invest for the needs of the customer. Successful investments yield opportunities for subsequent additional outlays.

Government VC funding and commercialized reinvestment of revenue supplemented by private capital could produce a self-sustaining organization.[19] Given its prospects for developing into a financially autonomous organization dedicated to Air Force–specific needs, a VCI represents a valid method for funding innovation in a fiscally constrained environment.

Partnership

An Air Force VCI would offer access to additional government business partners and add depth to the contract-competition pool. One

could reasonably assume that the Department of Defense's reputation as a demanding acquisition organization precludes relationships with some businesses—especially those operating in the highly profit-driven cyberspace arena. A review of the creation of In-Q-Tel reveals that government agencies quite simply are "not connected to the creative forces that underpin the digital economy."[20] An Air Force VCI, enjoying the bona fides of a high-technology service, leveraging the business credibility of a VC, and employing a late-stage funding strategy, could establish that connection.

The Air Force's reputation as a technologically savvy service endears it to high-tech business communities, but it sometimes struggles to maintain relationships with emerging innovators. In some cases, one can attribute this difficulty to restrictions imposed by the government under statute and regulation. Flexible business agreements between a privately held VC organization and a funded business inevitably offer an attractive alternative to bureaucracy-weary individuals who operate outside the realm of federal business opportunities.[21] Additionally, a VCI could solicit new government business partners by providing late-stage funding not typically targeted by the government's R&D awards.[22] As a complement to the existing Small Business Innovation Research construct that does well to conduct early-stage funding but relies upon unfunded commercialization, a VCI could be the key to reaching organizations previously caught in the valley between basic R&D funding and an acquisition program of record.

Recognition of the Air Force brand, combined with VC business methods and timely funding practices, could lead new cyber-innovation partners to the service. Ultimately, such partners mean increased competition, thus benefiting Air Force costs and performance.

Technology

VCI resources and relationships open the door to unseen technologies. Often shrouded in intellectual secrecy, cyber technologies

emerge instantly to the surprise of competitors. The Air Force would prefer to initiate instead of react to this sort of revelation. VCs specialize in finding businesses poised to deliver these market surprises. By emphasizing connectivity, dissemination, processing, and exploitation technologies, an Air Force VCI could find, glean, and implement innovations earlier than its competitors.[23] These products could mean the difference in the Air Force cyber mission, which often does well to stay one step ahead.

Challenges

Issues related to initiating and succeeding with an Air Force VCI include—but are not limited to—legality, management, funding, and distinction. Legality, though proven with In-Q-Tel and OnPoint, often becomes a complicating factor in establishing a viable acquisition tool. Ultimately, legal restrictions could limit the desired flexibility of a VCI, making it no more useful than existing mechanisms. Management and direction of a VCI would need to flow from a single Air Force body with the authority, vision, interconnectedness, and time to guide the effort appropriately. In light of the fact that manpower is often stretched thin, internal Air Force manpower requirements for a VCI could conceivably exceed the capability of the existing workforce. Funding will certainly prove contentious in a fiscally constrained environment. Unfortunately, start-up costs and annual financing for a VCI would most likely supplant existing government R&D, potentially orphaning an area of important research. Finally, distinction of the VCI as a viable entity in addition to established programs such as Small Business Innovation Research and the Rapid Innovation Fund is imperative to its success. Arguably, existing mechanisms offer sufficient access to the desired level of cyberspace innovation.

Implementation of an Air Force VCI faces numerous challenges that the service should consider in aggregate before pressing ahead with authorizations and approvals. However, government precedents suggest that the reward may be worth the risk. In light of a limited budget

amid unbridled technological advancement, the Air Force's desire to remain competitive may very well hinge upon establishment of a cyberspace VCI.

Conclusion

Funding advantages, new business partners, and access to the newest technologies all represent potential benefits of an Air Force VCI. Financially the service stands to gain from private capital introduced through the VCI that, if successful, could yield funding sufficient to preclude annual government investment. New business partners cultivated by a VCI would improve competition and effectively open Air Force business to nontraditional contractors. VC relationships with innovative businesses could become the catalyst for introducing cutting-edge, commercial-based products. Even in a fiscally constrained environment, a VCI offers the service the opportunity to do what it has always done—innovate. ✪

Notes

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