TRANSITIONS

Winter Edition • Volume 1 • Issue 1 • 2004

TECHNOLOGY TRANSITION: AN UNUSUAL TEAM SPORT

Welcome to the first edition of ***Transitions***, a publication dedicated to facilitating the insertion of Navy-funded SBIR and STTR technologies into the fleet. For a mission Agency such as the Navy, *transition* is a far better descriptor than *commercialization* for the tasks that lay before Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) award winners.

SBIR and STTR topics address specific R&D needs of the Navy. The goal is that the small business research will transition into active Navy systems. The Navy SBIR/STTR program office measures their success by the number of SBIR/STTR small businesses that receive Phase III funding to transition that R&D into products and services that benefit the fleet. Technology transition is extremely difficult to accomplish. On the government side priorities change, program funding evaporates, champions leave, and funding for critical demonstrations may be hard to come by. On the small business side, companies vary in their understanding of Navy and SYSCOM protocols, in their ability to develop relationships with customers, in their potential to ultimately deliver products, and their understanding of the role that prime contractors play with the Navy. Large prime contractors, who often play a critical role in technology insertion can be inexperienced or not organized to work effectively with small firms.

ACR of Tucson Arizona's Silver Fox in theater with military personnel. The Silver Fox is an excellent example of how the STTR program was used to rapidly develop and deploy technology to the fleet.

Technology transition is often described as a team sport – yet the rules of the game are unlike any other. With traditional team sports, one knows who their teammates are. By contrast, with technology insertion, you develop your team as you move forward. You know who originally gave you the "ball" (your Phase I award), but often the small business does not know the other players that must be involved in order to move the technology through the various Technology Readiness Levels (TRLs) that precede technology insertion. With traditional team sports, there's a rulebook and one can learn the basics fairly easily. With technology insertion, the rules may vary depending upon the Systems Command with which you are working and the nature of the platform into which your technology will be inserted (air, sea, land). What gives a project energy and propels it forward is funding. Phase I and Phase II awards are usually insufficient to mature a technology to the level where it can be inserted into the Fleet. More funding (Phase III funding) will be required and a constant challenge for small and large businesses alike is where to obtain the additional funding necessary to mature the technology.

This publication is dedicated to removing the unknowns and providing insight into the playing field, so that everyone involved can more readily develop their teams and become skilled with the processes associated with technology transition.

Each publication will focus on stories related to the following:

Phase III Success stories: The small business success stories are intended to provide guidance on how to successfully transition technology to the fleet. Such success may depend on funding received, networks developed, protection of SBIR data rights, addition of staff, acquisition of new capabilities, and the like. The goal will always be to provide instruction on – lessons learned.

SBIR Program Manager's Initiatives: The Navy has multiple SBIR Program Managers associated with the different Systems Commands (MARCOR, NAVAIR, NAVSEA, ONR, SPAWAR). The SBIR/STTR programs are sufficiently robust that methods of implementation may be adapted to the culture of each SYSCOM and the concerns of each program manager. The purpose of these stories is to provide insight into unique aspects of how the SBIR Program is implemented in a particular SYSCOM.

PEO Use of SBIR: The Program Executive Officer (PEO) controls the budget for specific programs. Each PEO is assessed 2.5% of their extramural RDT&E budget to fund the SBIR program. PEO's have distinct ways of interacting with the SBIR/STTR program in efforts to transition technology to the fleet. Understanding the differences among and interests of the various PEO's is important.

Prime Corner Initiatives: The largest prime contractors have been and are continuing to make efforts to work with small businesses. ***Transitions*** will profile prime contractors and highlight their programs and successes in working with Navy-funded SBIR and STTR firms.

The SBA Policy Directive: The SBA Policy Directive has important implications for everyone involved with the SBIR/STTR Programs. Given the far-reaching implications of the Directive, this issue and related topics will be explored.

ASN(RDA) ENCOURAGES PARTICIPATION IN THE NAVY OPPORTUNITY FORUM

Mr. John Young, Assistant Secretary of the Navy, Research, Development and Acquisition (ASN(RDA)) encourages Forum attendance by Navy PEO's. In a January 30, 2004 memo, Mr. Young states, "This is an ideal forum for acquisition managers to identify technologies of value to the Navy."

The 4th Annual Navy Opportunity Forum will be held on May 3rd and 4th, at the Hyatt Regency, Reston Virginia. The Forum is a unique event showcasing defense applications of technologies that have been funded by the Navy's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. It marks the culmination of the Navy Transition Assistance Program (TAP), a 10-month business development, transition planning program eligible to all Navy Phase II SBIR and STTR awardees. Companies that complete the TAP and have developed a Phase III Transition plan, briefing, and/or business plan participate in the Navy Opportunity Forum.

For attendees, the Forum provides a unique opportunity to quickly examine opportunities of interest and to initiate beneficial relationships with the small businesses that are showcased. Defense personnel looking for technologies to fill operational gaps, prime contractors, 1st and 2nd tier suppliers looking to leverage their R&D dollars, and equity investors looking for business opportunities will find the Forum to be highly beneficial. Mr. Young, goes on to state

"This is an ideal forum for acquisition managers to identify technologies of value to the Navy….. We need to develop strong partnerships among high-tech small businesses, our prime contractors, and the acquisition community. Your support of this event is an important step toward this goal."

Ninety-five (95) projects, representing eighty-two companies will participate in this year's Forum. All participating firms will make a presentation and also be available throughout the event at booths in the Exhibit Hall. An additional program feature is a tutorial entitled "How primes can maximize opportunities presented by the SBIR program" which will be provided on Tuesday,

-2003 Navy Forum

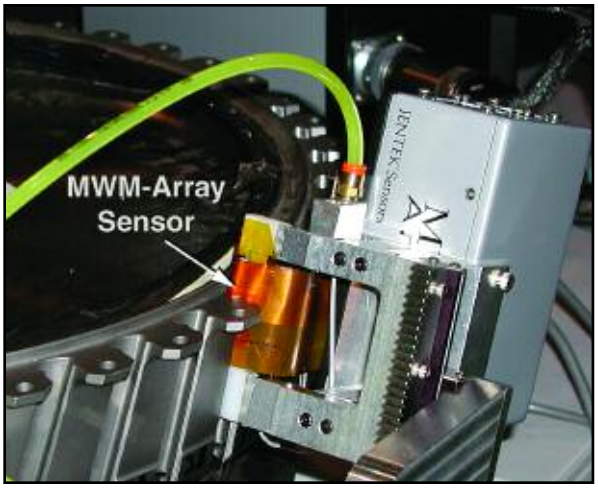
May 4th from 3:00 – 5:00 PM by David Metzger and Selwa Masri of Holland & Knight LLP. This presentation will focus on the benefits to the primes of working with SBIR firms and how to structure relationships to effectively work with small businesses.

This is the 4th Annual Navy Opportunity Forum, and each year the number of presenting firms and attendees has steadily increased with over 500 in attendance last year. The Forum is held each Spring, on the first Monday and Tuesday in May.

For more information or to Register for the Forum call (585)594-9281, or visit www.dawnbreaker.com/forums/navy. PEO's can contact John Williams at williajr@onr.navy.mil.

NAVAIR'S SBIR PROGRAM
PHASE III AND THE USE OF IDIQ'S

Small advanced technology businesses are innovative and good problem solvers. If you put an open contract in place, the agility and innovation of a small business is maximized. For example, JENTEK's SBIR deliverable to Cherry Point was a meandering wandering magnetometer (MWM) designed to inspect the propeller blades of the P3. After delivery, another problem arose at Cherry Point, this time with compressor blades. The known technology for addressing this problem was using X-rays to inspect each blade at a significant cost. This new technology addressed the problem promptly without the laborious and time-consuming effort. Estimated savings from implementation of the MWM procedure for this specific short-term titanium blade inspection was over $200K, with an incremental cost of approximately $15K to the Navy for the software module upgrade, set up and limited performance test by JENTEK, a ROI of over 5:1. With a flexible contract in place, small businesses can quickly be engaged in problem solving.



"A third application is shown for JENTEK's technology – now transitioning to use at Oceana for engine disk inspection with and MWM-Array"

The Indefinite Delivery Indefinite Quantity (IDIQ) process was initiated in the NAVAIR SBIR office in 2000. The 1999-2000 Congressional reauthorization of the SBIR legislation, included language clarifying a number of issues related to Phase III contracting, and placed additional emphasis on technology transitions. At that same time small businesses were raising concerns about a practice referred to as "bundling", a practice which tended to take contracting possibilities away from the smaller companies. Carol Van Wyk, NAVAIR SBIR Program Manager, recognized a need to simplify the Phase III contracting process and address the uncertainties of how to continue the maturation of a technology into Phase III. Carol is a pioneer in the use of IDIQ contracts to facilitate transition of SBIR awards to Phase III.

The IDIQ approach provides a vehicle that would take care of the first customer's needs and at the same time provide the opportunity for multiple, unknown, subsequent customers to benefit from the contract. The IDIQ removes an administrative barrier and therefore makes it easier for customers with a need to purchase solutions or capabilities. Once a model with all the required clauses and approved tasking was approved, the time invested is the same, whether you create a contracting vehicle for one customer or for multiple customers.

To be eligible for an IDIQ contract, a company must find a NAVAIR customer that has both a need, as well as funding for the SBIR technology. The NAVAIR approach has been to set up a 5-year IDIQ that not only guarantees delivery to the first customer, but has the potential to involve multiple, subsequent customers. The NAVAIR SBIR IDIQ, however, is not the only way to do this. The goal is to move the IDIQ initiative from a strictly NAVAIR process, to a DoD-wide availability. If the IDIQ approach was picked up by DoD, DoD could then provide a virtual shopping mall, sort of a GSA listing of highly capable, state-of-the-art technologies that all DoD program managers could turn to for quick problem solving. Carol would like to see all SBIR funded technologies that transition to Phase III be available to benefit all DoD program managers.

"An IDIQ is an excellent way to mature a technology so that it can benefit multiple services."

Program Managers, Aircraft (PMAs) had expressed frustrations with the inability to plan to the SBIR program. IDIQ's now serve as a way for the PMAs to get more involved and to have the SBIR Program benefit their platforms. Never knowing if a topic submitted as a Phase 1 would be funded at the Phase II level, planning for transition to Phase III was moot. The PMA workload was quite high, and the process of working with the SBIR program needed to be more streamlined. The emphasis had to be on the bigger picture - picking the right topics that would result in technologies that could transition. Both the law and upper management clearly directed the SBIR process to focus on transitioning. NAVAIR now advertises fewer topics with the intent that there should be funding for each to become a Phase II. The PMA's can therefore now plan for Phase III. NAVAIR has also increased the number of companies receiving Phase I awards relative to each topic. This enables NAVAIR to ensure that the best Phase I technology and company go forward to Phase II.

There are currently thirty-six IDIQ's in place, of which, only one or two have resulted in a disappointing lack of funding in following years. Three of the thirty-six companies reached their ceilings in the first three years. Contracts are typically issued for five years, most with a $25 million limit, but they vary. The NAVAIR SBIR Phase III companies brought in $30-40 million in the last two years and some have delivered products to the fleet in support of the war. These small companies are finding opportunities available, similar to the advantages that bundled contracts have. The PMA's are finding SBIR technologies can support their goals.

IDIQs have made things much easier not only for PMAs, but also for other Commands. For example, a particular PMA was looking to provide Phase III dollars to accomplish a specific task. Because of the broadly worded IDIQ, DARPA was able to add half a million more to miniaturize the technology. From the original PMA's perspective, considerable benefit accrues i.e. a better product for the Fleet with a small naval aviation investment. An IDIQ is an excellent way to mature a technology so that it can benefit multiple services.

Looking forward, Carol would like to see IDIQs mimic the capabilities of small businesses. It's a flexible and cost effective contracting vehicle. Why negotiate three contracts for three sponsors when one contract can satisfy all three? Phase III is about transition and the IDIQ process should transition away from strictly NAVAIR, and into all programs. DARPA, for instance, as well as the Air Force have benefited from the NAVAIR IDIQ process. Many of our program managers have the same operational challenges and can benefit by tapping state-of-the-art technologies that we have identified. Every time we mod a contract we see a better capability delivered. The NAVAIR SBIR Office alone nor the small businesses have the resources to market. It needs higher visibility, thus Carol's hope to move it to the DoD level.

"I don't think you can put your finger on exactly what makes this IDIQ process work", says Carol. "It appears to be some combination of being at the right place at the right time, a good TPOC and/or PMA, a strong customer orientation by the companies' leadership, and a darn good technology."

For more information, a handbook on the IDIQ process has been developed to serve as an IDIQ reference document, listing the benefits that this type of contracting vehicle provides. An example of a model IDIQ contract can be found on the NAVAIR website, www.sbir.navair.navy.mil/p3_main.htm

EVENTS

Look in every issue for upcoming events of interest, including topic due dates, dates of solicitation openings and closings and events.

Date	Event
	February
11	SBIR solicitation 04.3 Topics Due to DDR&E
12 - 3/12	SBIR solicitation 04.3 DDR&E 1st Review
	March
1	STTR Solicitation 04 Opens
1	SBIR Solicitation 04.2 Pre-release Topics - Web
15 -26	Solicitation 04.3 Topics – Agency Response
29 - 4/15	Solicitation 04.3 DDR&E 2nd Review
	April
5 - 9	DoD Tri-Service Meeting Tampa Florida
15	STTR Solicitation 04 Closes at 6AM
21	SBIR Solicitation 04.3 Topic Final Review
26 - 28	National SBIR Conference Atlanta
	May
3	SBIR Solicitation 04.2 Opens
3	SBIR Solicitation 04.3 Pre-released
3 - 4	Navy TAP Opportunity Forum Reston VA
	June
17	SBIR Solicitation 04.2 Closes at 6AM
30	SBIR Solicitation 05.1 Topics Due to DDR&E
	July
1	SBIR Solicitation 04.3 Opens
1- 30	SBIR Solicitation 05.1 DDR&E 1st Review
7 - 9	Navy TAP Kick-off Meeting Crystal City VA
	August
2 - 20	05.1 Solicitation Topics – Agency Response
4 - 5	Naval Industry R&D Partnership Conference – Ronald Reagan Building, Washington D.C.
12	SBIR Solicitation 04.3 Closes at 6AM
23 - 9/15	SBIR Solicitation 05.1 DDR&E 2nd Review

SBIR/STTR PROGRAM MANAGERS

The SBIR Program is centrally managed out of the Office of Naval Research, and each SYSCOM has it's own Program Manager. For those unfamiliar with the structure of the Navy's SBIR/STTR, the following is intended as a POC guide. Please feel free to contact the following:

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HOW PEO SUBS PLANS FOR PHASE III SUCCESS

Richard McNamara
NAVSEA

Based on an interview with Richard McNamara, Active Executive Director, PEO Sub. MR. McNamara is widely recognized as one of the most successful PEO's in facilitating transition of SBIR-funded technology to Phase III.

"PEO Subs represents an extraordinary opportunity for small businesses."

What is the breadth of PEO Subs responsibility from a budgeting perspective?

The Program Executive Office's Submarines program is every bit as big and complex as buying an aircraft carrier or a plane, and is responsible for all colors of money, and all aspects of acquisition.

When we buy a Virginia-class submarine, this acquisition umbrella includes all of the vessel's subsystems, as well as every component of every subsystem – everything from bunks and laptops to weapon systems, sonar arrays and antennae. We expect that every Virginia-class submarine will be better than its predecessor by virtue of our Tech Insertion and Tech Refreshment funding lines, a perspective that is endorsed on The Hill. PEO Subs represents an extraordinary opportunity for small businesses.

How does PEO Subs maximize the likelihood that its SBIR projects meet the needs of its Program Offices?

We take this Program Manager relationship very seriously, and rarely farm out SBIR supervision to laboratories or anyone external to Team Submarine. Every March we query all six hundred Team members in this PEO, looking for SBIR topic suggestions. The final downselect is done with the Program Managers from our dozen-odd PMSs to accord with their priorities, by majority vote. Last year, for example, we funded eight topics from a pool of fifty-five. The close SBIR relationship between small businesses and these Program Managers continues straight through Phases I and II. A project's TPOC comes directly from the Program Office to that technology need. This is a collaborative process to anticipate needs, to keep needs fresh, and to use SBIR to get the right company working on technology solutions.

How should small businesses view the opportunity that SBIR creates in PEO Subs?

SBIR opens the door for small businesses to participate in the full array of life-cycle issues, costs and responsibilities our PMs have to embrace in their specific work. I'll use the example of PMS 401 here, and its sonar Acoustic Rapid COTS Insertion program (ARCI). From the perspective of funding lines, you're looking at ball park figures of $200 million in procurement, $75 million in R&D and the chance to address the obsolescence needs, new technology needs, or do significant follow-on work. In fact, we've found that if we can make the right pairing of a small business with SBIR experience and a prime contractor, as we did with ARCI, we have been able to get new technology solutions aboard submarines within six months of their entering the market.

What's the profile of a strong small business candidate, from PEO Sub's perspective?

SBIR is a great crucible for testing small business capability. Phase I provides an opportunity to get to know a small business -- Do they understand my problems? Can they offer innovative solutions? Do they understand the larger, complex business environment of PMs and prime contractors? During Phase I, I'll also look for 3rd party comments for validation of a company's promise. Phase II is our test drive and it is a much tougher test of management skills as money managers and technology developers – are they truly flexible to the rapidly-changing needs for technologies? How might they survive defunding of potential Phase III acquisition program, or emergence of superior competing technologies, problems with the government sponsor, or a major shakeup with a prime contractor partner?

A handful of small businesses have done over $700 million of Phase III business, out of the $832 million in Phase III contracts NAVSEA claims since 1995. The reward for small businesses who pass the PEO Subs tests in the SBIR program is pretty impressive.

RAYTHEON/SBIR PARTNERSHIP

"This is about partnership," says Smith, "… the kind of partnership that enfranchises American small businesses, leverages our own intellectual capital, and meets the nation's security needs through practical, next-generation Navy programs."

Raytheon Company, with 2002 sales of $16.8 billion, is an industry leader in defense, electronics, space, information technology, and business and special mission aircraft. The Company has launched a unique SBIR partnering initiative through its Integrated Defense Systems business to leverage both Navy and Raytheon resources. The initiative, championed by IDS President Dan Smith, uses the Navy's SBIR capacity to generate new technologies to help fill specific technology gaps in Raytheon IDS' own annual technology roadmap for a dozen-odd defense programs -- including the Navy's revolutionary DD(X) (the next-generation destroyer now under development) and other new platforms.

Crafted in 2002 through a corporate strategic planning process, the Raytheon IDS initiative has already been applauded by the Navy SBIR program for its contribution to the challenge of better new technology insertion. According to John Williams, Navy SBIR Deputy Program Manager, "The Raytheon initiative - like those undertaken by other Navy prime contractors - is a clear measure of success for small business, the Navy and the prime contractor in providing a path for transitioning the SBIR-developed technology into the Fleet. Raytheon is a leader among the primes in developing the infrastructure, process, and culture to work with small, advanced technology firms."

"This is not the typical supply-chain relationship," says Lani Loell, IDS' SBIR Program Manager. "The partnership significantly augments our corporate IR&D resource, and benefits small business from the outset through our mentoring, through improved access to Navy acquisition programs, and through the marriage that fills specific technology gaps. It's a surgical approach, really, that minimizes risk for us and for the small business -- and especially for our Navy customer."

Raytheon IDS expects that its substantive investment in the SBIR initiative will pay off as technology gaps are filled for the big systems integrator, particularly in the high-profile Navy development programs such as DD(X). Joel Taves, Director of DD(X) Supply Chain Management for IDS, says, "These are small businesses and exciting technologies that we couldn't have known about without Navy SBIR, and its TAP Opportunity Forum. So it's a win-win strategy for our technology capture teams: risk is reduced, the pool of new technologies is expanded, and our customer is better satisfied."

How does this initiative work?

1. Raytheon IDS has developed an aggressive and accessible Navy SBIR presence at SBIR conferences, and especially with Navy SBIR's celebrated Transition Assistance Program (TAP) and annual Opportunity Forum.

2. Raytheon IDS identifies key SBIR firms (15 from the 2003 Navy Opportunity Forum) for participation in bi-coastal Raytheon Emerging Technology Forums, for determining how well the SBIR candidate technology matches IDS' identified gap or need.

3. These Forums help shape the partnership, leveraging both Navy SBIR and Raytheon R&D resources, leading to a longer-term and mutually beneficial business relationship between the billion-dollar IDS enterprise and the small business struggling to find its place in the sun.

- **Raytheon has investigated hundreds of SBIR opportunities and is currently engaged in a significant number of Phase 1 and Phase II teaming arrangements. An example of such a relationship is with Materials Sciences Corporation that is working on a high-frequency acoustic window being leveraged by Raytheon resources in Phase II, to ensure that this sonar technology meets platform requirements.**

David Metzger

Selwa Masri

SBIR PROGRAM POLICY DIRECTIVE

Good News for Emerging Technology Companies

David Metzger, Esq, a Partner at Holland & Knight has been actively involved with SBIR legislation since the early 80's. In this article, co-authored with Selwa Masri, an overview of the SBA Policy Directive is provided.

The Small Business Innovation Research Program (SBIR) Policy Directive, issued on September 24, 2002 (the Directive) serves as the government's new playbook for implementing the SBA's SBIR Program. The new Directive implements statutory reforms to the SBIR Program contained in the SBIR Reauthorization Act of 2000, Public Law 106-554, and establishes many helpful clarifications and changes to the SBIR Program.

Whenever a private company develops technology or technical data as a result of contracts with the government, a unique system of government rules apply to determine what rights the government receives in that technology. For contracts with civilian agencies, the rules exist in the "data rights' section of the Federal Acquisition Regulation (FAR) Part 27.4. For those with military agencies, the rules exist in the data rights section of the 1988 Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 227.4 and of the 1995 DFARS Subpart 227.71 and 227.72.

For technology and technical data developed at private expense and which embody trade secrets or are commercial or financial and confidential or privileged, the government is entitled to receive only specified "limited rights". Both the FAR and the DFARS require a contractor to review the government's requirements and to specify any technology or technical data to which limited rights would apply. The FAR further directs the contractor to withhold those items and to furnish form, fit, and function data in its place. The DFARS requires contractors to specifically identify any technology or technical data being provided with restrictions. Every copy of any item furnished to the government with less than unlimited rights must be identified with certain specified legends.

On the other hand, for technology and technical data developed at entirely government expense, the government usually takes "unlimited rights." The government then may use the technology and technical data as it wishes and even sell or give it to the company's fiercest competitor. Any right the developer otherwise would have under commercial intellectual property laws (including patent, copyright and/or trade secret laws) to prevent others from using its proprietary tools or developing a competing product based on those tools is significantly curtailed when the government receives unlimited rights.

The question arises, however: If a small business concern (SBC) participates in a Phase I and Phase II SBIR Program and receives up to $850,000 in seed money to conduct research and development efforts that result in the creation of gangbuster technology, does the government receive unlimited rights in the technology? As discussed below, under both the FAR and DFAR the answer is NO. Further, the Directive contains important rules of conduct for SBIR agencies, which give SBIR awardees significant advantages in both the commercial and government sectors.

Under the Directive, the contracting officers representing the government are prohibited from "exerting pressure or coercion" on SBIR companies to give up their technical data rights in exchange for SBIR awards. For example, Section 8(a)(4) of the Directive expressly states that an agency "must not, in any way, make issuance of an SBIR Phase III award conditional on data rights." These data rights are non-negotiable and contracting officers must use the exact data rights terminology of the law and the Directive in every funding agreement and contract with the SBC.

Additionally, under FAR 52.227-20, applicable to SBIR funding from civilian agencies, and under DFARS 252.227-7018, applicable to SBIR funding from military agencies, the government and its support contractors generally receive a limited license to use technical data or computer software generated and delivered under the SBIR contract for United States government pur-

poses. The technical data and computer software may not be used for commercial purposes. Furthermore, during the license period, the government may not release or disclose technical data to any person other than its support services contractors. This non-disclosure prohibition for government funded technology development is unique to the SBIR Program.

Both the limited license and non-disclosure obligations continue for a period starting with the SBIR contract award and ending five years (in the case of military agencies) or four years (in the case of civilian agencies) after the completion of the project under which the data was generated (Phase I, Phase II and/or Phase III). After the expiration of that time period, the government will have broader rights in the SBIR technical data.

However, because of two new and important requirements under the Directive, the expiration of the government's non-disclosure obligations could be extended for well over the four-or five-year period. First, if follow-on SBIR work (Phase II, Phase III, or follow-on Phase III) is awarded within the four-or five-year disclosure protection period, the non-disclosure period for all earlier awards is extended through the non-disclosure period of the latest award. This roll-over prevents wrangling over what agencies may properly disclose when disclosure periods for earlier awards expire. Second, for all Phase III commercialization awards, agencies are expected to give preference, including sole source awards, to the Phase I or II awardee that developed the technology. The preference/sole source award requirement virtually assures the continued roll-over of the non-disclosure protections in each Phase III award.

"Our firm was pleased to assist DSR in its sale to a subsidiary of General Dynamics. DSR developed crucial services and products for the Navy and other agencies, and in the process, proved the concept and worth of the SBIR Program. A small business can develop critical products and services and deliver them to mission agencies."

David P. Metzger, Holland & Knight LLP

The SBA Policy Directive has many important implications for everyone involved with the SBIR and STTR Programs. Given the far-reaching implications of the Directive, this issue and related topics will continue to be explored in future issues of ***Transitions***. You may also access this Directive on the SBA website, at www.sba.gov/sbir/indexsbir-ttr.html.

DSR ACQUIRED BY GENERAL DYNAMICS

Strategies for developing a business by using SBIR

Richard Carroll

On September 10, 2003, General Dynamics Corporation announced that it had completed its acquisition of privately-owned Digital System Resources, Inc. (DSR) of Fairfax, VA. and incorporated it as a strategic business unit (SBU) of General Dynamics Advanced Information Systems (GDAIS). The Executive Vice President – General Dynamics Information Systems and Technology group, Kenneth C. Dahlberg, found DSR to be extremely capable and well-managed as well as a complementary fit to his organization.

A true SBIR success, John Williams, Deputy, Navy SBIR Program Manager, has identified DSR as one of the leading firms for transitioning SBIR Phase I and II awards into Phase III contracts that have provided technology directly into Navy weapon systems. These technologies have provided the Navy with improved performance at significant cost savings, with the time from R&D to full implementation and operation much shorter than it would have been with traditional prime contractors. One of the largest contract wins for DSR was the $169 million award in 2002 by NAVSEA for development of the Tactical Control System, which represents a portion of the Command Control System (CCS) MK2 baseline program for submarines. DSR is one of the great SBIR success stories and is an excellent example of how a Navy PEO can use the SBIR program to achieve leap ahead improvements in their weapon systems.

DSR, founded in 1984 by Richard Carroll, is definitely an SBIR success! With a multitude of Phase III SBIR awards totaling hundreds of millions of dollars from a variety of agencies over the course of the company's development, Mr. Carroll was able to build a business to catch the attention of major prime contractor, General Dynamics. At the time of the acquisition, DSR, a provider of surveillance and combat systems for submarines and surface ships, had about 450

employees, and anticipated sales of roughly $125 million in 2003. The company had been making rapid growth from sales of $50 million in 1999 to $100 million in 2001.

Primarily focused on computer hardware and software, DSR has solved many difficult problems for the U.S. Navy primarily relating to submarine systems. Another of the many solutions DSR has developed for the Navy is the Multi-Purpose Processor (MPP) developed for signal processing applications aboard a variety of Navy platforms using commercial computer processors. The MPP is a state-of-the-art scalable signal processor with

initial performance ranging from 320 MegaFLOPs per board expandable to over 40 GigaFLOPs per cabinet and is already installed on all Navy submarines. Of significance is that this SBIR investment of $594,000 has provided cost avoidance savings of nearly $100 million in system development and procurement. Additionally, it enables 200 times the computing power at half the cost of the MILSPEC unit MPP replaces.

In the marketplace, DSR became a recognized leader in developing and producing state-of-the art, high-quality systems for passive and active sonar, electronic warfare, combat control, and computer-based training and simulation for these systems. Impressing Navy's Active Executive Director PEO Sub, Richard McNamara, DSR was focused on developing superior, innovative products and delivering these systems on time and within budget. DSR's system development was always begun after a thorough analysis of customer need. They had a keen ability to understand the customer's needs and requirements and were able to work to meet those defined needs unlike many SBIR firms that devise a new product and try to force fit their solution to a problem.

How did DSR achieve so much success through the SBIR program? Mr. Carroll claims that the key to his success was his diligent focus on the Phase III contract and the sponsor. Unless he could map out a path to obtain a Phase III contract and identify the sponsor, he wouldn't submit the Phase I proposal. If the sponsor dropped out along the way, he would get out of the program. In fact, he was such an advocate for knowing the sponsor and establishing a solid, ongoing relationship with the sponsor that Mr. Carroll lobbied for the inclusion of the sponsor's name in the original solicitation to make it easy for the SBIR firm to get to know the sponsor. His established practice was one of relationship building with every sponsor and project from proposal preparation to project completion.

In their business practices, DSR's policy was to have less than 10% of the company's SBIR award money from Phase I and II contracts. This practice was one that was initiated with the first Phase I and II awards the company received enabling a successful transition into a Phase III award. Over time, they were able to shift the funds from SBIR Phase I and II awards to as little as 3% of the total contract funds as they continuously focused on obtaining the larger amounts from the Phase III contracts in all of their programs. An avid initiator of the current process for topic submission, Mr. Carroll worked diligently to ensure that the overall SBIR program provided a pathway for the small business to obtain a Phase III contract.

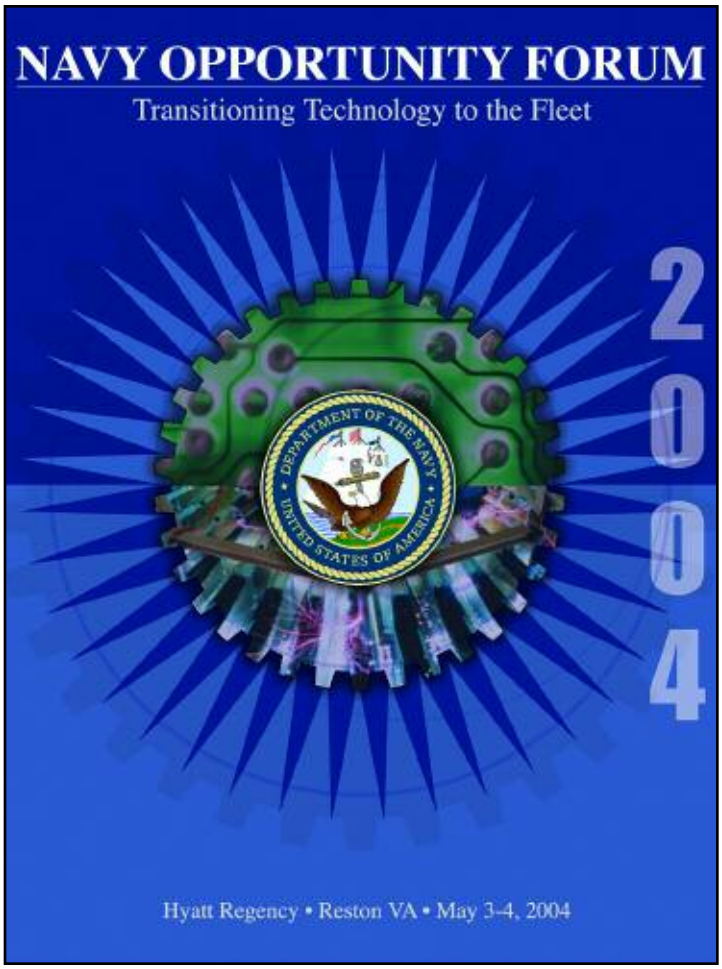
There were other keys to Rich's success with DSR, as well. According to Richard McNamara, Mr. Carroll was able to develop a team approach with the Navy research labs and their prime contractors, capturing the attention of prime contractors involved with the projects and ultimately, General Dynamics. This teaming approach helped the President of General Dynamics Advanced Information Systems, John F. Stewart, to see DSR as a leader in a niche that was important to him – that of electronic warfare and acoustic signal processing technologies for the U.S. Navy. Additionally, Mr. Carroll always encouraged those within the firm to consistently look for better ways to improve and compete for better prices. However, overall success can be attributed to Rich's enthusiasm and passion for his work – a true asset!

PHASE III NAVY CONTRACTS

Twice a year we will report Phase III awards made by Navy commands directly to small businesses. The SBIR firms also receive many Phase III awards directly from DoD Prime contractors and private sector, which will not be reported here.

TOPIC NUMBER	COMPANY NAME	PHASE III SPONSOR	CONTRACT	$ OBLIGATED in FY03
PHASE III SYSCOM MARCOR				
N99-037	ARETE ASSOCIATES	ONR (FNC/EFV)	N00014-03-C-0301	$ 2,676,000
CBD02-203	CYRANO SCIENCES, INC.	MCSC (AAAV)	M67004-03-C-0018	$ 2,999,365
A96-032	OPTICAL AIR DATA SYSTEMS LP	MARCOR	M67004-03-C-0013	$ 12,362,629
N99-200	SARA INC	MCSC (AAAV)	M67854-03-C-1018	$ 599,959
			MARCOR TOTAL	**$ 18,637,953**
PHASE III SYSCOM NAVAIR				
N00-013	APPLIED HYDRO-ACOUSTICS RESEARCH	NAVAIR	N68335-02-D-0022	$ 516,956
N90-074	ATK MISSILE SYSTEMS COMPANY	NAVAIR	N00019-03-C-0353	$ 29,000,000
N99-180	BARRON ASSOCIATES	NAVAIR	N68335-03-D-0097	$ 199,996
N00-099	COMPOSITE OPTICS	NAVAIR	N68335-03-D-0104	$ 4,441,672
AF93-158	CPU TECHNOLOGY, INC	NAVAIR PAX	N00421-01-D-0300	$ 6,676,087
N03-008; N03-009	DIGITAL SYSTEM RESOURCES, INC	NAVAIR	N68335-03-D-0105	$ 163,890
N98-043	ESSEX CORPORATION	NAWCLakehurst	N68335-02-D-0009	$ 3,341,540
N93-250; N96-020	FOSTER-MILLER	NAWCLakehurst	N68335-03-D-0145	$ 4,200,000
N01-010	INDIGO SYSTEMS CORP	NAVAIR	N68335-03-D-0001	$ 750,000
N90-264	ISERA GROUP, LLC	NAWCTSD	N61339-97-D-0006	$ 3,008,087
N92-136	ISOTHERMAL SYSTEMS RESEARCH	NAVAIR	N68335-03-D-0149	$ 29,355
N90-085	LOGIS-TECH, INC.	NAWCLakehurst	N68335-01-D-0096	$ 599,108
N98-149	MATERIALS RESEARCH & DESIGN, INC.	NAWCLakehurst	N68335-02-D-0027	$ 751,071
N92-170	NAVMAR APPLIED SCIENCES CORP	NAWCLakehurst	N68335-00-D-0396	$ 13,004,518
N91-346	OPTICS 1, INC.	NAWCLakehurst	N68335-01-D-0293	$ 3,918,000
N99-053	PHYSICAL SCIENCES	PMS-378	N68335-03-D-0099	$ 699,240
N96-209	POLATOMIC INC	NAWCLakehurst	N68335-01-D-0237	$ 1,569,828
N95-014	RDA INC	NAVAIR PAX	N00421-99-C-1072	$ 2,829,560
N90-074	SCIENCE & APPLIED TECHNOLOGY	NAVAIR PAX	N00019-94-0078 & N00019-02-C-3010	$ 12,246,509
N99-068	TECHNOLOGY SERVICE CORP	NAWCLakehurst	N68335-03-D-0098	$ 429,704
N99-193	TOYON RESEARCH	NAVAIR	N68335-03-D-0147	$ 49,863
N99-054	MSE TECHNOLOGY APPLICATIONS	PMA-251	Expected 4/04	$ 1.5 (Apr '04)
			NAVAIR TOTAL	**$ 88,424,984**
PHASE III SYSCOM NAVSEA				
N99-198	21st CENTURY SYSTEMS, INC.	PEO IWS	N00178-03-C-3130	$ 3,017,700
N98-106	ADVANCED ACOUSTIC CONCEPTS	NUWC	N66604-01-D-4218	$ 3,516,805
N97-090	ADVANCED ACOUSTIC CONCEPTS	NAVSEA	N00024-02-C-6311	$ 15,401,672
N98-114	AEPTEC MICROSYSTEMS, INC.	NSWC DAHLGREN	N00178-00-D-3052	$ 5,285,701
N98-114	AEPTEC MICROSYSTEMS, INC.	NSWC CARDEROCK	N00167-00-D-0097	$ 6,562,185
N98-114	AEPTEC MICROSYSTEMS, INC.	NSWC CRANE	N00164-01-C-0048	$ 3,473,473
N98-114	AEPTEC MICROSYSTEMS, INC.	NAVSEA	N00244-01-D-0036	$ 20,686,319
N96-268	APLLIED ORDNANCE TECHNOLOGY	NAVSEA	N00024-03-C-4020	$ 4,768,396
N99-224	APPLIED HYDRO-ACOUSTICS RESEARCH	NAVSEA	N00024-03-C-6302	$ 3,810,198
N96-071	AVINEON, INC.	NAVSEA	N00024-03-C-4049	$ 699,498
Multiple Topics	CHESAPEAKE SCIENCES CORPORATION	NAVSEA	N00024-98-C-6203; N00024-00-C-6230	$ 5,089,298
N94-203; N99-110	DARLINGTON, INC	SPAWAR	N66001-03-D-7000	$ 2,470,384
N93-027	MALIBU RESEARCH ASSOC. INC.	NSWC DAHLGREN	N00178-02-C-3085	$ 1,087,324
N98-128	PLANNING SYSTEMS INC.	PMS262	N00024-03-R-6227	$ 2,100,000
N00-049	PROGENY SYSTEMS CORPORATION	PMS 4012B	N00024-03-C-6219	$ 5,034,794
N98-122	PROGENY SYSTEMS CORPORATION	PMS425	N00024-03-C-6201	$ 6,384,126
N96-278; N98-115	PROGENY SYSTEMS CORPORATION	PMS450/PMS425	N00024-04-C-6201	$ 1,391,351
N98-077; N98-072	SOLIPSYS CORPORATION	NAVSEA	N00024-02-C-5108	$ 7,880,000
N92-095	TPL, INCORPORATED	NSWC CRANE	N00164-01-C-4701	$ 931,181
N93-101	TRIDENT SYSTEMS, INC.	NSWC DAHLGREN	N00178-00-D-3007	$ 5,685,873
Multiple Topics	DIGITAL SYSTEM RESOURCES, INC	NAVSEA, NAVAIR	NUMEROUS	$ 40,735,591
			NAVSEA TOTAL	**$ 146,011,869**
PHASE III SYSCOM ONR				
N97-067	ADVANCED CERAMICS RESEARCH, IN	ONR	N00014-03-C-0329	$ 2,039,920
N02-T015	ADVANCED CERAMICS RESEARCH, IN	ONR	N00014-03-D-0247	$ 2,821,652
Multiple Topics	DIGITAL SYSTEM RESOURCES, INC	ONR	N00014-01-D-0225	$ 3,598,654
N00-T001	HYPRES, INC	ONR	N00014-03-C-0370	$ 7,979,860
N95-074	OCEAN POWER TECHNOLOGIES INC	ONR	N00014-02-C-0053	$ 1,362,349
N98-136; N00-112	ORINCON DEFENSE	NAVAIR PAX	N00421-02-D-3063	$ 6,999,989
N02-112	POLATOMIC INC	ONR	N00014-03-C-0499	$ 250,000
N99-025	SCENPRO, INC	ONR	N00014-03-C-0257	$ 455,145
OSD98-043	TOUCHSTONE RESEARCH LAB LTD	ONR	N00014-02-C-0392	$ 2,269,602
N01-T001 and N00-113	WEBB RESEARCH CORP	ONR	N00014-03-C-0441	$ 293,987
N00-064; N96-209; N02-198	POLATOMIC INC	ONR	N00014-03-C-0388	$ 950,297
			ONR TOTAL	**$ 29,021,455**
PHASE III SYSCOM SPAWAR				
N94-203	DARLINGTON, INC	SPAWAR	N65236-99-D-5831	$ 6,869,354
N99-167	PROMIA INCORPORATED	SPAWAR	N00039-01-C-3167	$ 4,274,988
N99-172	SCIENTIFIC RESEARCH CORPORATION	SPAWAR	N00039-03-C-0011	$ 497,095
Multiple Topics	VIASAT, INCORPORATED	SPAWAR	N66001-99-D-7000	$ 3,219,500
			SPAWAR TOTAL	**$ 14,860,937**
TOTAL COMMAND DOLLARS OBLIGATED TO PHASE III PROJECTS IN FY03				**$ 296,957,198**

If you have a recent Phase III contract from the Navy that is not on this list, please provide information on the award to John Williams so we can include it in a future publication



CONTENTS

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