

"SPIN -ON" TECHNOLOGY FROM NON-TRADITIONAL SOURCES

Proceedings of the DUAP Workshops

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PREFACE

This document was prepared by the National Center for Advanced Technologies (NCAT) for the Office of the Director, Defense Research and Engineering, under a task titled, "Dual Use Applications Office Support" contained in a grant "Planning of Manufacturing Technology Activities with Industry", and pertains to the objectives of the task to: Continue support for facilitating "Spin-On" work shops, which engage non-traditional DoD industry participants providing private sector recommendations.

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Introduction

During the latter part of the summer of 1997, The National Center for Advanced Technologies (NCAT) sponsored a series of "one-on-one" interviews/conversations between industry and government executives to identify some parameters for discussion into issues revolving around "spinning on" commercial technologies into defense systems. Commercial technologies are being pursued because it is perceived that technological solutions to problems reach the marketplace faster in the private sector than do products in defense. More resources are spent by the private sector for R&D than in defense, and the ability to leverage this source of technology is seen as being potentially beneficial to the defense requirement.

Distilling the "one-on-one" interviews provided an increased clarity into what one could reasonably expect when delving further into the idea of accessing technology from non-traditional commercial sources. The material gained from the summer sessions was used as a basis for further information gathering in a planned series of roundtable workshops.

The first workshop, hosted by NCAT, was attended by senior government and industry managers. This workshop had a "prime-centric" view; that is, the industry component of the workshop team represented large companies generally referred to as "prime contractors". Follow on workshops were planned to include mid size companies, small businesses, process companies and materials suppliers, so that the entire "food chain" could be observed.

The second "Spin-On" workshop was also held at the National Center for Advanced Technologies (NCAT) in March of 1998. The focus for this information-gathering event was on the companies that generally supported another company in the pursuit of a product to market by providing material, manufacturing, or management technology. This workshop, continuing the conversations between industry and government executives to

identify issues revolving around "spinning on" commercial technologies into defense systems, was considered the "tiered view".

This report combines the workshops. We now have a "prime-centric" and a "tier" view. The general idea was to achieve the best perspective by examining as much of the manufacturing "food chain" that could be observed. These proceedings are not meant to be a word-for-word account of the deliberations, but attempt to capture the "essence" of the workshop. Illustrations provided throughout the text were created during the workshop. The situational catalogue and "issues matrices" are exact reflections of the workshop.

"Prime Centric" View

The beginning premise of the first workshop was: government defense agencies may not have current information as to the status and location of leading edge technologies in the private sector -- technologies that are principally developed and marketed for purely commercial reasons. A follow-on premise to this was: these commercial technologies could benefit defense systems in terms of affordability. Driven by the need to maintain the leading edge of technology, (i.e. to equip US warfighters with the best, but most affordable, solutions to countering a threat) the preliminary vision of the workshop was stated as:

"There is a need to have full visibility of and access to commercial technology insertion prospects. The defense industry and its government customer require the ability to evaluate the utility of such technology and, act on prospects that might enhance affordability".

The premises were then distilled to a set of "strawman" issues to generate ideas for discussion during the workshop. These took the form of "hypothesized barriers" that could impede the process of incorporating commercial technology into defense systems. The barriers were based on the notion that non-traditional suppliers, that is, suppliers that did not normally operate as providers to defense "prime" contractors, had no incentive to market their product to the military. Additionally, it was thought that non-traditional technology providers saw the DoD, with its web of directives, regulations, acronyms and chilling oversight, as a hostile environment and a poor customer with which to do business. Compared to the private sector, defense system needs (in terms of large volume purchases for product) were far less than commercial product needs. It was also assumed from the early discussions that a non-traditional company had great difficulty in identifying the appropriate channels in which to conduct business. On the other hand, traditional defense "prime" companies had no incentive to seek out new channels of supply, or new

companies to provide resources for integration. Many of the defense companies have long-term established relationships with suppliers. Recent mergers, vertical integration and strategic partnering of the aerospace defense sector have solidified these relationships. Legacies of building core competencies in cost based pricing had further reinforced the barriers. Prior to entering the discussions, it was thought that the scope of the non-traditional supplier base was poorly understood, if known at all. Adding to this preliminary set of barriers was the burdensome technical screening process used by the DoD to review technical issues.

Distillation of these ideas led to the notion that any activity that would bring these barriers down or ease the connectivity of private sector technology to the DoD system, would have to be part of an "outreach" program. This outreach program would enable DoD needs to be made better known to industry, particularly to the non-traditional private sector. It was initially thought that there would have to be a change in behavior on the part of DoD. At minimum, it was thought that the technical dialogue and exchange of information would have to be encouraged between the defense industry and non-traditional sources. It was also thought that perhaps the prime contractor would have to be the principal "visibility improver". However, if the problem existed today because of current mechanisms in place, then perhaps some other form of facilitator, a government "technology scout" or external "technical bounty hunter" might be the formula for success. It was thought that the government "technology scout" might require some sort of government technology transfer infrastructure such as the existing Military Critical Technologies List (MCTL) or perhaps an entirely new infrastructure would have to be created.

With these notional ideas in hand, a "read ahead" packet was distributed to the workshop participants. (Appendix 1) The workshop attendees were identified (Appendix 2) and the workshop was held on October 7th 1997 in Washington D.C.

The workshop's objectives were simply stated as:

- Attempt to reach a shared vision of the issues.
- Attempt to reach as complete an understanding of the hindrances that exist today.

Once these objectives were accomplished, the next step of the workshop would be to identify and perhaps prioritize some concepts for improving visibility and access into the notion of using commercial technologies in weapons systems. If this could be readily done, then some pilot programs to demonstrate these concepts could be advanced.

Contractual Relationships

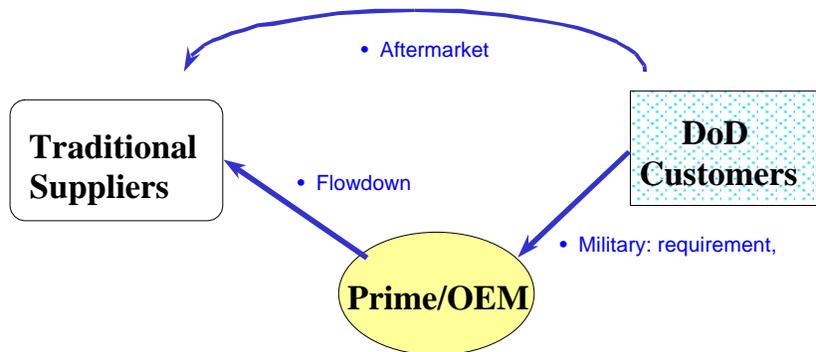


Figure 1. Prime Contractor Relationships with Customer and Suppliers

We have characterized these proceedings as a "prime-centric" view. Although there were non-traditional suppliers involved in these discussions, all were from large "prime" type companies. The second workshop included mid-size suppliers and small businesses to round out the information gathering. In the "prime-centric" view of the issue, contractual relationships of the business entities were presented in diagrammatic form in an attempt to explain and analyze the interfaces. The simplest form of the relationship (figure 1) was that of the prime contractor's relationship with the customer and the supplier, where the

requirements were flowed down along this food chain in both the principle acquisition and the "after market". The "after market", of course, would be open to other companies than the OEM as is the case in the "breakout' program.

The second relationship could be explained as an amplification of the previous relationship. This representation added the universes of non-traditional suppliers and customers (other than the DoD) with the OEM acting as the prime interface, but where the military requirement and a cost based contractual relationship was contrasted by the commercial business model "best value for an offered price". See figure 2.

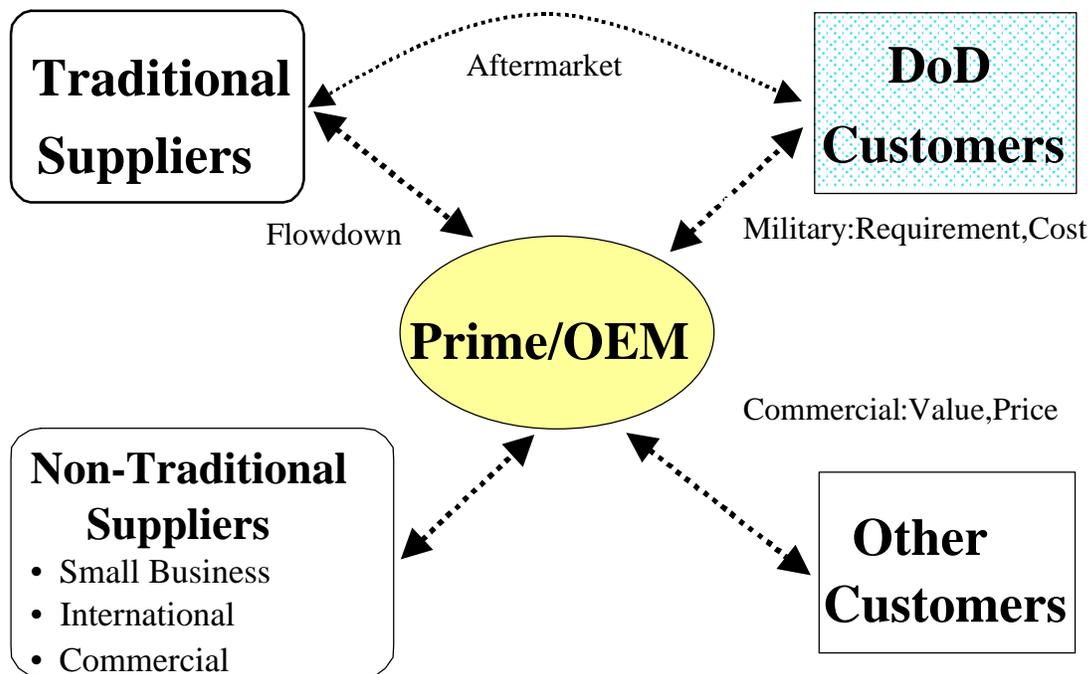


Figure 2. Contractual Relationships including the "Non-Traditional"

Ideally the technical dialogue-taking place between the five entities of the universe would allow for an exchange of information and therefore sufficient knowledge into the availability of current technologies. But since this was one of the unknowns going into the workshop, workshop discussion would clarify the issue. More specifically, in the opening presentation of the "prime centric" explanation of the perceived situation, the question of "how better to facilitate the visibility and access between the prime/OEM, the DoD customer and the non-traditional supplier" was posed (See figure 3). It was assumed that

the present level of access and visibility into non-traditional supplier technologies was less than that which could be achieved.

The general discussion that ensued after the notional ideas had been presented revolved around several of the ideas postulated. The dialogue was lively and the participants not taciturn.

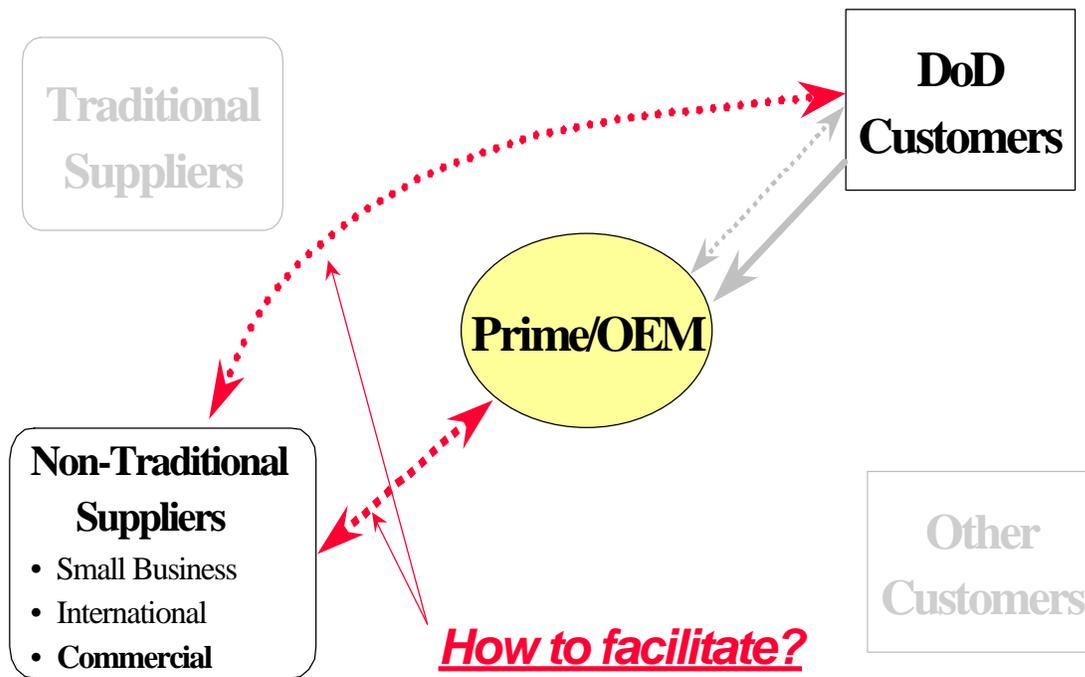


Figure 3 Improving Visibility and Access

Prime Centric View Dispute

With regard to the knowledge of technologies available, many of the roundtable participants agreed that there might have been a less clear view of technologies available to defense acquisition several years ago. Workshop discussion highlighted that prior to acquisition reform and the implosion of the aerospace industry, companies were more involved in their own specific program technologies. Furthermore, a “prime” is not

considered today what a prime was considered before acquisition reform. The aerospace consolidation has caused concentration and condensation of technical dialogue to a degree sufficient for the OEM's to understand what technologies are available throughout a greater universe than ever before. In addition, these OEM's have greater knowledge of the technology utility to the systems where they are applicable. It was brought out in discussion that the larger problem lies in the rapid turnover of technology (less than 18 months generally recognized) and the inability to identify, characterize, evaluate, certify and insert in a manner timely enough to make sense and achieve cost breaks. This technology insertion problem is compounded by the fact that the DoD generally represents less than one percent of customer requirements of the private sector. So, in most cases, the driver of commercial technology is the consumer. With regard to technology for defense, the consumer's needs may not parallel the requirements of defense. In most instances there is no parallel. Where there is a parallel, the incorporation of technology runs headlong into a number of barriers, by no means the least of which is intellectual property rights.

Traditionally the government sought and received rights to data, re-procurements, cost data, and insight into the very material structure of the systems that the primes and their suppliers created. While the technology far outpaced the rest of the world (it is still indisputable that US weapon systems have enjoyed a considerable margin of technical superiority over other nations' weapons systems) the technology could be shared throughout the defense sector. Leading edge technologies were known to everyone, especially the prime's competitor. Competitive advantage in defense procurement on the part of defense companies participating in the past two generations was not based on affordable technology. Prime contractors became competitive by nurturing their respective core competencies that involved precise articulation of company capabilities in responding to requests for proposals, by reflecting customers desires in specific management systems, and by creating large, mirror-image company infrastructures to deal with defense program management and oversight organizations.

Willingness and attractiveness to pursue non-traditional sources of technology was generally not stifled by a reluctant prime. More-than-likely it was the reluctance of the

non-traditional source to participate because of the invasive process required to do business with the defense system. If any non-traditional sources are to be attracted, it is believed that there would be a need to further relax the stringent requirements of contracting with the government. The current reforms in the acquisition process have started breaking down these barriers. Certainly the ability to use innovative contracting vehicles such as those used by DARPA, the "Other Transactions Authority" (OTA) demonstrated the potential of using non-traditional source technologies without bumping into the intellectual proprietary rights issue.

Intellectual Property Rights

One of the most vociferous arguments regarding barriers to capturing non-traditional technology for defense use was that of intellectual property rights. Immediately picked up as "a barrier-not-on-the-list" was how the department historically views its right to have full access and information to data which most companies feel are proprietary. It was unanimous among the industry participants that whatever size or level company, prime or small, the better way to encourage access to technology was to limit the government's right to data and intellectual property. Many companies feel this intrusion is a major barrier, particularly small companies who feel that their company's competitive advantage is their technology. Companies agree they put their competitive advantage in jeopardy by doing business with the government directly or as a subcontractor or supplier to a prime company providing product or service to the DoD, because of the government's insistence in knowing all the technical data involved.

Technology "Scouts" & "Bounty Hunters"

If the notion of intellectual property rights was identified as a major barrier with the industry participants, the idea of a third party technology bounty hunter or technology scout was posed as an even greater barrier. Who would be responsible if a third party were now involved with trading what could be the discriminating competitive technology? Who would be accountable for allowing critical competitive technology from slipping into the hands of a competitor? How could one be assured that any one company's technology

would make it to a defense system any quicker than another company's if a third party were involved? What would be the limits of liability and responsibility of a government technology scout? What assurances are there that the "scout" would be better informed than the company he is scouting? The argument was made that small business innovative technologies are not accessed as best as they could be. But who would be best suited in the responsible position of accessing companies' technologies, the government or the prime? If the prime couldn't perform that function well, why would anyone assume that an entity not in the normal communication network would be able to? Recognizing that a vertically integrated company might not be as willing to share technology or to seek outside technology, the industry team members pointed out that this situation would always be secondary to delivering the best system to the customer. Providing your customer with the best possible product, technology from whatever the source included, was paramount to success.

Flowdown Requirements

Flowdown requirements imposed by the government on the prime, and thence prime to the sub-tiers, had more effect on stifling technology flow between prime and supplier than any company self-interest motives. Some good subcontract and company paradigms with regard to contract and subcontract administration and supplier/vendor mentoring will have to change to take into account the new acquisition environment we are striving to achieve. And the degree of trust between government and industry has to continue to move closer if the solutions to affordability we seek are to come to fruition.

Testing

Testing was brought up in the conversation as another barrier that if removed had potential for improving technology flow to defense systems. The testing concept was discussed as having two separate functions: Qualification testing and Operational testing. The difference in the two for the purposes of this discussion was analogous to certification for requirements compliance (Qual Test), and "test driving" a product (Ops Test). The current mode of operations in defense systems requires extensive qualification testing for

every system. If a system is changed or modified, re-qualification is necessary. If the timing of these two steps is out of sync with the program's acquisition timetable, the latest development in technologies may be avoided. It was also offered, somewhat tongue-in-cheek, that this barrier grew larger if "Type A" personalities were involved in the decision process. As flip as that remark may have been taken, there is a certain amount of recognition to the new "partnering" attitude that will have to be accommodated if new ground is to be broken to achieve affordability. The notion of collaborative testing or consolidating test requirements between the two communities to take advantage of similar test facilities and closely related testing activities of the other test community.

As the discussions progressed it became apparent that the barriers being discussed were repetitive and relevant to several issues. In an attempt to capture these thoughts and suggestions, a situational catalogue of four general areas was made from the perspective of both industry and government (with all participants opining). A "Red", "Yellow", or "Green" subjective assessment was given to each category to indicate the participants' view as to whether there were problems from either viewpoint that required further discussions or solutions. Red indicates an inadequacy, yellow indicates a marginal issue, and green indicates that there is no perceived problem.

The categories were further broken down as deemed necessary to more adequately describe the issues. After the original "Issues Matrix" was completed, the exercise evolved into determining both the barriers that inhibited technology transfer and potential enablers that could possibly alleviate the situation. The issues matrix is depicted in fig. 4.

	Industry (Prime)	Government (DoD)
KNOWLEDGE •Not only Int Prop Rights •Some Techs not avail •Tech Exploitation	G	G
EVALUATE •Qual •Need •Tech Cycle Time	Testing R	Testing R
	Test Drive Y	Test Drive Y
SUSTAINMENT •Architecture •Long Term Approach	Y	R
PROCUREMENT •Timing •Competition •Resources		

Figure 4. The "Issues Matrix"

The four categories included:

1. **Knowledge**, alluding to the question of, " Is there sufficient knowledge of commercial technologies to allow migration into defense weapons systems?"

Referring to the matrix, and with the perspective of each group represented (industry and government) it was determined that there were no inadequate issues (excepting intellectual property rights, recognizing some technologies would never be available to defense, and excepting technology exploitation that could be effected if knowledge existed). This area was rated "Green" by all indicating that there was sufficient knowledge on the part of government organizations and industry that would preclude the necessity of third party brokers bounty hunters or facilitators and the infrastructure that would service them.

2. **Evaluate**, which addressed the question of: "Were testing requirements overly burdensome, causing a chilling effect on commercial technology migration? Referring again to the matrix, both types of testing that were explained earlier were addressed. Qual-testing was determined to be a major inadequacy in terms of allowing the quick migration of commercial technology to defense systems. Operational Testing, on the

other hand, was determined to have made some progress in allowing technology migration from the commercial sector, thus it was coded "yellow" to indicate there were still some opportunities to improve.

3. **Sustainment**, which took the form of questioning the present architecture and long term aspects of providing technology for the legacy systems, "Does the current activity in sustainment allow for the identification and insertion of commercial technologies in current operational systems?"

The industry perspective with regard to the ability to identify and use any technology for the upgrade modification and overhaul of current systems can be improved upon, hence a "yellow". From the government perspective resource impediments (different programs - colors of money) present a hindrance, purchasing of technology from international sources is difficult and there are a multitude of Diminishing Manufacturing Sources issues and "last time buys" that inhibit the introduction of commercial technologies.

4. **Procurement**, which addressed a series of questions or sub categories revolving around the current acquisition reform successes, " Does the current acquisition system, with acquisition reforms in place, make the transition of commercial technology to defense any easier than in the past?"

Initially, three subcategories made the list, then as the conversation grew it was noted that there were a number of issues in the procurement category. Both viewpoints continued to add sub-elements until there were nine separate items. (See figure 5)

	Industry (Prime)	Government (DoD)
PROCUREMENT		
• CAS	—	Y
• COST/PRICE	—	Y
• TIMING	Y	R
• RESOURCES	G	R
• INT'L PROP	Y	R
• SBA	—	Y
• FLOWDOWN	R	R (Y)
• CERT	—	R (Y)
• CICA	—	R

Figure 5 Sub-element "Issues Matrix"

The "solid line" shown for the industry viewpoint recognizes that the organization effecting any change to **Cost Accounting Standards (CAS)** and the determination of **Cost vs. Price** resided solely in the domain of the government's authority and ability to change. The government perspective rated "yellow" indicates that while some changes to the CAS have been made and some changes in the "cost plus" mentality have occurred, there still was room for change. Timing from the industry perspective is "yellow" because there are still some improvements possible that will allow a faster realization and incorporation of technologies on the part of the companies that are integrating the components and software of the systems. However, from the government viewpoint, the timing issue is rated "red" in recognition of the excessive amount of time it takes for the procurement process to wend its way. In spite of the many acquisition reforms instituted, the normal process still requires months of proposal activity, review and evaluation, source selection, etc. in a ponderous system that allows technology (whose half life is shorter than buttermilk) to be passed because of being out-of-phase with procurement phasing. Company **Resources** can be applied to technology capture far quicker than

government resources that require appropriation, authorization, execution, and reprogramming, if technology changes within the cycle, on a year-to-year basis.

Intellectual Property Rights and rights in data, explained earlier received "yellow-red" to indicate that there are still problems to be addressed with respect to company involvement, but many more issues to be addressed with regard to government solutions to the lowering of existing barriers. **Flowdown** was rated "red" in both perspectives acknowledging the burdensome contractual requirements imposed on prime contractors by the government and also the burdensome process handed to the second tier structure by the prime notwithstanding any accommodations made by the government through acquisition reform. Prime contractors still burden their supplier/vendors with unnecessary requirements. **Small Business Activities (SBA), Certifications, and the Competition in Contracting Act (CICA)** effect the migration of technology substantially but can only be remedied by the government.

Barriers and Enablers

Each of the categories with a "red" or "yellow" indicator was then further discussed to identify the barriers that caused a "Y" or "R" assessment. Where a barrier was identified, at least one "enabler" was solicited for to indicate possible remedy. These Barriers and Enablers are shown in figures 6 through 8 for the three issues: Evaluate, Procurement, and Sustainment. (Since "**Knowledge**" was determined "Green" no further discussion into improving knowledge conditions was taken on.) The barriers identified in the three other categories represent the perceived areas that require attention. While "enablers" have been assigned to each of the barriers, this is an interim action. It was anticipated that there would be another workshop round, which will address similar issues from the perspective of subcontractors, vendors and material suppliers. It is critical that we reach as complete an understanding of the barriers as possible throughout the entire vertical enterprise. The follow on workshop included representatives from mid-level and small businesses. The enablers associated with overcoming these barriers also required examination in terms of the "food chain" during the next workshop round. The potential for pilot programs to address the entire condition will be discussed subsequent to the information gathering

along the food chain. Additional effort will be conducted to match these potential solution ideas to current activities or initiatives designed to increase commercial technology insertion into defense systems.

	BARRIER	ENABLER
EVALUATE (Test)	<ul style="list-style-type: none"> • QUAL TESTING ----- • RIGID STATUTORY RESTRICTIONS/POLICIES ----- • IRON MAJOR Syndrome ----- 	<ul style="list-style-type: none"> • VENDOR/SUPPLIER Need Based Test ----- • MOD & SIM Share Test Data • Convincing S.E. Capability ----- • Culture Change Educ/Tng Program • CAIV to DEV -----
EVALUATE (Test Drive)	<ul style="list-style-type: none"> • Reluctance to Accept UNSOLICITED PROPOSAL 	<ul style="list-style-type: none"> • FUNDING FLEX • CHG REPROG RULES • MARKETING TO HILL • EVOL DEF ACQ • RAP (Process Expand) • SHIFT TO VALUE BASE ACQ • MOTIVATE ACQ COMM • PRUDENT RISK MGT • TECH ROADMAP

Figure 6. Evaluation "Barriers/Enablers"

	BARRIER	ENABLER
PROCUREMENT	<ul style="list-style-type: none"> • ACQ REFORM 	<ul style="list-style-type: none"> • TRAINING & EDUC • COM'L BASED DEALS • SPI • PILOT PROG (Transition Issues - Scale Up?)
	<ul style="list-style-type: none"> • INTELCT PROP RIGHTS SOURCING ISSUES { 	<ul style="list-style-type: none"> • ANTI BREAKOUT • DEFINE F3I/CONFIG MGT • TRANSFER/LICENSING • TIME DELAY INTL PROP • TOT LCC SUPPTD BY OEM • BETTER DETERMINATION OF VALUE • MOVE TO "PRICE"
	<ul style="list-style-type: none"> • GOV'T FORCED 	<ul style="list-style-type: none"> • PBBE • SPI • CLEARER ANNUC OF COM'1 • ITEMS IN GOV KIT

	BARRIER	ENABLER
Procurement (cont.)	<p>Small Business</p> <ul style="list-style-type: none"> • TERMS OF REF • LEVELS OF REQMTS • GOV'T "DATA BASE" REQMTS • SBA PAPER TOO DIFFICULT 	<ul style="list-style-type: none"> • RELAX REQMTS • RELAX AWARDS • DIFF ACC'T METHODS • STD EXEMPT FOR PURE COMM'L COMPANY • SBIR MODEL ? • MORE DIRECT SUPORT THAN PROGRAMMATIC DATA • MENTOR/PROTÉGÉ? <p>"A BUSINESS DECISION"</p>

Figure 7. Procurement "Barriers/Enablers"

	BARRIER	ENABLER
SUSTAINMENT	<ul style="list-style-type: none"> • CAN'T BUY INT'L • EXPORT LIC • OUT-OF-BUSINESS "LAST TIME BUY" <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> • SUSTAINMENT "PROCUREMENT ISSUE" 	<ul style="list-style-type: none"> • RELAX RULES ? • RELAX REQMTS • EXAMINE CARRYING COSTS <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> • JOINT MANAGED PROG • TOTAL LIFE FOR SYSTEM "A BUSINESS DECISION"

Figure 8. Sustainment Barriers/Enablers

"Tiered View"

Continuing the effort to identify and incorporate technologies that are rapidly developed and marketed in the commercial marketplace, the second workshop focused on the suppliers and material providers and on the unique problems they encounter when trying to get their products into DoD systems. This workshop also focussed attention on the ideas brought to the table by companies that normally did not participate in defense weapon systems acquisition or had the majority of their product developed and sold in the commercial market place. The workshop's objectives were similar to the preceding workshop:

- Attempt to reach a shared vision of the issues

- Attempt to reach an understanding of the barriers that exist today.

No attempt was made during the workshop to "validate" the proceedings and comments of the proceedings of the previous workshop. In looking at the issue from the "opposite" view (non-traditional and 2nd Tier) the group was asked to identify any additional impediments (if there were any) and to further focus on "how to remedy" any barriers that were identified. In fact, the second workshop participants, by having the advantage of reading the proceedings from the first workshop as preparatory information ("read-ahead material") questioned the notion of either government or industry having the ability to understand and have knowledge of the total picture of technology throughout the commercial and defense sectors. Therefore "Knowledge" which was determined to be "Green" and not discussed at length in the first (Prime-Centric) workshop, was discussed in a somewhat different light during the "Tiered View" workshop. The conversation held that "everyone did not and could not know the amount of and level of technology available in the commercial sector". However, more knowledge could be gained if the requirements for various technologies, the "needs", were articulated by those in charge of defense programs as they typically were in commercial projects. If these requirements were couched in terms of "cost drivers" (especially in the operations and support of legacy systems) a more precise focus on technological solutions might result. Program Managers typically do not share their technology needs with industry except for the prime level

companies in the DoD traditional acquisition process. Nor have they highlighted their cost drivers with regard to operations and support. There is also no conduit for any company, aside from the prime level defense company, to make generally known the technologies available to defense weapons systems any earlier than a competitive action. In spite of these facts, this group echoed the previous workshop by disclaiming any need for government guiding hand "bounty hunters" or "technology wardens". "Another government agency created to assist technology migration is not the answer," was generally the feeling of the group. The answer probably lies in modifying or doing away with barriers put in place by the existing structure which includes participants from the private sector -- companies that have participated in government acquisition for many years, have a core competency in government acquisition, and are comfortable with the existing process.

"Knowledge" as a discussion criterion was converted into "Requirements Articulation" as a category for discussion. (See Figure 9)

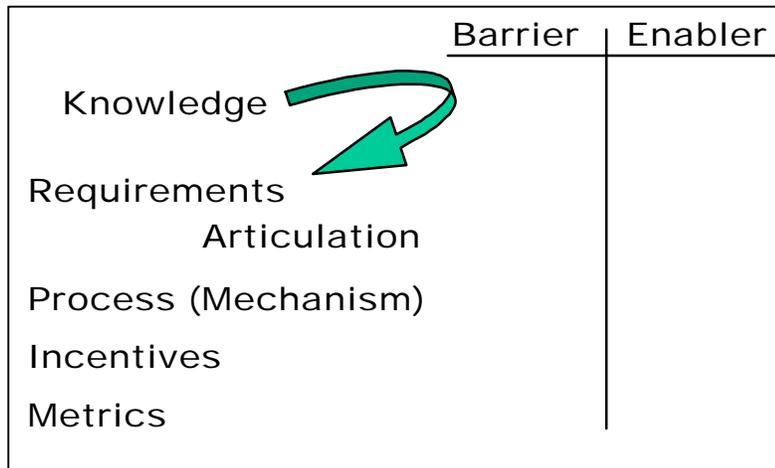


Figure 9. "Second Tier View" Workshop Discussion Criteria Areas

The workshop discussion period then revolved around the four areas shown in figure one:

- (1) Requirements Articulation -- how the technology needs are broadcast;
- (2) The Process (or Mechanism) -- by which the technology can be brought in to the government program;

- (3) Incentives -- for conducting business with these ends in mind, and
- (4) An attempt at defining measurements (Metrics) of whether or not this general concept of utilizing commercial technologies in defense systems is beneficial.

To stimulate ideas and start the conversation headed in the direction of commercial technology use in defense, Mr. Rich Mirsky of the Joint Dual Use Program Office presented a briefing regarding "Spin On". (A Copy of the briefing is provided at Appendix 3) Imbedded in this briefing was an explanation of the Commercial O&S Savings Initiative (COSSI), the DoD program that addresses "spin on" for legacy systems, but with the primary objective to reduce O&S costs. While not specifically aimed at improving the process by which commercial technology can be brought into weapon systems programs, the process COSSI does use to integrate commercial technologies is unusual and different from the traditional defense acquisition process. COSSI imbeds commercial technology in an interface "wrapping" that makes it compatible with the system it will support. Through a "cost shared" project using the "Other Transactions Authority" (Sect 845/804), industry inputs are sifted for selection, then prototyped, tested and qualified as part of a "first phase" of this two-phase initiative. The second phase covers the procurement by the military customer of "kits" produced by the contractor using the commercial technology and the interface wrapping developed in phase one. In this part of the process, a traditional DFAR contracting approach is followed, usually on a "sole-source" basis for the procurement of the kits. The attraction to the private sector is the formula of cost shared development followed by a stable follow-on sales program. It was thought that perhaps some or all of the mechanisms of the COSSI could be applicable to generally spin on commercial technologies.

Requirements Articulation

Although reported differently in the "Prime Centric" workshop, there was general agreement among the participants of workshop two that there was not necessarily an overall "general knowledge" of the technologies available to the market and therefore to the defense weapon system program office. Further defining "knowledge areas", this group differentiated between "Existing Programs" and "Future Systems". There was,

however, a common thread between the two. In both cases it was determined that the responsible program manager needed to make the needs of the program (both legacy and future) known to all program participants. Extrapolating from the COSSI program (a model of incorporating commercial technologies for operations & support) articulating technology requirements of an existing program (not in upgrade or overhaul) would necessitate including those existing programs that were "new-on-the-books" like F-22, New Attack Sub, Comanche. Other future systems needs should also be articulated, to round out the total picture of technologies needed to maintain our warfighting "decisive edge". There were barriers to this knowledge exchange however. These barriers manifest themselves as insufficient information of what's needed; not all program managers and not all industry counterparts know where the technologies are and more importantly what specific technologies are needed to solve particular defense weapon systems problems. Two factors were identified as being largely responsible for this occurrence. There is reluctance by the defense institution to share sufficient information on requirements and needs to the US defense industry early enough in mission conceptualization to have a complete understanding of technology needs. There is also a general reluctance on the part of prime contractor companies to engage in technology relationships with companies other than their strategic partners or those with whom they had long term program relationships.

Barrier	Enabler
Requirements Articulation Existing Programs <ul style="list-style-type: none"> • Insufficient Information of What's Needed • DoD Reluctance to Share Info • Prime Reluctance Future Systems <ul style="list-style-type: none"> • Timing 	<ul style="list-style-type: none"> • PM Articulate "Top Ten" Cost Drivers • Organize Information by: <ul style="list-style-type: none"> Program Hardware Technology • Simulation • Catalogue Current Capability • Roadmap Evolving Technology • Open Systems • Simulation

Figure 10. Barriers & Enablers to Achieving Articulation of Knowledge

Defense Department reluctance is generally manifested by cloaking requirements in "classification". Prime contractor reluctance shows up as "competition sensitive" or "proprietary", and sometimes is perceived as arrogance by companies that are not within the strategic partnership or close community. There might be occasions where prime contractors have an interest in maintaining those barriers to limit their competition. As to the barriers to technology needs of future systems, timing may also provide a significant hindrance. Technological breakthroughs may just not be able to be predicted to allow an easy transition.

Similar to the first workshop, the ground rules of the "tiered view" workshop required that if a barrier were brought up, a suggestion of a potential remedy would have to be considered. These possible enablers, methods that could take away, or ease the barriers were among the survivors that were suggested. Viewed in the illustrations, the barriers and enablers do not necessarily "track" one-for-one, but generally follow a logical pattern of problem-recommendation.

Several "Enablers" were suggested to assuage the hindrances. In both workshops, and in more than one of the one-on-one interviews, prime contractors were identified as having key roles as enablers or inhibitors. As noted earlier, there were anecdotal instances brought out in both sessions that alluded to prime contractors having a "technological arrogance" that could inhibit sub-tier companies from offering new technological solutions. If not technological arrogance, competition and the need to prevent competitors from obtaining and understanding discriminating technological competitive advantages might go a long way in explaining the impeded flow of state-of-the-art technical information. To enhance the knowledge of program's needs, each major weapon system program manager should be required to explain what were the top ten cost drivers impacting their program. In attacking these top ten cost drivers, possible technology solutions (and the coincident technology) might emerge. Understanding of the needs could be further clarified if the disseminated information were organized by program, hardware and technology. Simulation could also play a greater role in advancing

technological solutions because of the rapid running of trial cases and the "what if" fluidity that it provides. Future simulation activities will need to incorporate more physics parameters than modeling & simulation routines typically provide today. With regard to future systems, the participants thought that timing was again a key issue in knowing what was available to be incorporated into a future weapon system. A new program "waiting" for technology development could prove to be very expensive. On the other hand, a system whose technology is not "state-of-the-art" would probably not be successful on the battlefield. The "enablers" offered to offset the articulation barriers for future systems took the shape of a catalogue of current capabilities, and a "roadmap of evolving technologies". Simulation again was thought to be advantageous in solving future systems problems, and an "Open System" approach would certainly facilitate the interface issue.

Process (The Mechanism)

The second topic area addressed was the methodology of gathering commercial technology to be incorporated in defense systems. This group also recognized that it was generally difficult to do business with the government. Rules and regulations more stringent than the commercial marketplace were definite barriers to spinning on technology. There are, however, models of successful programs that could be emulated or modified and piloted for inspection and potential future institutionalization. The "Other Transactions Authority" (OTA) is one of these processes. The Defense Advanced Research Projects Agency (DARPA) has successfully used this congressional authority to circumvent much of the traditional Defense Federal Acquisition Regulation (DFAR) process in the pursuit of their high tech projects. Not only is the cycle time situation addressed in the OTA method but the notorious, voluminous, paper mill requirement is also bypassed -- beneficially, in the critique of most of the companies that have participated in these types of projects. OTA authority has recently been granted to the DoD, and could be a potential "Enabler" to "Spin-On" (and other acquisition reform activities as well) but the process does not appear to be well understood by the contracting community yet. With the lack of understanding is the attendant reluctance to "try something new" or take any risk that could result in potentially career-impacting errors.

Additionally, DOD's authority to use this streamlined program execution approach is limited to "prototypes" only. Although there have been some imaginative definitions used to define "prototype" this restriction still limits the use of this mechanism.

	Barrier	Enabler
Process (The Mechanism)		
• Other Transaction Auth	Not Understood by ACO's Only "Prototypes"	• Market the OTA, facilitate use • Relieve ACO Pressure • Team w/ Company previously "through the hoops"
• Elec Commerce	Incompatible Systems	
• ECRC	May not have "sense of mission"	• COE's Interface ECRC's
• COSSI	Still needs "Cost Drivers"	• Imbed "Cost Driver" Req in COSSI Program Solicitation
• Marketing by Commercial Supplier	Agony of Gov't Contracting	• Company Paradigm Changes/ ACO Pressure Relief
• Qualification	Characterization/ Compatibility	• Company Qual & Warrant • Commercial Standards

Figure 11. Barriers and Enablers Associated with the Process (The Mechanism)

Several enabling suggestions were discussed with regard to the OTA. Generally it was thought that an increased program of awareness and training in the use of the OTA would eventually wear away the reluctance to use it. It was also suggested that a concerted effort to "market" or encourage its use by defense leadership would have beneficial results in encouraging its increased use. All agreed that additional progress in using the OTA would result from making it a more non-threatening method, that is, providing the environment to allow some margin for error in the contracting community that has been using DFAR processes for two generations. Companies would also have to change, and the allowance for risk taking would need to be increased within the industry contracting community (which has also built up a core competency of contracting within the FAR). Perhaps a "mentoring" approach for new technology might assist in increasing the comfort level in using OTA. As an example, teaming with a company that has used OTA's in a prior government project might be an easy way of "learning the ropes".

Not all suggestions of the workshop fell on fertile ground. To illustrate, the use of electronic commerce was brought up as a potential methodology for facilitating the spin-on of technology. More in-depth discussion determined that today's electronic commerce (perhaps with the exception of billing and invoicing) had too many incompatibilities to allow it to be used as a conduit for technology spin-on. It was also offered that the DoD Centers of Excellence might be a potential interface to electronic commerce through the Electronic Commerce Research Centers (ECRC's). Further discussion pointed out that the ECRC's may not share the same "sense of mission" in spinning on technologies throughout the entire spectrum of requirements. The Manufacturing Centers of Excellence (COE) was included in the discussion. Although the COEs might focus on specific technology areas and could potentially be of use in this area, there is no coordinating interface between the centers.

If the COSSI process were used as a model for spin on, the apparent success it brings to the operations and support community could be the enabler for both existing programs and future systems. However, COSSI needs to be more stable in the pursuit of its own program, and COSSI would be improved if the cost drivers were identified and focused upon. The suggestion to imbed cost driver analysis not only was applicable to the "Spin-On" concept, but was suggested as a major improvement to the COSSI program itself.

One of the major barriers to bringing on commercial technologies into defense products is the rigorous qualification process that is part of the defense acquisition process. New commercial technology insertion into new defense programs would appear on the surface to be easier to achieve because insertion into the qualification process itself would occur when the timing was right. Insertion of technologies from the commercial arena after design and production decisions (e.g. overhaul and repair, upgrade spares etc.) poses other problems. Better characterization of commercial parts still needs to be done to insure compatibility of commercial piece parts with current legacy systems architecture. There have been instances of new commercial parts, characterized as having the same parameters and specifications as the part they replaced, unable to function with the system in which they were inserted or which rendered the entire system inoperable. This is a

recognized major barrier that requires separate and in-depth study. The workshop participants suggested that individual company qualification methods, along with strong, well-crafted warranties, would be preferred over a government office oversight of qualification. Incorporation of commercial standards and specifications appear to be a viable enabler but would have to be researched, and tracked for long term robustness in defense use.

The transition from government specifications to commercial standards is not yet complete. Consistent application of qualification parameters must occur before defense systems can completely rely on commercial technology insertion. For example, it was pointed out in the workshop that there does not appear to be consistent application of commercial standards (ISO 9000 in this case) by the DoD. This situation could cause non-traditional suppliers additional problems in doing business with the government and with their primes.

Incentives

The discussion regarding incentives to attract more commercial technologies for defense consideration revolved around the topics listed in Figure 13. Return on Investment (ROI) was the first topic discussed. ROI, to a company participating in government programs, generally means no more than 13% profit. Many commercial companies do not even entertain entering into a market when the preliminary business case reflects these low profit margins. Internal "hurdle rates" (minimum estimated rates of return required by company management to continue pursuing a sale) can range as high as 20 to 25% with actual profit margins reaching considerably higher. In order to be competitive for the commercial company's attention, profit levels will have to be allowed to seek the level of the market place. The subject of unconstrained profit is a major break from traditional government acquisition and will require substantial change in the culture of defense acquisition. Enablers that can help the migration to commercial activities are "price based" and "best value" Contracting. Although the idea of price Vs cost is somewhat understood as a potential driver in acquisition reform, the change from "cost" to "price" mentality has

not yet been sufficiently embraced at the cultural level necessary to make a difference. A lot more work has to be done to achieve total acceptance, including education, training, and senior leadership acceptance, example and advocacy. One of the suggestions that could help in achieving this paradigm change is the change of emphasis from ROI to companies to "what is the ROI to the government customer (program or system)". This change in emphasis can help change the mindset of the leadership in defense who still see a conflict of the ideas of price based acquisition and guardianship of the public trust. Parametric price models and market survey price models can assist in allaying the government customers fears of spending too much for an item (product, system etc) but the key to the change is building greater trust between industry and government.

Data Rights

A key trust issue to be taken on is the data rights issue. Historically, rights in data went to the government buyer of a contractor's goods and services. One of the by-products of this process was that companies increased costs to offset loss of intellectual property. Another by-product was a more-than-arms-length approach to doing business with the government customer and other company team members. If nothing else, the transfer of technology across sectors was inhibited because of the reluctance to give up intellectual property and competitive advantage. Companies rightfully protected their intellectual property from all eyes. The government, on the other hand, had a legitimate reason for data. To insure future repair and servicing of components and systems when the OEM or original supplier no longer produced or serviced the part or system, the government system managers believed they needed to have the ability to recreate or remanufacture the spares and modifications to sustain the fleet and the force. Commercial companies shy away from dealings with the DoD because of the requirement to provide data. To enable the migration of technology from the private sector, it was suggested that the approach of "everything is negotiable" might be the starting block for doing away with government requirements for rights in data. Obviously the simplicity of this enabler would require that there be strong advocacy for the idea in the senior ranks of the DOD, and a stronger trust between all participants would have to be built.

Program stability is a notion that rises to the surface time and time again. Generally it reflects the availability of resources which, in turn, points to the level of Congressional support for any one program or budget category during the annual Planning, Programming, Budgeting System (PPBS) process. As is the case with all defense programs, resources that are consistently applied to programs for the long term can be planned and executed better and generally cost less. Programs with stability and longevity are prized in the private sector. Company activities in any commercial product area are planned to last to the end of the market run, with follow on market activity seen as beneficial. However, defense resource allocations typically change several times in one year, and can fluctuate orders of magnitude across program lines throughout a program's life. Stability of programs can do much for technology transition as well as effecting substantial changes in cost, schedule and quantity. It is a simple concept that continually eludes the defense acquisition community. It just needs to be done. The workshop group allowed that the only way to accomplish this enabler was to legislate program stability. Several years ago multiple year program funding was instituted. Perhaps the next stage in trying to achieve program stability is to convince the resource managers to address the funding for the program as a singular, packaged issue.

Barrier	Enabler
Incentives	
Return on Investment <ul style="list-style-type: none"> • Limit of 13% 	<ul style="list-style-type: none"> • Price Based Contracting • Value Based Contracting • Change to "ROI to Gov" • Parametric • Market Survey Pricing
Data Rights <ul style="list-style-type: none"> • Gov't Retention 	<ul style="list-style-type: none"> • Everything Negotiated
Future Business Base <ul style="list-style-type: none"> • Certainty of Future Business 	<ul style="list-style-type: none"> • Legislative Change
Technology direction <ul style="list-style-type: none"> • Resources Available 	<ul style="list-style-type: none"> • Risk Mitigation/Cost Sharing
Program Managers <ul style="list-style-type: none"> • Savings Lost to Program 	<ul style="list-style-type: none"> • Program retain resources for Program Decided Effort

Figure 13. Barriers and Enablers Relevant to Incentives

The idea of recouping cost savings to the benefit of the program has also been offered as an incentive for several innovative approaches to acquisition problems. There is a lot to be gained by allocating management savings resulting from risk taking innovation. If a program manager sought to solve a problem by using commercial technology and the choice resulted in savings to the program, and the program was able to retain the resources saved for application to other problem solving, risk taking ventures, it is intuitive that more program managers would attempt to use this method. This is an idea that does not have a model for capturing the returns. That model should be developed and demonstrated.

Metrics

The need for "figures of merit", or measures of effectiveness, goes along with the generation of new ideas and projects no matter what they are. Developing such metrics is seldom easy. There were three areas the workshop participants agreed were relevant: (1) Increasing the level of commercial technology use by defense companies, (2) increasing the participation of 2nd & 3rd Tier and non-traditional companies in defense programs, and (3) changing the size of infrastructure as a result of incorporating reforms, and recouping the savings attendant in the restructured organizations. The barriers to measuring each of these notions are: (1) as discussed earlier, the reluctance of a defense company to use outside intellectual effort is a barrier to any change. It would particularly be evident in the embracing of commercial technology. (2) Government intrusiveness is the primary reason many commercial companies shy away from business with defense programs. (3) Any savings recouped in government programs typically are captured back at US Treasury level. This barrier requires a major change in regulation and legislation in order to be overcome. Given the success at overcoming these barriers by affecting these enabling "fixes", the metrics would then be gathering the information on:

- Prime Contractor Use of Commercial Technologies -- How many instances and what kind

- New companies entry and involvement in defense contracting -- How many companies and to which primes did they find it easy to enter into business with.
- Changes in size and structure of company organizations as fallout from commercial technology insertion.

Barrier	Enabler
Metrics	
Change in Amount of Prime Use of Commercial Technologies <ul style="list-style-type: none"> • Prime Reluctance to Change 	<ul style="list-style-type: none"> • Rotating Fund • Better Prime Profit Split • Pre Contract Relationship Agreement- Prime/Supp/Customer
Change in Amount of New 2nd/3rd Tier Companies <ul style="list-style-type: none"> • Government Intrusiveness 	<ul style="list-style-type: none"> • Increased attention by Acq Reform
Infrastructure Savings Over Time <ul style="list-style-type: none"> • Inability to Share Savings 	<ul style="list-style-type: none"> • Regulatory Change

Figure 14. Barriers, Enablers, and Metrics to Track Commercial Technology Insertion

Summary

The workshops pointed to several paths of changes that could effect the increased use of commercial technologies in defense systems. Some of these paths intersect; e.g. the solution to some of the metrics required result from actions taken to resolve incentives to get program managers to take more risk in commercial technology. What we have is a start on the path to defining the feasibility of using commercial technologies in a "Spin-On" concept. It appears from the positive receptivity demonstrated by each of the participants in both workshops and in the one-on-one/two on-two interviews that the basic idea is sound. While there are significant barriers, none are insurmountable, and only one or two of these barriers are outside the authority of the Department of Defense to address. Recapping these workshops, we addressed some ideas and issues that are continually surfaced in other gatherings of defense business leaders.

The expansion of the Other Transactions Authorities (OTA) has been proven to be a significant method to reduce overhead and infrastructure costs. It is also not very well understood by both sides of defense acquisition, but should be. Government intrusion into data, audits, oversight, cost accounting, and allowable profit margins remain significant barriers to increased commercial company involvement in defense products. These barriers must be addressed. The general awareness of defense needs by the industry (both large and small companies) can be greatly improved. Methods to increase information sharing (especially in regard to cost-driving problem areas) are needed. Large "Prime Contractor" companies hold the key to information exchange, technology insertion, and the level of participation of small and non-traditional defense suppliers. Energy spent to nurture this relationship will be of significant benefit to defense affordability. Transition to commercial best practices, if desired by the Department of Defense as a cost cutting measure, must be made in full. Mixing piecemeal, selective components of commercial practices with traditional acquisition practices may not be as successful. The need for a government organization infrastructure to assist in transitioning technology is probably not a good idea. The attendant intrusion far outweighs any benefit. Policies regarding testing for

qualification and testing for operational suitability should be reviewed for possible collaborative changes. Cultural changes attendant with the acceptance of "price" vice "cost" should be to be advocated and nurtured.

APPENDIX 1

WORKSHOP PARTICIPANTS

"Prime Centric View"

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APPENDIX 2

READ AHEAD MATERIAL

"Prime Centric" View Workshop

**Advancing Insertion of Commercial Technologies from
Non Traditional Sources into Defense Systems
*A Workshop Prospectus***

Vision on Commercial Visibility and Access

To increase the affordability of defense systems, DoD has the following vision:

- DoD and industry managers have visibility of and access to the full range of prospects for using the best commercial technologies to reduce the total ownership costs of military systems.
- DoD is able to evaluate the utility and, where the return on investment is sufficient, exploit the benefits of these commercial technologies in new acquisition and system modifications and upgrades.

Barriers Create Need to Improve Visibility and Access

Hypothesis: Even assuming that acquisition reform implementation and its associated cultural changes become widespread, two significant barriers to the realization of this vision will remain:

- (1) DoD program offices and their prime contractors will not have visibility and access to the full range of prospects, especially from non-traditional suppliers (commercial companies, small businesses, international companies).
- (2) An effective and efficient infrastructure will not be in place to link the companies that have commercial technology insertion prospects with the prime contractor and program office that would act on such prospects.

We have hypothesized these barriers because of the following observations:

- DoD programs do not (and should not) conduct surveillance on the commercial markets to keep abreast of all of the latest commercial innovations that might reduce the total ownership costs of their system. It is a large and difficult undertaking. Without such information, DoD is not able to be a smart buyer – even with performance specifications; it is hard to buy something without knowledge of its existence. Consequently, DoD relies on its prime contractors to sort out the myriad ideas for commercial

technology insertion and rank them based on return on investment (ROI) to the government.

- Non traditional suppliers have difficulty in providing visibility and basic knowledge of their technologies to program offices. It is often difficult to know whom to contact within DoD and there is very little infrastructure to help these non-traditional suppliers link with defense programs. Because commercial suppliers are generally so removed from defense applications it is most likely that direct contact with weapon's program offices would be inefficient. Some preliminary screening is needed to eliminate less feasible proposals and to identify simultaneously the best opportunities for defense application. While large commercial companies may have the resources to cut through the bureaucracy, they may not want to make the effort because of perceived issues about doing business with the government (red tape, relatively low product demand, and budget uncertainties). Small companies, because of resource constraints, and foreign companies, due to a variety of perceived barriers, generally have more difficulties accessing DoD programs and are therefore less able to make the proper contacts.
- Non traditional suppliers have difficulty in gaining visibility of their technologies with prime contractors. In most instances, DoD prime contractors are dealing with a limited set of more traditional defense suppliers. All primes are in the process of reducing the number of suppliers and building "partnership" relationships with the few remaining ones to enhance quality and minimize product development cycle time. Under these circumstances it may be increasingly difficult to create relationships with non-traditional suppliers. In addition, inserting commercial technology or products into DoD systems is not always consistent with the prime contractor's strategic business development plan. It may lead to lower revenues and fewer long-term opportunities to expand business. Opportunities for joint ventures often are not readily apparent.

Workshops Proposed to Address the Need

To address the issues of "the Government's role in establishing an infrastructure that provides routine visibility and access to a wide range of commercial technology insertion opportunities," we propose a series of industry-government workshops. The first workshop would focus on prime contractors and subsequent ones would focus on sub-tiers and commercial firms. Procedurally, we would lay out the vision, the barriers, and proposals for participants to react to.

Preliminary Concepts for Improving Visibility and Access

The following identifies preliminary ideas on overcoming these barriers. All of these ideas would include an outreach effort to all suppliers of commercial technologies that (1) informs them of DOD's desires to use commercial technologies to reduce costs; (2) encourages them to develop proposals for DoD to use their commercial technologies in military systems (spin-on) to reduce life cycle costs as part of a mod or upgrade; and (3) dispels perceptions about disincentives in doing business with DoD.

- (1) DoD should develop incentives for prime contractors to take active steps to identify and receive commercial technology insertion opportunities from non-traditional suppliers. The prime contractor in effect would serve as an initial point of contact into the DoD bureaucracy for suppliers who want to market their ideas. It would be incumbent on the prime contractor to evaluate the prospects and make proposals to the program manager for their implementation. Potential issues with this idea include (i) it may not be in the prime's strategic interest to use the technology; (ii) there is the possibility of opening a floodgate of poorly formulated proposals; and (iii) a burdensome screening process may have to be implemented.
- (2) DoD should create "technology scouts" whose functions would include (i) maintaining an expertise in a wide range of technology areas; (ii) serving as an advertised (through a DoD outreach effort) initial point of contact in DoD; (iii) proving an initial evaluation of the feasibility of prospects; and (iv) linking the more feasible prospects with DoD programs that might implement them.

A variety of possible mechanisms are available to perform the "technology scout" function. These include:

- (a) The Militarily Critical Technology List (MCTL) infrastructure. Some linkage to System Commands or PEOs would have to be created in order to match prospects with the appropriate program offices. Potential issues with this option include (i) the possibility of overwhelming the system with too many prospects; (ii) the need to establish more formal links with programs; and (iii) the potential costs of a screening process.
- (b) The DoD technology transfer infrastructure could also assume the technology scout role and arrange for the initial evaluations to be performed. Some linkage already exists with program offices.
- (c) RTTC/NTTC infrastructure. Connectivity to defense programs would have to be created.

Potential issues with the latter two options include (i) the possibility of overwhelming the system with too many prospects; (ii) the

linkage to programs is through R&D people – they may be too removed from both military applications and commercial products to be effective in assessing and communicating insertion opportunities; and (iii) the potential resources needed for a screening process may be large.

- (3) Create “technology bounty hunters” in the private sector whose job would be to find these opportunities and who would be paid on the basis of the realized cost savings to DoD. It would be incumbent on these bounty hunters to be the first point of contact, to perform the initial evaluation, and to link with the proper program. Work must be done to earn the bounty. Poor work will not lead to a payoff. Potential issues with this idea include (i) difficult to find mechanism to “fund a bounty”; (ii) not clear if motivation is sufficient; and (iii) may create friction with prime contractors.

Taking Advantage of Opportunities

Acquisition reform and programs like the Commercial Operating and Support Savings Initiative (COSSI), the Commercial Technology Insertion Program (CTIP), and the Reliability, Maintainability, Availability (RMA) Initiative offer opportunities to act on such commercial technology insertion prospects.

Desired Workshop Products

- (1) Agreement on a shared vision of how to improve access to and visibility of non traditional commercial technology opportunities;
- (2) A more complete and insightful understanding of the barriers;
- (3) A prioritized set of concepts for improving visibility and access; and
- (4) Recommendations on pilot programs.