



## In-Q-Tel as an Early Stage Investment Model

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# Report on In-Q-Tel as an Early Stage Investment Model

## In-Q-Tel (IQT)

### **Background**

IQT formed in 1999 to make investments into technology companies that would directly benefit the Central Intelligence Agency (CIA), its “parent” or principle “customer.” The value proposition to the CIA is that IQT acts as a technology scout, identifying and qualifying technologies that would be valuable to the CIA. In the event that a company requires funding to adapt a technology for the intelligence market, that money is provided by IQT. The CIA benefits by deploying new technologies to help the organization serve its mission. IQT does this profitably by taking an equity position in each company that it invests in. Having IQT as a syndicate investor and the CIA as an established customer makes it easier for the tech company to raise more money and acquire other customers. This increases the equity value of the company and further secures IQT’s shareholder position and profitability. This is the same business model as corporate venture funds who invest in technologies that is deployed in the parent customer enterprise.

With the continued success of the relationship between IQT and the CIA, IQT’s customer base has grown to include other members of the intelligence community.

This tech scout or corporate venture model of an investment arm with a parent or principle customer is the thrust of this report—to examine the IQT operational strategy and profitability and determine if its model is replicable within current government architecture—and if so, what other federal entity or entities could adopt this model with a high probability of success.

### **Investment Style**

The budget of IQT is not released to the public. When IQT started in 1999, congress approved a budget of \$28 million. By 2006, IQT’s annual budget was \$50 million. From this budget, IQT typically invests in either series A or series B rounds with the range of investment being \$1-3 million per investment. In exchange for development / customization funding, IQT receives an equity position in the company. The invested company also realizes revenue as it receives an underlying contract for services. Since its inception, IQT has made approximately 120 investments.

Similar to a corporate venture capital group, IQT invests in companies that supply to a corporate “parent,” in this case the CIA and the intelligence community. As a general rule, In-Q-Tel evaluates its investments with the same risk analysis as a venture capital firm. The difference between an In-Q-Tel investment and that of a VC is that In-Q-Tel places a higher value on the need of their customer (the intelligence community) over the financial gain that might be realized by the company. Like a VC, IQT would only invest in the follow-on round case-by-case basis (viewing that follow-on round both from the perspective of financial return and suitability of the technology to

their customer). In addition, IQT prefers to co-invest with other private venture capital firms to spread the risk (and increase their capital available for other investments).

While the In-Q-Tel portfolio companies vary, IQT prefers to look for companies that have established commercial sales of their products, however this is not necessary for investment. Unlike many VC's, IQT does not take a board seat in their portfolio companies to monitor the development of the portfolio companies; rather they hold observer rights to the board. On average, an investment professional at IQT sits on 5 to 6 companies' boards.

IQT typically only invests in companies with “convergent” technologies, companies whose technologies have applicability in the commercial sector as well as the government. Companies that are selling exclusively to the government and more particularly the intelligence community are not actively pursued by IQT for investment as they already have a foothold in the intelligence community.

Historically, IQT only invests domestically. However, since 2007, IQT has started investing in the U.K., Germany, and Canada.

### Investment Process

As depicted in the diagram below, IQT's investment process is different from the typical venture capital investment process. This process can take between 6 to 9 months, whereas typical VC deals can close between 3 to 6 months.

Every year, the CIA gives IQT a prioritized list of issues, a “requirements set,” in which they are seeking a technology to resolve. These problem sets can be classified into five practice areas:

- Application Software and Analytic
- Bio, Nano, and Chemical Technologies
- Communication and Infrastructure
- Digital Identity and Security
- Embedded Systems and Power

FIGURE 1. IQT's Investment Process



### **Example: How an In-Q-Tel Investment Might work**

Unlike tradition venture capital, IQT looks at technology to determine how suitable it might be for its built-in customer: the intelligence community (IC). After collecting the intelligence communities' problems that need addressing in a Requirements Set, IQT scouts the academic, public, and private technology communities to identify technologies that matches the requirements set and that could be viable commercial products.

IQT then works through their Agency interface (in the case of the CIA this entity is called "QIC" (In-Q-tel Interface Center) to find a customer within the community that can benefit from the product or service. Once a potential match is identified, the Deal Team evaluates the opportunity and determines if there is a workable opportunity before committing more of it's or the customers' resources. Frequently, the process is halted here because it is discovered the company doesn't have secure ownership of the intellectual property, the company has an unrealistic valuation, the founders are unwilling to allow for additional C-level executives, are unwilling to allow the necessary IQT oversight, or any number of other reasons.

If approved by the Deal team, IQT, in conjunction with the internal customer, develops a "work plan" whereby they agree to fund the technology company to modify their product for the specific need of that particular intelligence customer. If, for example, that customization requires \$500,000 of non-recurring development, IQT will typically fund that on behalf of their internal customer. They will also provide the technology company an additional sum above the work plan costs, say, an additional \$500,000 and takes a warrant position for this added payment. The company, IQT, and the customer enter into the appropriate agreements to reflect the investment terms as well as the scope of work for the customer contract. In this case, IQT receives \$1,000,000 of equity; the company shows \$1,000,000 of capitalization on its balance sheet and \$500,000 of revenue on its income statement.

The system is highly successful for all parties involved:

- Technology company
  - Establishes a large heavily funded customer (the federal government) prior to the delivery of a final product
  - Receives funding to develop a new or modified product suitable for use by the intelligence community (the company owns the IP and the IC end user is provided a license for use)
  - Relationships with IQT and CIA make it easier to develop other investors or customers

- In-Q-Tel
  - Benefits through their investment in a company with a large established customer and a product with potential commercialization
  - Increases the equity value of their portfolio companies by creating customer demand and references, which in turn make it easier for the company to raise capital and acquire customers, which in turn increases the company's value and IQT's equity value.
  - Continued success as a technology intermediary to the government
- Parent/Customer
  - The government entity benefits through the implementation of a new product or service that can enhance their mission

## **Investment Performance**

Out of 120 investments, IQT has had between 12 and 20 successful exits (IQT could not disclose the actual number). Only 2 to 3 investments were considered a total failure, the exact definition and nature of these failures were also not disclosed.

## **Success Metric**

Although IQT still tracks its IRR, IRR is not the main measure of success. IQT measures success by the technology adoption by its intelligence community customer. Thus, a financial failure might not be considered a total failure because IQT and the intelligence community might learn that a particular technology did not work. However, IQT claims that its IRR performance is still competitive with the performance of private venture capital firms in general.

## **Staffing**

IQT's total employee base is roughly 80-100 employees, this consists of about three quarters technical researchers, many with an intelligence background, early stage investment background, or start-up experience. The intent is for IQT to acquire a diversified talent base in order to add value during assessment of the technology and developing company. A staff of this size requires overhead expenses that are on average 10x more than a typical VC; this staffing also leads to significantly higher than normal operating costs but also more successful interactions and relationships with its customers.

## Compensation

IQT does not provide carry-interest for their investment professionals due to the nature of the organization and its funding by the government. Instead, they receive an annual bonus based on their performance. Because there is no carry and IQT's investment companies have greater certainty of revenue than typical VC investments, the higher than normal cost of staffing is amortized over the portfolio.

## IQT's Key Advantages

- Pull strategy versus push strategy
  - Strong probability for large initial customer/revenue base (CIA) because the customer is pulling acceptable technology into the market, as opposed to the traditional approach where technology is built and then pushed into the market seeking acceptance
- Large technical department of IQT
  - Allows it to perform extensive technical due diligence, understand customer requirements and increases probability of customer adoption
- Confidence and recognition by other federal and commercial organizations
  - Companies funded by IQT obtain credibility by having their product and development team scrutinized by IQT for a stamp of approval
- Strong network
  - IQT has built a strong network with the private venture capital community through its presence in Washington, DC, Silicon Valley, Boston and the Research Triangle

## IQT's Key Challenges

- Skepticism / resistance
  - In its initial stages, IQT had some pushback from the public due to the lack of clear understanding of the nature of the relationship with the government. The inclination was that IQT was using government funds to invest and profit from its acquisitions. Over time, this unrest has decreased through constant communication of its efforts, objectives, and investment process
    - Skepticism about working with CIA - based on the fact that the CIA may possess significant technological information

- Sales process
  - When asked about their largest challenge, individuals within IQT stated that there is still much concern around the inability to guarantee a sale of a product to its federal customer. Clear and consistent communication is required between the government entity and IQT in order to ensure a final product that is desired by the federal customer.
- Due diligence pace
  - Due diligence of technology is slower than typical VC investments
    - Because IQT is ensuring a product that resolves a specific problem of the federal customer, the due diligence required to approve the product and the company takes much longer than a typical VC investment
    - This adversely affects deals between IQT and syndicates because syndicate investors are required to wait longer than desired to investing with IQT in a company
- Communication gap among department within CIA
  - One of the most significant challenges for a technology transfer model is the communication gap between the federal customer and IQT
    - This problem and solution is detailed below in the description of QIC (In-Q-Tel Interface Center)
- Removal of government funding
  - Such as the case of Red Planet – experienced budget cut, which led to disbanding of the organization

## Alternate Government Investment Models

### **DeVenCI (DOD):**

DeVenCI, the Defense Venture Catalyst Initiative, focuses on increasing DOD awareness of emerging technologies developed by sources outside the traditional scope of DOD procurement sources. DeVenCI is managed by the Defense Research and Engineering branch of the Office of the Secretary of Defense. DeVenCI does not fund technology or business; it simply acts as a catalyst and connector.

The DeVenCI strategy is to seek the assistance of the venture capital community to gain knowledge of and access to small, innovative companies with emerging technologies useful to the DOD.

Unlike other government investment efforts, such as the Central Intelligence Agency's In-Q-Tel and the U. S. Army's On Point, DeVenCI does not fund the development of new technologies or businesses. Rather, DeVenCI operates as a catalyst initiative focused on improving communications and mutual understanding between innovators and the DOD.

The DeVenCI team has a small staff but its primary value is realized through its advisory board of venture capital firms. This is the most distinctive factor. These VC consultants serve for a period of two years, and must abide by standards of conduct that require fair and impartial recommendations, which place DOD needs first. Consultants are selected based on an open and competitive solicitation process.

The shortcoming of this is that the VC's are eager to help their portfolio companies try to establish relationships with DOD. Once a VC has exhausted possible value for their portfolio companies they are less engaged and motivated. Significant value could be brought to bear if DeVenCI were able to establish a strong channel between DOD and the VC community so that a larger number of VC's could participate.

### **On Point (Army)**

On Point is effectively the poorer cousin of IQT. It was initially established with a \$60 million endowment that was intended to provide capital for a multi-year investment stream. After a careful analysis of the three models—i) an In-Q-Tel-like model, ii) an IQT model but the management team is outsourced, and iii) a passive-investor model—the outsourcing model was chosen for implementation.

This choice was primarily driven by the model's ability to provide for the right kind of a for-profit organizational arrangement within the constraints of the non-profit structure of the fund. In essence, this model created a non-profit (the AVCC – Army Venture Capital Corporation) that then outsourced the management of the fund itself to a for-profit entity that could operate under the organizational structure and incentives of a traditional venture fund.

On Point, knowing it faced uncertain funding going forward, decided to execute a focused investment strategy with a fairly narrow “problem set” so that it could best deliver tangible outcomes. After extensive consultation with senior Army officials, they decided to pursue battery and power systems as the initial problem set. With hindsight, this strategy seemed wise, as congress moved to cut funding to federal venture funds, a decision that spelled doom for NASA's VC arm, Red Planet. Because of the \$60M endowment basis to draw upon, On Point has been able to survive after government budget cuts.

The success ratio of OnPoint was unavailable through our research, but typical investments are between \$500k and \$2M, and syndicate investments account for \$8 for every \$1 of On Point investment.

## **Red Planet (NASA)**

Red Planet Capital, inspired by both IQT and On Point, was established in November 2006 with an initial allocation of \$11 million and a planned expected investment of \$75 million over a five year horizon. The specific mission of Red Planet was to source technologies to NASA outside of the realm of aerospace, where it already excelled. Similar to On Point, Red Planet was a combination of a for-profit venture arm that reported to a not-for-profit.

Red Planet would carry out extensive consultations with NASA's project managers and mission specialists in order to determine areas of need. A Subject Matters Experts Committee would identify needs, and Red Planet would then scour the private sector technological and entrepreneurial sector and develop at least 75 technology memo's per year that detail the specifics on how an individual private sector technology could benefit within NASA. In its first year of operation, Red Planet exceeded its technology note target, writing 90 notes, thirty of which received financing from private sector investors, and one in which NASA itself invested.

In 2007, the federal government seems to have decided to pull the plug on federal venture funding, grounded in the belief that the federal government should not be investing in venture capital. Since Red Planet was reliant on annual congressional allocations, it was forced to shut down. Red Planet now lives on outside of and unrelated to NASA as Astrolabe Ventures, an international venture fund network. Information on their investment performance and portfolio companies is not publicly available, and they have not responded to any of our requests for interviews.

## **Conclusions and Recommendations**

### **Conclusions**

The key advantage of the IQT model is its relationship with a captive customer (Intelligence community) with a stated demand for a specific technology. Because it has a "built-in" customer, it utilizes a pull strategy in order to increase the probability of success for the company and IQT's investment. The key component of this pull strategy is the development of a product that meets the specifications of the intelligence community. In order to ensure successful development, IQT has a large technical department that identifies and develops applicable technology. Additionally, it is important for IQT to maintain efficient and frequent communication with the intelligence community. Without these two factors, the probability of success greatly diminishes.

Initially, the IQT model was met with skepticism and resistance because of concerns about conflict of interest and security clearances. Individuals within the intelligence community did not understand IQT's mission, and therefore were reluctant to share information. These concerns led to the formation of QIC, which served as an intermediary between IQT and the intelligence community to improve communication and information sharing. As IQT began successfully

delivering technology, it gained the trust of individuals within and outside of the intelligence community and built a reputation as a respected catalyst for technology transfer. This reputation translates into more confident syndicate and follow-on investors, and helps IQT build a stronger network of VCs.

IQT has positive effects on the companies in which it invests. First, it identifies technological solutions that would have otherwise been undiscovered and provides capital to develop technology that would otherwise not have access to such investment. Next, IQT's investment helps further develop the technology to the specifications of the customer, thereby advancing the innovation process. Finally, with a known customer and expanded applications for their technology, companies experience faster growth, create new jobs and spur investment into their community.

Accordingly, the IQT model has been effective as a vehicle to identify and position technologies into an agency to further its mission. Further, it is likely that the agency would not have been able to identify or adopt these technologies but not for IQT. Finally, IQT was able to provide this value to its parent agency cost effectively and perhaps even profitably.

Therefore, it is recommended that the IQT model be considered and adopted by other agencies.

## **Recommendations**

The IQT model is one that can and should be duplicated. Given today's economic downturn where job creation and technology development is needed, we recommend rapid implementation of the IQT model at specific agencies. It is important, however, to take into account two key factors in choosing federal agencies for implementation of this model. The agency must be:

- A significant consumer of technology. This is determined by its purchasing or operating budget, which will show the extent to which the agency consumes new technology.
- Willing and able to establish "IQT" model in order to efficiently communicate agency needs and technical specifications.

Given these two factors, the following agencies would make good potential targets for IQT model implementation.

- DOD – Department of Defense
- NASA – National Aeronautics and Space Administration
- DHS – Department of Homeland Security
- DOT – Department of Transportation
- VA – Veterans Affairs

Some agencies, such as Department of Energy (DOE) and the National Institute of Health have significant R&D budgets but they are not a large consumer of technology. The DOE does not actually buy and operate technology such as a power plant, quarry, power grid or wind farm. These facilities are owned and operated by the private sector. Accordingly, the IQT model would not work for DOE as they are not the eventual end customer of the technology. It is possible that DOE could create an IQT front end for the private sector in a public/private partnership, but for the sake of efficiency should not be considered as one of the first new IQT model programs. Similarly, NIH enjoys significant R&D budgets and activities but does not own pharmaceutical companies, hospitals, or medical device companies. However, Veterans Affairs operates one of the largest hospital organizations in the country and would benefit substantially from an IQT model to provide the best care for our veterans.

Each of these agencies has a predefined use for the technologies they research and develop. For example, NASA is concerned with propulsion technology research for use in space shuttles. This technology is integral to its core mission.

The following section will provide recommendations based on best practices of existing or past investment organizations. The following categories will be discussed and analyzed: structuring an organization, the types of long-range goals that should be evaluated, and the challenges and concerns that are potentially on the horizon. Please note that throughout this paper the proposed investment model will be referred to as “the Fund”.

### **Fund Organizational Structure and Composition**

The existence of a structured, authoritative entity whose primary function is to communicate to the Fund is instrumental to the identification, communication, and proliferation of issues and technologies between the Fund and the federal lab.

In the case of the CIA, this entity is called ‘QIC’ (In-Q-Tel Interface Center); the following characteristics are the key strengths in their effectiveness of technology transfer: Access to information

- The individuals who compose the QIC hold senior position within their fields therefore providing them access to unique information along with the knowledge of their organizations goals and challenges.
- QIC formed with federal approval and is accepted throughout the CIA because its membership is composed of CIA employees. According to Brian Smith from In-Q-Tel, CIA employees are understandably very reluctant to disclose information to non-CIA employees regardless of the nature of the information or the status of the individual.

The departments within the federal lab must approve in a technology transfer model in order facilitate communication to the Fund. Once approval is established, the most effective and efficient models incorporate senior officials from the federal labs within the communication entity in order to motivate and facilitate action on behalf of the technical research team.

- Defined process structure
  - Annual report to IQT – QIC has a structured methodology established in order to relay the issues faced by the departments within CIA to IQT. This methodology is designed to:
    - Refine the problems faced by the CIA community into more general descriptions in order to allow IQT a broad spectrum to work with when scanning for solutions
    - Prioritize these issues in order to allow IQT to disperse its resources accordingly
    - Declassify information – Prior to the release of this information, QIC must insure that the information does not provide information on the internal research and development of the CIA.
  - Strong relationships with local technology communities
    - Local relationships with technology firms, venture capitalists, incubators and academic research centers must be attained in order to streamline the search for unique technology.
    - Strong relationships with academic and private research centers also increase the effectiveness of the design process.
    - As the Fund continuously closes successful deals, it will build on its brand and increase trust within the technology community, therefore strengthening relationships with its customers.
  - Strong relationships between the Fund and its customers
    - Throughout the design and manufacturing process, the Fund must maintain active communication between the technology developer and the customer. In the case of IQT and the CIA there are multiple review boards between the time that a prospective investment is identified and the final product is delivered. By the time the technology developer or entrepreneur has completed a product for the CIA, IQT ensures that there is a viable product ready for the commercial marketplace as well.

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### **Locating and assessing technology**

One of the most important criteria for IQT to invest in a technology is the assurance that the intelligence community will become a consumer of the product. This is the strongest advantage that IQT has over typical VC funds. Rather than pushing a product out to the market, IQT's investment companies already have pull from a large revenue/customer source. IQT annually obtains the technology requirements list of CIA and other intelligence community customers and seeks out technologies that can be incorporated today as well as technologies that might help in the near future. With this in mind, it is important to identify products, acquisition targets, and syndicate investors that within this unique timeline.

DeVenCI identifies new technologies through attending and hosting seminars, technology expositions, and workshops within the industries of focus. This provides a low cost channel to identify emerging technologies and investors that have self selected themselves as interested in working with a federal agency.

Lastly, in all investment models we have seen that the focus on the type of technology desired is narrow. The purpose of this is to establish an in depth understanding of the technology space and current events in the industry, and to build networks within the industry. When identifying a technology the following must be considered:

- The federal agency market size for the technology must be large enough to provide enough sales opportunities to a vendor to allow it to provide the Fund its expected returns.
- The technology must be expansive enough to warrant the need of multiple investments.
- In the ideal situation, the technology has dual purposes with private sector markets as well.

While these agencies could benefit greatly from implementation of an IQT model, there may be difficulty in communicating the benefits to individuals within the organization. That is why it is critical to form a QIC-like body within the agency immediately. Each agency's culture will likely differ significantly, so a comprehensive review of the potential for establishing a QIC body is necessary.

Finally, these agencies may benefit from the broad application of technology. For instance, the

DOD has many different branches within the agency (i.e. Air Force, Navy, Army, etc.) that may benefit from, for instance, improved battery technology. The DOD could benefit from an IQT model's investment in a battery company in many different ways.

These agencies would benefit from the implementation of an IQT model for technology transfer. While there are other agencies that may also benefit, these agencies are truly consumers of technology and therefore fit the IQT model more closely.