



NSA Innovation Study

“Tapping Industry Innovation”

an
NSA SAE Directed Study

2 March 2011

Overall Classification of this brief is:

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"Innovation distinguishes between a leader and a follower."

Steve Jobs, 2006

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- Introduction
- Setting the Stage for Innovation
- Understanding the Enablers and Barriers to Innovation
- Leveraging Industry, through the Acquisition System to Achieve Innovation
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"If there is one thing I detest more than anything, it is innovations." Captain Pym, Royal Navy, HMS Sirius, 1810 (from The Mauritius Command by Patrick O'Brian)



Executive Summary

- We interviewed more than 30 Senior NSA Executives and 60 Industry Executives to serve as the basis for this Innovation Study
- All agreed Innovation was a major priority, and many believed Innovation was essential to mission success, growth, and/or survival
- Many noted empowering small teams, syndicating risk, and minimizing time-to-market are critical for Innovation
- Although NSA and Industry Executives agreed Innovation was important, they had substantially different views with respect to achieving Innovation
 - NSA Executives believed innovation is achieved through highly skilled, creative, talented, and intelligent people
 - Industry Executives placed the greatest emphasis on understanding the market and creating a culture and an “eco-system” that fosters idea generation consistent with current and future market requirements and opportunities
 - Government leaders uniformly agree the responsibility of driving innovation rest with them; “They own it.” However, Industry believes they have much more to offer
- Many Industry Executives believe their ability to grow depends on winning contracts and NSA awards contracts to those who deliver smart people at low prices; Industry does what’s required to win contracts, which is often at the expense of innovation



Executive Summary (continued)

- Industry believes, based on past awards, “Best Value = LCTA”; As such, Industry frequently “games the system” in favor of driving down their price, which minimizes the potential to introduce innovation
- Innovation rests on the shoulders of select NSA leaders who see the big picture, are willing to challenge the cultural barriers, and take calculated risks; Senior NSA leadership is far more risk tolerant than individual PMs
- Government senior leaders who best understand their mission and the associated risks are not directly involved in defining the acquisition strategy, requirements or key evaluation criteria in RFPs. Lower level execs/PMs are motivated to low risk contract replacement strategies
- Industry noted larger programs/contracts appear to be less risk tolerant, perhaps due to extra over-sight . As such, larger programs/contracts were generally not seen as a breeding ground for innovation. Alternatively, Industry advocated carving out elements of a larger procurement where the need for Innovation is recognized, evaluated, and scored
- Enabling the execution of more work in an unclassified environment, creating a strong culture and developing an “eco-system” that fosters and values Innovation were the greatest enablers for Industry



Executive Summary (continued)

- Getting connected and understanding the NSA hard problems are key barriers for Industry; Industry believes they have innovative ideas, but it is difficult to get Government leaders to bring them forward
- Many Industry Executives are frustrated with communications being shut down too early and many Government Technical Leaders are fearful of saying something they should not, and therefore, they say nothing
- NSA Executives want to have more explicit conversations concerning innovation; Institute a better way to define, validate, and capture requirements that promote innovation; Implement a more efficient and agile acquisition approach that stimulates innovation and holds industry accountable; and dialogue more with industry to discuss “future” problem sets
- Industry would like to have most insight to the hard problems; more meaningful and intimate discussions with the Government leaders, and more options to introduce innovation in their proposals where it is specifically scored and evaluated
- Industry Executives generally believe that most Innovation is achieved incrementally, as compared to quantum leaps. Innovation often starts with a small, but good idea. To some, this observation suggested the need to take more advantage of SBIRs, CRADAs, etc. to promote and incubate new ideas and capabilities.



Executive Summary (continued)

- NSA's resistance to cultural changes, coupled with traditional acquisition processes and a restrictive security environment limit the available resource pool and create the greatest barriers to Innovation
- The NSA Community needs to be less risk averse and be willing to tolerate failure; NSA needs to explicitly measure and evaluate innovation in the acquisition process, and diminish emphasis on people requirements and cost
- Bottom Line: Changing the "Innovation Eco-System" in the NSA Community will require a strong, sustained, change agenda driven from the top down and the full cooperation of all Government and Industry stakeholders.



Executive Summary

Recommendations

- Consider establishing an “Innovation Advocate” to drive the Innovation agenda
 - Address the comments and adopt the specific recommendations in this study to drive more innovation in the NSA environment
- Close the Communication Gap
 - Publish a NSA “Vendor Communication Plan” to eliminate disparate communication practices and confusion about how to engage with Industry (see OFPP Policy Letter dated 2 Feb 11)
- Issue a SAE Decision Memorandum/Policy on Innovation
- Deepen Industry Outreach to strengthen the innovative ‘talent base’
- Get the Senior NSA Leadership more actively engaged in the Acquisition Process; NSA Senior Leaders need to put their “fingerprints” on the procurements



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Background

- The NSA SAE requested an Integrated Team of Government and Industry Executives to determine the extent to which the innovation needs and requirements are being satisfied in the NSA environment today; and examine alternatives to introduce more innovation in the NSA acquisition process. Specific requirements and objectives for this study are outlined below:
 - Innovation - one key SAE Efficiencies Initiatives
 - Determine how the NSA Mission Leaders, Technology Leaders, and Acquisition Leaders define and interpret “innovation”
 - Identify NSA’s needs and requirements for innovation
 - Assess NSA’s willingness and desire to drive innovation as a high priority focus area
 - Review the NSA Acquisition process to identify and assess present methods and processes to incentivize innovation; Specifically identify barriers and enablers; Examine NSA acquisition case studies to re-enforce the observations and conclusions
 - Analyze alternatives and determine the degree of difficulty to effect necessary changes
 - Identify risks and/or unintended consequences
 - Develop a high level program plan to implement approved recommendations



Innovation Study Members and Participants

- The Innovation Study Team (IST) was led by NSA BA5 and supported by Booz Allen Hamilton, Proteus, and the Software Engineering Institute (SEI). Specific IST participants included:
 - Joe Mahaffee, Booz Allen Hamilton
 - Chuck Taylor, PROTEUS Technologies
 - Steve Sheldon/Lisa Mangerie, NSA BA5
 - Joe Wickless, Software Engineering Institute
 - David Kletter, Booz Allen Hamilton

- In Phase 1, we interviewed a broad and balanced cross-section of Senior NSA leaders representing Mission, Technology, and Acquisition perspectives

George Barnes, S3	Charles Granderson, S2	Ron Moultrie, S3
Mark Barnett, BA2	Eric Hagemann, S3	Wayne Murphy, S2
Tim Denison, CTO	Doreen Harwood, BA6	Sherri Ramsey, NTOC
Pat Dowd, T	David Hurry, R	Mary Schaub, BA33
Kevin Ford, T5	Chuck Kennedy, BA3	Greg Smithberger, TAO
Barb Fraticelli, NCSC	Dr. Nemo Lionikis, T	Mike Wertheimer, S3
Dickie George, IAD	Jason McCaskey, BA36	Greg Wesse, TD SSG
Kathy Graham, BA53	Bruce Meissner, BA6	Yul Williams, NTOC



Innovation Study Members and Participants

- In Phase 2, we interviewed more than 60 Industry Executives from 24 different companies who represent large businesses, small businesses, traditional and non-traditional product and service providers

BAE Systems	General Dynamics - AIS	MicroSoft
Booz Allen Hamilton	G2 Inc.	Northrop Grumman
CACI	Harris Corp.	Poole Inc.
Chiron Technology Services	IBM	Price Waterhouse Coopers
Cloudera	InVertex	Proteus
Computer Sciences Corp.	InVism	Raytheon
Dell Federal	Lockheed Martin	TASC
FGM	ManTech	Van Dyke Technology Group



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What is your definition of Innovation?

NSA Executives

- Most stated that Innovation was defined by:
 - Time to market
 - Mission needs & speeds
 - New solutions which will endure
 - Mature processes through iterative improvement
 - Discovery
- Some stated innovation occurs on ‘continuums’, from incremental improvements through ‘breakthroughs’ to create order of magnitude improvements.
- Some stated that Innovation occurs from a technical (hardware and software), business, legal, and cultural process perspective



What is your definition of Innovation?

Industry Executives

- Industry Executives generally defined Innovation in a similar manner as the NSA Executives; however, Industry noted their respective innovation programs were generally driven by the fundamental value proposition upon which their company was founded and their ability to apply novel problem solving techniques, to include:
 - Developing next generation technologies
 - Integrating existing technologies
 - Re-purposing technologies against a new set of applications
 - Defining new processes and services to improve operations and efficiency
- Most Industry Executives stated or implied their definition of innovation was driven by their customer challenges and based on broadly defined business cases applied across multiple markets
- Industry views were mixed with respect to whether Large business versus Small businesses were in a better position to Innovate; Large Businesses generally felt they made larger and more sustaining investments to drive innovation; whereas, Small Businesses felt they were more agile and proportionally spent more resources on Innovation; To some, “Innovation is not a product of being a big versus small business; Innovation is driven by the environment and what is valued”



Is Innovation a major priority for you?

NSA Executives

- All NSA Executives stated that Innovation was a major priority for their mission to be successful.
- Nearly all stated that innovation and creativity plays a vital role in the ability for the NSA to understand the world, their adversary, and the mission requirements better.
- One NSA Executive articulated, “*Innovation = Survival*”

Industry Executives

- Industry Executives also noted Innovation was a major priority to:
 - Support the NSA mission
 - Evolve, discover, and differentiate their products and services that enables them to *survive and grow* in a highly competitive market
 - Create new businesses and be more competitive



In your opinion, is innovation achieved through highly skilled people or very effective processes?

NSA Executives

- Overwhelmingly, the NSA Executives believed innovation is achieved through highly skilled, creative, talented, and intelligent people
- Few overtly acknowledged that a combination of *highly skilled people* AND *process* leads to innovation.
- One NSA Executive recognized that Innovation scales as a result of good processes, while another recognized that bad processes can stifle innovation, and subsequently pointed to the acquisition process as an example of a 'bad process'.
- In summary, one NSA Executive stated, *"Innovation occurs through 'talent'. Talent encompasses those people who have the ability to see holistically, solutions which are germane to our needs/requirements, yet are capable of applying the entire technology stack, from developer through architect to develop the capability required by our Agency"*



In your opinion, is innovation achieved through highly skilled people or very effective processes?

Industry Executives

- Although NSA Executives generally stressed the importance of having smart, creative, and talented people to drive Innovation, Industry Executives placed the greatest emphasis on understanding the market (e.g., what are the customer challenges and requirements, what are the customers actually buying, where are the customers investing their own resources) and creating a culture and an “eco-system” that fosters idea generation consistent with current and future market requirements and opportunities
- Industry Executives generally recognized the importance of having smart people, but they firmly believed smart people alone was insufficient to drive innovation (i.e., smart people is just one element of the eco-system)
- In fact, Industry Executives most frequently mentioned the NSA acquisition environment, and more specifically the over-emphasis on labor category requirements and personnel qualifications was the greatest barrier to Innovation at NSA; Some noted NSA often procures “incumbent staff” instead of innovative solutions



How does Innovation happen?

NSA Executives

- Most stated Innovation occurs when NSA focuses highly skilled people on difficult mission problems that need to be solved. Mission drives the need for innovation.
- One NSA Executive explained that ‘fame’, (e.g., patents, publications) stimulates innovation
- Some expanded the above by stating, *“innovation occurs when our analysts discover an adversary action, and as a result, our existing tools and processes break. This creates mission expansion, and a need to innovate to rectify.”*
- Some noted Innovation starts with *“purposed technologies being used for un-purposed techniques.”*
- A few stated that Industry/Government CRADAS and IRAD programs are not leveraged sufficiently to facilitate innovation.



How does Innovation happen?

Industry Executives

- Industry observations of Innovation in the NSA environment would suggest “Innovation occurs, but it is not planned.”
- Although many companies have different programs and processes to stimulate Innovation, several companies discussed the importance of creating a culture and an “ecosystem” to drive innovation:
 - Innovation “Ecosystems” are driven by the market and the “business case”
 - Idea generation is focused on “anticipating” future customer requirements and needs, which requires close customer relationships
 - Corporate measurement and reward programs re-enforce corporate priorities and objectives to achieve innovation and meet performance objectives
 - Investments drive Innovation for many companies with specific expectations concerning return-on-investment (ROI)
 - Willingness to accept risks and acknowledge the potential for failure
 - Sound business strategies to transition new capabilities into the market
- All that said, most Industry Executives believe their ability to grow depends on winning contracts and NSA awards contracts to those who deliver smart people at low prices; Industry does what’s required to win contracts, which is sometimes or often at the expense of innovation



Do you have an examples of innovation from your technical or mission domain?

NSA Executives

Several innovative examples were noted. Amongst those mentioned included:

- TURBULENCE program
- NSA MetaData ideas, e.g., NEWWAVE, as a result of the METAWAVE failure
- NSA Innovations Program of the mid-1990s
- NSA NTOC's SE problems, that was, developing a solution in 6 days which solved a mission critical problem
- NSA's transition to RSA key distribution model
- NSA's RT-RG Program (from an integration and time-to-market perspective)



Do you have an examples of innovation from your technical or mission domain?

Industry Executives

Many Innovation examples were noted, including multiple programs led by other Government agencies. Amongst those mentioned included:

- TCP Contract with GCHQ in the UK
- SATCOM Delivery Order under the AXISS contract that required a “Way Forward” document in the proposal with no page limit
- DS-CDS (IAD Procurement) with a “bake-off” acquisition process; Procurement emphasized how much capability can be provided for a pre-determined funding level
- NSETS I - allowed rapid access to diverse resource base
- Other Government Agencies have programs that effectively leverages un-cleared college students (e.g., A-Space)
- IAD Commercial COMSEC Endorsement Program (CCEP)
- Navy CANES Program was a model program to define requirements
- In-Q-Tel (requires a good “match-maker” to connect the capability with the mission)
- USAF/SMC



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Are there particular system development lifecycles or methodologies that are better enablers of innovation?

NSA Executives

In general, NSA Executives indicated needs and mission gaps drive innovation (i.e., provides a license to innovate). Although there was little agreement with respect to methodologies that effectively enable innovation, several thoughts or ideas were provided that deserve attention:

- Some indicated a desire to seek more creativity and accountability via shorter delivery schedules (e.g., 90 day spins) and shorter term contracts, but others were concerned that shorter delivery cycles would stifle innovation; To meet schedule requirements, Project Teams would reduce their willingness to accept risk
- Some felt QRC situations require small teams of Industry and Government staff to define and implement specific candidate solutions
- Multiple responses indicated “time-to-market “ is critical and therefore favors the 80% solution
- Innovation occurs through bottom-up and top-down processes; Top-down, real targets are identified and innovation is stimulated; Bottom-up, the discovery process interrogates our systems
- Several indicated the “willingness to accept risks” inspires innovation;
- A few suggested NSA needs to foster more competition and/or analyses-of-alternatives (AOA)
- A few indicated Industry and Government need to partner more effectively to drive the entire product lifecycle, vice having NSA define all requirements; Some suggested more disciplined approaches to define and validate requirements are essential
- A few indicated the “NSA-way” has atrophied and USID-18 is out-of-date; NSA needs to be a fast follower of commercial products

Empowering small teams, syndicating risk, and minimizing time-to-market are critical for Innovation



Are there particular system development lifecycles or methodologies that are better enablers of innovation?

Industry Executives

- Industry Executives generally believe that most Innovation is achieved incrementally, as compared to quantum leaps. Innovation often starts with a small, but good idea. To some, this observation suggested the need to take more advantage of SBIRs, CRADAs, etc. to promote and incubate new ideas and capabilities. Alternatively, Industry Executives advocated carving out those elements of a larger procurement where the need for Innovation is recognized, evaluated, and scored
- Several noted larger programs (e.g., ACAT I) appear to be less risk tolerant, particularly given the extra over-sight they receive; As such, larger programs were generally not seen as a breeding ground for innovation.
- Industry generally favored more “bake-off” acquisitions during the early spins of a development program to maintain the innovation focus once under contract and to mitigate potential risk
- Several Industry leaders noted the balance between Innovation, risk, and accountability relies first and foremost on the clear articulation of the problem or challenge to be addressed and keeping the requirements at a sufficiently high level to allow Industry to propose a broad range of potentially innovative ideas; Conversely Industry Executives stressed the importance of eliminating historical practices of defining “people requirements”

Start small and create an environment to incubate ideas; Leverage “bake-offs” more frequently; More effectively balance Innovation with risk and accountability; and diminish the emphasis on people requirements



In cases where innovation has been possible, what were the major enablers (or factors) in that success?

NSA Executives

- Creative talented people with strong technical skills were most frequently identified as the major enablers
- Several indicated a desire to search for ways to sanitize and execute more work in an unclassified environment
- Several also indicated a need to tap broader pools of technical resources outside the immediate Washington D.C. area
- A few mentioned an In-Q-Tel or DaVinci model (i.e., a Venture Capital model) has worked effectively for NCSC. Others noted NCSC has made good use of the Security Innovators Network, (SINet.org)
- Effective “partnering” and collaboration with industry has enabled innovation on occasion when industry has been permitted to help define the best path forward
- Use of “VEIL”, a sandbox that permits innovators to inject their ideas and/or rapid prototypes, has been an effective enabler
- Other enablers mentioned included using more multi-disciplinary teams in the truest sense; sponsoring “Innovation Contests”, providing researchers/innovators the autonomy to study and solve mission-related problems, and leveraging University research more effectively

Gaining access to the broadest pool of talented people is the most critical enabler for Innovation



In cases where innovation has been possible, what were the major enablers (or factors) in that success?

Industry Executives

- Unlike the NSA Executives who generally identified having smart people as the primary enablers for Innovation, Industry Executives stressed the importance of a strong culture and “ecosystem that fosters and values Innovation” as the primary enabler
- Many indicated a desire to search for ways to sanitize and execute more work in an unclassified environment
- Several also indicated a need to tap broader and younger pools of technical resources outside the immediate Washington D.C. area
- Industry stressed the importance of focusing on “what you want” and emphasizing the importance of supplying “best thoughts” to solve a critical problem. Be willing to accept responses that do not easily lend themselves to an “apples-to-apples” comparison
- Need to set and manage expectations concerning Innovation with all key stakeholders and obtain agreement concerning priorities being placed on Innovation versus other program objectives (e.g., cost, schedule, risk) that often run counter to Innovation

Enabling the execution of more work in an unclassified environment, creating a strong culture and developing an “eco-system” that fosters and values Innovation were the greatest enablers for Industry



What are the barriers to innovation at NSA?

NSA Executives

- Some were neutral towards the NSA acquisition system, but most were critical and felt the acquisition culture and environment is a barrier to innovation
- Limited “gene pool”
- Poor communications between the mission-facing staff and the acquisition staff
- Lack of supporting system infrastructure for analytic ideas, such as data repositories, GUIs, and Mission System Backbones (MSBs)
- Recognizing innovation needs to be more than technology focused; Innovation is needed across legal, policy, management, people development, and processes
- NSA resists cultural change; Some organizations want to “build” everything, and others are unwilling to consider developing solutions in an unclassified environment
- NSA does not effectively use the multiple clearance levels
- Quality of staff provided by Industry is not high enough to solve the most difficult problems
- Younger staff are often good sources for innovation, but artificial barriers (e.g., prohibiting cell phones, access to social networks) turn off younger staff
- NSA has focused much of the time on having adequate access to Small Businesses and Strategic Partners, but spend significantly less time cultivating relationships with mid-size companies
- Everyone operates against a different set of priorities

NSA's resistance to cultural changes, coupled with rigorous acquisition processes and a restrictive security environment limit the available resource pool and create the greatest barriers to Innovation



What are the barriers to innovation at NSA?

Industry Executives

- It is difficult to “get connected” and establish your presence and reputation in the NSA environment, particularly if you are a small business on the outside looking in: Some of the larger businesses acknowledged similar challenges and noted they had to “buy a company” to gain initial access; Additionally, NSA should drive their trusted Industry Partners to reach beyond the traditional product and service providers and bring other non-traditional commercial suppliers to the table
- Understanding the NSA problem set is difficult to know; There is no central organization to drive discussion with industry and the “Industry Days” are largely ineffective in their current format; Industry desires to have smaller, more intimate discussions with the Government leaders to understand their problems and to discuss more specifically how their respective products and services can support their missions
- NSA is organizationally aligned and cultured; There is a significant gap associated with moving capabilities and solutions from “Research to Mission”; Conversely, the Mission elements do not sufficiently task or challenge the Research groups; Some groups do not get along and others do not want to exert the effort; Innovation needs to transcend organizations and functions
- In some cases, Industry was frustrated they had innovative ideas, but it is difficult to get Government leaders to carry ideas forward; Need to incentivize Government leaders to bring ideas forward and drive innovation

Getting connected and understanding the NSA hard problems are key barriers for Industry; Industry believes they have innovative ideas, but it is difficult to get Government leaders to bring them forward



What are the barriers to innovation at NSA?

Industry Executives

- Like the Government Executives, Industry Executives frequently identified staff clearances as a barrier; Most agreed the Government needs to make better use of the full range of clearances and also look to sanitize requirements and better leverage un-cleared resources
- Generally speaking, Industry Executives agreed NSA is a conservative environment; NSA needs to strike a better balance between driving innovation and their historical tendency to be risk averse; Industry believes “failure is not an option at NSA”; When Industry fails to deliver particularly on larger engagements, the Government does not view it favorably, and Industry feels they “get punished”; As such, Industry will almost always err on the side of conservatism; Collectively NSA and Industry need to understand where it is appropriate and acceptable to tolerate more risk
- The acquisition environment does not incentivize innovation, particularly on re-competes; “There is no way to get credit for innovation in the proposal when the emphasis is on people and cost”; Industry Executives frequently noted they have to “constrain their engineers during the proposal because that is not what the RFP is asking for”; In at least one Industry Day, the message Industry heard from Government, “We do not want your ideas, we want smart people”
- NSA acquisition packages are overly prescriptive, particularly with respect to defining labor category requirements; Industry has to re-circulate the same people to qualify for the labor categories; To drive home the point, one Industry Executive noted, “Edison and Einstein could not get on an NSA contract.”

The NSA Community needs to be less risk averse and be willing to tolerate failure; NSA needs to explicitly measure and evaluate innovation in the acquisition process, Diminish emphasis on people requirements and cost



What are the barriers to innovation at NSA?

Industry Executives

- Some Industry Executives felt the Government was sending mixed messages concerning Low Cost Technically Acceptable (LCTA) contracts; Industry uniformly believes LCTA does not inspire or promote innovation; In some cases, large business procurements are “best value”, but small business procurements are LCTA, even though they have the same or similar Statements of Work; In some cases, an opportunity is advertised as being “best value”, but the track record for contracts awards leads Industry to believe “best value = LCTA”; As such, Industry frequently “games the system” in favor of driving down their price, which minimizes the potential to introduce innovation
- The Government leaders who best understand their mission and the associated risks are not directly involved in defining the RFP requirements or the source selection process; To complicate matters further, Industry Executives noted Mission and Acquisition elements (i.e., key stakeholders) are not always in agreement on the highest priorities (e.g., speed to market, risk, getting similar products/services at a lower cost, etc.)
- Many Industry Executives were frustrated with communications being shut down too early in the acquisition cycle (e.g., after a market survey), which makes it difficult to have meaningful discussion with Mission Leaders concerning needs and requirements; Additionally, it appears many Government Technical Leaders are fearful of saying something they should not, and therefore, they say nothing, even though the FAR permits it

“LCTA-like” procurements coupled with limited communications and involvement of key Mission Leaders in the acquisition process are some of the greatest barriers to Innovation for Industry



What would you do differently?

NSA Executives

- Have more explicit conversations concerning innovation and the priority being placed on innovation in context with others program drivers, such as cost, schedule, and risk
- Have a better way to define, validate, and capture requirements that promote innovation.
- Implement a more efficient and agile acquisition approach that enables NSA to balance the tension between stimulating innovation and being able to hold industry accountable
- Continue to evolve our laws, regulations, and processes to keep pace with the mission needs
- Have more dialogue with industry to discuss “future” sets of problems
- Even in failing situations, harvest the good ideas and capabilities
- Get past the desire to “build everything ourselves”
- Develop a better and more efficient means to engage industry on a broader scale, particularly those who have not traditionally supported NSA or who are outside the Baltimore-Washington area
- Revisit and tune the NSA reward system to further promote/encourage innovation
- Leverage different clearance levels of staff more effectively

Innovation needs to be a central focal point for discussion in every dimension (e.g., technology, people, partnerships, culture, processes, regulations) that impact NSA’s ability to execute its mission



What would you do differently?

Industry Executives

- Industry Executives re-enforced several suggestions made by the Government Executives, including having more discussions between Acquisition and Mission leaders to understand and agree on how much emphasis should be placed on Innovation versus other program objectives (i.e., cost, schedule, risk); Ensure the acquisition packages reflect those priorities
- Use “bake-offs” more frequently to stimulate innovation and mitigate risk before/after contract award
- Provide more insight to the “hard problems”; Solicit Industry engagement and follow-up
- Introduce “Innovation Contests” (similar to those offered by NGA)
- Avoid being too prescriptive in the RFP; Focus more on key statements of objectives
- Some Industry Executives suggested bringing ORALS back when innovation is required and allow a more open face-to-face discussion; while others felt orals would perpetuate the same problem and reward those who speak or write the best; Most important was executing, which suggested placing more emphasis on past performance
- Provide more venues to have “intimate or private” discussions during the acquisition cycle
- Look at mechanisms to allow Industry to submit “proposal options” or “alternative proposals”
- Make Innovation a specific requirement in the Proposal Evaluation Criteria and weight it

Industry would like to have most insight to the hard problems; more meaningful and intimate discussions with the Government leaders, and more options to introduce innovation in their proposals where it is specifically scored and evaluated



What would you do differently?

Industry Executives

- Encourage Contracting Officers and CORs to be more open to alternative contracting vehicles that promote innovation
- Have Acquisition/PEO Leaders spend time in Industry to better understand business drivers
- Identify areas of a procurement that are more risk tolerant; Separate them in the procurement and include innovation criteria in PEC; Embrace success, yet accept some degree of failure on procurements where innovation is a priority
- Diminish emphasis on resumes and cost

Industry would also like to see the Government consider alternative contracting options, be more risk tolerant, and diminish emphasis on resumes and cost to stimulate more Innovation



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Can industry provide you with the necessary ingredients for innovation through the NSA acquisition system?

- Almost all respondents believe industry can be a solution, but the majority of respondents also felt that the acquisition culture and environment is a barrier.
- Specific issues cited varied greatly, and included:
 - Acquisition system is difficult to navigate
 - Inability to sole-source
 - Contracts are not sufficiently flexible to incentivize innovation; It takes too long to get them in place
 - Not knowing how to write an innovation-driven contract, when the real objective or desire is to acquire “good people”
 - Mission elements have a difficult time capturing requirements that are sufficiently detailed to hold contractors accountable, but flexible enough to promote innovation
 - Cost, schedule, and risk are the key factors in the acquisition process, but run counter to innovation
 - There is a low tolerance for risk, failures, and set-backs
 - Short spin/delivery cycles keep tasks on track, but can stifle innovation when more emphasis is placed on meeting the schedule and less emphasis is placed on innovation
 - NSA has shifted from T&M to Cost Plus contracts to inspire more innovation, but Industry Primes are driving more of their sub-contractors to T&M subcontracts
 - Bigger and broader contracts may be easier and more efficient, but they tend to minimize innovation
 - General Counsel makes it difficult to entertain alternate proposals for innovation
 - Inspector General Office operates in an old mindset and needs to evolve

Industry is not driving Innovation for NSA; however, NSA and Industry Executives believe Industry can contribute more to the Innovation Engine if we can minimize the acquisition barriers



If skilled and experienced people are critical to innovation, do you feel that the acquisition system at NSA can obtain and incentivize these people effectively?

- In general, most NSA Executives felt skilled and experienced people were the most important element to achieve innovation; Representative responses included:
 - “Smart, skilled people are the hub of innovation”
 - “Skilled and experienced people are extremely important and critical to our success”
- However, there was broad recognition that not everyone has the potential to be an innovator
- It is often difficult to identify those who are creative and innovative, and it is very difficult to define requirements and criteria in an acquisition package for industry to deliver the most innovative staff
- Almost all respondents believe the system can obtain and incentivize people effectively, and many noted that the mission is an incentive too.
- However, there were many concerns about contract vehicle type (e.g., shorter PoPs, FFP, unclassified would all be beneficial).
- Some noted the need for more partnering and dialogue with industry.

NSA needs a better mechanism to identify Innovation potential and a more effective process to harness innovative ideas, capabilities and resources



Are there additional CONTEXTUAL elements (facilities, methods, tools) that could be acquired to enable innovation?

- There were no widely held ideas that surfaced, however two specific ideas may be worth noting.
- One is to open an NSA facility in a place like Research-Triangle Park in NC, or elsewhere where technology focused talent is plentiful.
- Another was to establish a lab-like facility, such that Industry and Government alike can use this lab to prototype and test new innovative ideas.

Establishing Innovation “Cells” throughout geographically diverse areas within the United States would enable larger pools of talented people to contribute to the NSA Innovation Engine



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Interview Panel Observations

- Innovation is risky
- The NSA Culture is one (critical) underlying driver of the *NSA Innovation Model*.
 - Mission organizations are a blended mix of mission and acquisition
 - Hands-on Government & Industry engineers collaborating, computer scientists design/develops products.
 - A broad-range of models exists to enable Innovation;
 - Some are Government led
 - Some are Industry led
 - Some are Collaboratively led
 - Tension exists between NSA Culture and the DoD Acquisition process.
 - A significant gap exists between acquisition and mission.
 - DoD Acquisition process designed to oversee contractor performance
 - Existing contract inventory suggests underlying risk aversion; The larger the procurement, the more risk adverse the PEC/PPI
 - Some are uneasy about how to engage industry fairly/consistently
 - NSA could/should better reward Government & Industry contributors for innovation



Interview Panel Observations

- Government leaders uniformly agree the responsibility of driving innovation rest with them; “They own it.” However, Industry believes they have much more to offer
- In spite of all the challenges and feedback that was provided, NSA has found a way to continue to innovate to achieve mission success (i.e., necessity and mission ultimately drive innovation); However, the view of some or many would suggest “Innovation happens, but it is not planned”
- Innovation rests on the shoulders of select NSA leaders who see the big picture, are willing to challenge the cultural barriers, and take calculated risks; NSA leadership is far more risk tolerant than PMs/RFP writers
- Generally, PMs have a limited horizon when their contracts expire.
 - Replace the current contract with an identical contract with as little turnover as possible.
 - Anything which disturbs the above end goal will be swept aside
- Changing the “Innovation Eco-System” in the NSA Community will require a strong change agenda driven from the top down and the full cooperation of all Government and Industry stakeholders



Content

- Executive Summary
- Introduction
- Setting the Stage for Innovation
- Understanding the Enablers and Barriers to Innovation
- Leveraging Industry, through the Acquisition System to Achieve Innovation
- Summary
- Recommendations



Recommendations

- Changing the Innovation Culture in the NSA Community will require, sustained, empowered commitment
 - Consider establishing an Innovation Advocate to drive/sustain the Innovation agenda
 - Address the comments and adopt the specific recommendations in this study to drive more innovation in the NSA environment
- Issue a SAE Decision Memorandum/Policy on Innovation
 - Grant permission to think differently
 - Change the perception that Innovation is not valued
 - Change the NSA Acquisition Strategy Template to make Innovation a overt component of acquisition strategy
 - Change the Source Selection Plan/PEC/PPI criteria to mandate a value on Innovation – even if the value is small
 - Consider a mandatory “Innovation TTO” for TTO contracts



Recommendations

- Close the Communication Gap
 - Publish a NSA “Vendor Communication Plan” to eliminate disparate communication practices and confusion about how to engage with Industry (see OFPP Policy Letter dated 2 Feb 11)
 - Establish a venue/structure for Key Leaders (at all levels) to have increased access to Industry.
 - Take active steps to bridge the gap between Mission and Acquisition
- Deepen Industry Outreach to strengthen the innovative ‘talent base’.
 - Utilize varying personnel clearances (TS/SCI, Secret, Uncleared).
 - Encourage additional innovation to occur outside of NBP geography.
 - Encourage collaborative Industry /Government mission-focused IRAD/CRADA efforts
 - Work towards the removal of ‘artificial barriers’ to draw upon highly skilled/talented personnel



Recommendations

- Get the Senior NSA Leadership more actively engaged in the Acquisition Process; NSA Senior Leaders need to put their “fingerprints” on the procurements
 - Set the strategic intent – vision and strategy
 - Pre-RFP release – receive brief to ensure the vision, strategy and innovation is consistent with the “strategic intent”
 - Post contract award - review acquisition process results and lessons learned