DEFENSE BUSINESS BOARD

Report to the Secretary of Defense

Taking Advantage of Opportunities for Commercial Satellite Communications Services

Report FY13-02

- **Recommendations to help DoD better leverage opportunities from commercial satellite providers**

Preface

This report is a product of the Defense Business Board (DBB). Recommendations by the DBB are offered as advice and do not represent DoD policy.

The DBB was established by the Secretary of Defense in 2002 to provide the Secretary and the Deputy Secretary of Defense with independent advice and recommendations on how “best business practices” from the private sector’s corporate management perspective might be applied to the overall management of the Department of Defense (DoD). The Board’s members, appointed by the Secretary of Defense, are corporate leaders and managers with demonstrated executive-level management and governance expertise. They possess a proven record of sound judgment in leading or governing large, complex corporations and are experienced in creating reliable solutions to complex management issues guided by best business practices.

Authorized by the Federal Advisory Committee Act of 1972, the Government in Sunshine Act of 1976, and other appropriate federal regulations, the Board members are a federal advisory committee and volunteer their time to work in small groups (subcommittees) to develop recommendations and effective solutions aimed at improving DoD.

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Taking Advantage of Opportunities for Commercial Satellite Communications Services

TASK

The Department of Defense (DoD) relies upon the United States commercial satellite private sector to provide about 40% of its satellite communication services at a cost of roughly $640 million per year. These commercial satellite service providers often approach DoD with business propositions that include opportunities for attractive deals in terms of time, money, and capability. Some of these propositions would require DoD to contractually commit to satellite services when available, sometimes on an annual basis, or other times over a multi-year period that would require up front dollars for the purchase agreement. On many occasions, DoD is unable to take advantage of these offers due to either existing processes (i.e. the Federal Acquisition Regulations, Joint Capabilities Integration Development System, and Planning, Programming, Budgeting and Execution) or statutory restrictions, many of which are beyond DoD's control.

DoD's need for satellite communication services is expected to escalate dramatically in the near future. Additionally, in a time when DoD is under severe budget constraints, every effort should be made to take advantage of opportunities to reduce overall costs. Because of these two dynamics, DoD should position itself now to more cost-effectively manage this known and growing requirement.

To help address this issue, the Deputy Secretary of Defense tasked the Defense Business Board (hereinafter referred to as "the Board") to form a Task Group to identify impediments to DoD's ability to better utilize the commercial satellite sector and recommend ways forward that allow DoD to better leverage opportunities from commercial satellite communications service providers. A copy of the Terms of Reference (TOR) outlining the scope and deliverables for the Task Group can be found at **Tab A**.

Mr. Neil Albert served as the Task Group Chair. The other Task Group members were Mr. Joseph Wright, Mr. David Langstaff, and Ms. Leigh Warner. Colonel Larry Kominiak, USA, and Colonel Christopher

McPhillips, USMC, served as the Board Military Assistants. Kelsey Keating served as the Board Staff Analyst.

PROCESS

The Task Group's draft findings and recommendations were presented to the Board for deliberation at the January 24, 2013 quarterly meeting where the Board voted to approve the recommendations. See **Tab B** for a copy of the brief approved by the Board.

As part of the tasking by the Deputy Secretary of Defense, the Task Group was directed to:

- Identify impediments to DoD's ability to better utilize the commercial satellite sector
- Recommend ways forward that allow DoD to better leverage opportunities from the commercial satellite service providers
- Review the opportunities, internal obstacles to implementation, and any corrective actions required to enable DoD to rapidly evaluate and take advantage of potential commercial satellite communications services

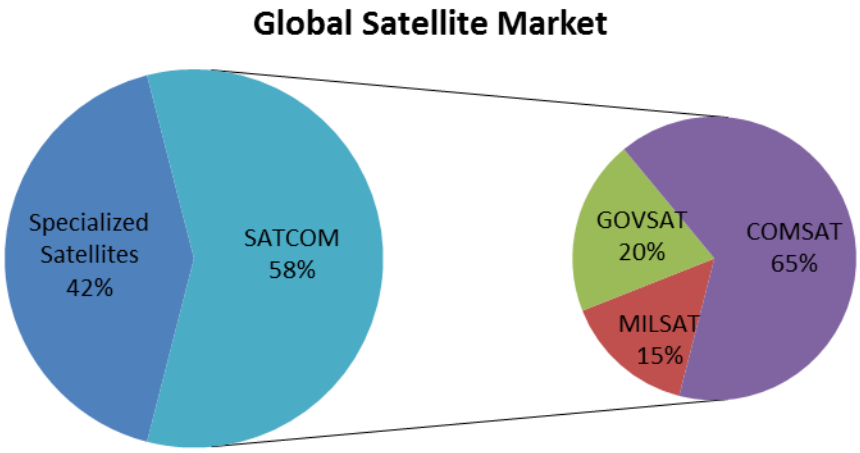
The Task Group conducted more than 20 interviews with prominent and experienced DoD and commercial satellite industry leaders. **Tab C** contains a list of the individuals interviewed. The Task Group also reviewed data from relevant US, DoD, and Government Accountability Office studies, reports, and strategies.

BACKGROUND

Based on interviews and reviews of numerous government and industry reports, the Task Group established the following common terminology to define specific segments of the global satellite market:

- SATCOM: all satellite communications (~58% of the global satellite market). SATCOM is further sub-divided into:
  - MILSAT: Military Satellite Communications
  - GOVSAT: Civilian Government Satellite Communications
  - COMSAT: Commercial Satellite Communications

- Specialized satellites (~42% of the global satellite market): meteorology, navigation, remote sensing



The predominant MILSAT systems include the Advanced Extremely High Frequency Satellite (AEHF), Enhanced Polar System Satellite (EPS), Mobile User Objective System Satellite (MUOS), and the Wideband Global SATCOM System (WGS).

Within the SATCOM market, the Task Group examined the basic workings of the MILSAT and COMSAT segments. Specifically, the Task Group identified that DoD exclusively controls MILSAT procurement, including electromagnetic spectrum frequencies, through the United States Air Force Space and Missile Command (SMC). COMSAT is controlled by the private sector and driven by investors who seek to maximize profits based on supply and demand. When COMSAT services are required by DoD, the Defense Information Systems Agency (DISA) uses General Services Administration (GSA) contracts to procure the needed services from the commercial market place. Of note, MILSAT and COMSAT services are not always interchangeable due to unique DoD needs and multiple operating frequencies.

The DoD Market

In Fiscal Year 2010, DoD spent $1.6B on SATCOM services, of which 60% was spent on MILSAT and 40% on COMSAT.

The DoD Market

FY10 DoD SATCOM Costs (excluding GOVSAT): $1.6B

MILSAT	60%	$960M
COMSAT	40%	$640M

Source: DISA

Examining COMSAT expenditures, DISA currently meets COMSAT requirements through a mix of one-year leases (75%) and "spot market" purchases at premium rates (25%). As the demand for service increases in the future, the cost of COMSAT services purchased by DISA is projected to grow to $3B-$5B over the next 15 years. This growth will cost DoD precious dollars during a period of tightening budgets if DoD does not change its current approach to procuring COMSAT services.

The Commercial Satellite Market

Until recently, MILSAT capabilities outpaced COMSAT, however, in today's competitive and global marketplace, the COMSAT market is well established and fully capable of meeting much of DoD's satellite service needs. The COMSAT market is rapidly expanding to meet increased global demands for services such as satellite television and high definition video broadcasting. As a result of the high demand for these types of services and a healthy return on investment, the COMSAT "fill rates" in many geographical areas are currently at 80% without any DoD participation. While COMSAT capabilities and frequency requirements are similar to MILSAT, DoD is clearly not the driver for the commercial sector's market growth. With COMSAT assets being rapidly committed to commercial activities, DoD will likely experience future increased competition and hence, increased cost, for commercial satellite contracts. Additionally, since the COMSAT industry is multinational in nature, some commercial firms with foreign equity interests may not be viewed as "friendly" to DoD's contracting requirements further limiting the available commercial providers and likely having an added impact on the cost for satellite services.

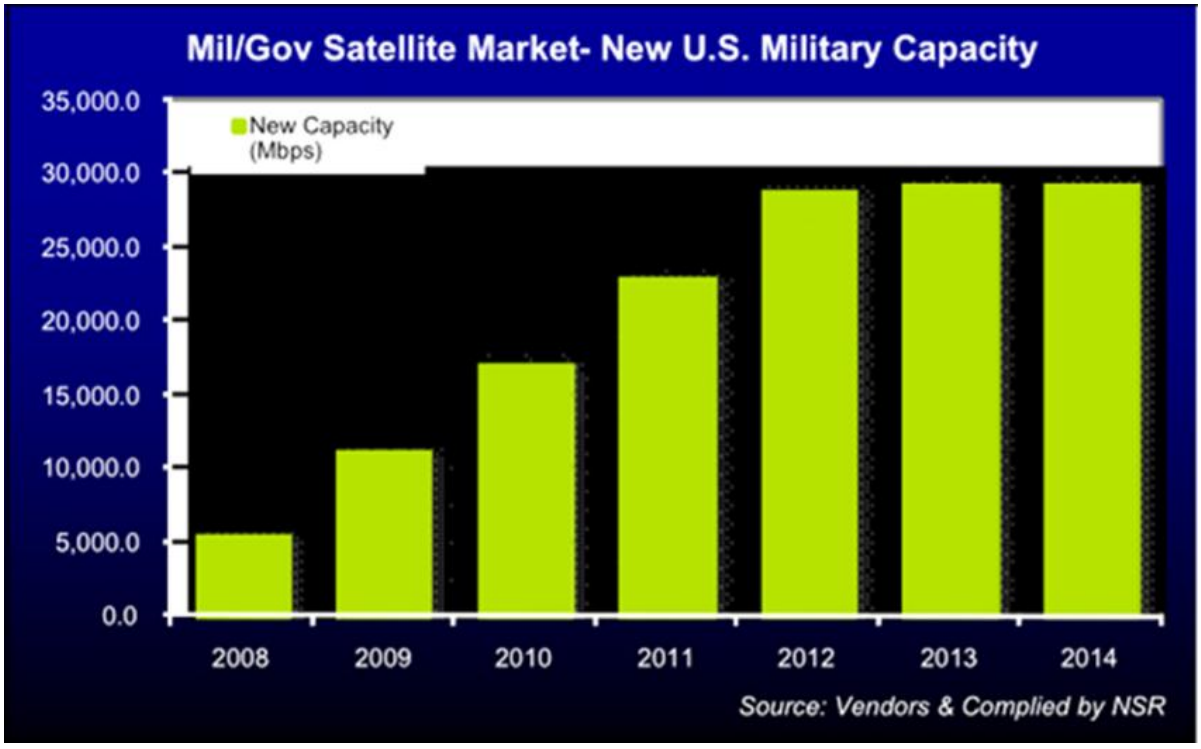
FINDINGS

Based upon interviews with DoD officials and commercial satellite industry leaders, as well as reviews of past satellite studies, reports, and strategies, the Task Group identified four major findings. The findings are described below.

1. COMSAT is needed to satisfy future DoD requirements but impediments exist

COMSAT currently supports 40% of DoD's SATCOM needs. According to Northern Sky Research (NSR), a telecom industry research firm, DoD's requirements will grow by 68% over the next decade. This requirements increase is due to the rebalancing of US forces towards the Asia-Pacific region, greater Navy activity patrolling the sea lanes, increased monitoring of world events, and increased activity in the war on drugs.

Implementation of the January 2012 National Defense Strategy and the September 2012 Capstone Concept for Joint Operations will require additional SATCOM capacity to meet increased demands. To meet the challenges and opportunities of a complex global security environment, the 2012 Defense Strategy expands DoD's presence into new and varied geographies. Simultaneously, a reduced physical presence in the Middle East will require increased virtual presence through monitoring and surveillance. The fielding of new platforms and sensors (i.e. unmanned aerial vehicles; intelligence, surveillance, and reconnaissance platforms) will drive a need for additional SATCOM capability. Although DoD plans to have up to 30Gbps of MILSAT capacity by 2014, additional COMSAT capacity will be needed to support future global military operations.



COMSAT is cheaper and faster to launch than MILSAT and, in some cases, COMSAT technology is advancing faster than MILSAT. Due to mature technology, evolutionary development, requirements stability, and commercial best practices, the average time from concept to launch in the COMSAT industry is 3-4 years versus 5-15 years for DoD MILSAT projects. According to the DoD Executive Agent for Space Staff, the current MILSAT programs of record will deliver new satellites only through 2025. Given future projected budgetary constraints, DoD must partner with the COMSAT industry to meet future requirements.

While DoD could benefit from partnering with the COMSAT industry to meet future communication requirements, existing contracting procedures and DoD's culture make partnerships with the private sector difficult. Additionally, DoD's COMSAT procurements are made on an annual basis which cause uncertainty and often do not fit with the private sector's long-term financial plans and return on investment projections used in their normal business planning procedures. Finally, within DoD, the Services and Combatant Commands (COCOMs) have an inherent bias to MILSAT services since they perceive the service as "free" as they are not directly charged for usage, whereas they have to directly pay for COMSAT services. DoD's MILSAT centric focus is further amplified by a "not

invented here" culture that makes it difficult for DoD to accept unsolicited proposals and new ideas from COMSAT service providers.

2. SATCOM is a mission critical resource

SATCOM is critical to supporting the warfighter and additional capacity will be required as new missions evolve, operations expand in new geographical regions, new technologies create new communications requirements, and the distributed command and control system envisioned in the JCS Capstone Concept for Joint Operations: Joint Force 2020 is implemented.

Warfighter Communications Requirements

- Interoperability – seamless connectivity
- Global coverage – operate anywhere in the world
- Assured, real-time access – available on demand
- Capacity – meet current and emerging requirements
- Protection – from all forms of information warfare
- Flexibility – match the dynamic operational environment

While DoD requires additional COMSAT capacity, there are constraints on availability. Global economic growth and rapid expansion of the consumer electronics market are consuming the COMSAT industry's available assets and services. Of particular note, the expanding consumer markets in the Asia-Pacific and Middle East/Africa areas are consuming nearly all of the COMSAT industry's installed capacity and will limit DoD's ability to secure resources in the future. Further restricting the availability of COMSAT services, some commercial operators in select regions will be from nations that are not considered "friendly" by DoD.

3. "Nontraditional" opportunities for rapid COMSAT acquisition are available but not being utilized

The COMSAT industry is ready and willing to partner with DoD and the U.S. Government in traditional and innovative business arrangements as long as they are profitable, yet there are several obstacles that prevent

this partnering. From the commercial industry's perspective, DoD's largest obstacle to leveraging commercial opportunities revolves around barriers in terms of policy, culture, and process. From an institutional perspective, DoD lacks the capability to embrace commercial proposals. Another obstacle is that the Department's Planning, Programming, Budgeting and Execution System does not allow it to respond in a timely manner compatible with the private sector's operating business practices.

Currently, DISA uses indefinite delivery, indefinite quantity (IDIQ) contracts to obtain three types of commercial satellite services: (1) "bent pipe" service; (2) buy bandwidth directly; and (3) provide end-to-end support services. Each of these contracts is executed through GSA's Future COMSATCOM Services Acquisition (FCSA), Custom SATCOM Solutions (CS2), or the Defense Information Systems Network (DISN) Satellite Transmission services – Global (DSTS-G) schedules.

The Task Group reviewed these contractual approaches and identified a parallel obstacle related to each. A summary of the approaches and obstacles is explained in the table below.

	Traditional and non-traditional approaches for COMSAT acquisition	Traditional and non-traditional obstacles for COMSAT acquisition
Buy to Lease	Make offer to a commercial operator for system use and obtain quid pro quo global service access for discount/zero charge	Funds derived from DoD asset must go to the national treasury vs. global service access deal
Capital Lease	Long term lease for satellite life (>10yrs)	Programmers resist O&M dollars for investment (termination liability, competitive annual priorities); Procurement dollars ineligible for these deals; Existing regulation is for 5 year max lease option
Anchor Tenancy	NASA/NOAA ability to enter into multiyear contracts to serve as the anchor tenant for commercial space ventures.	Termination liability concerns; Statute limited to NASA/NOAA3 – AT&L offering changes; Cannot be used for COMSAT unless approved by Congress
Indefeasible Right of Use (IRU)	Pays for up-front costs; signs agreements with others to get services and pays a large up-front fee, followed by annual charges for maintenance and upkeep	Failed providers pulling out early; poor pricing methods
Multi-year/Long term lease	Opportunity to reduce cost with longer leases	Congress uncomfortable committing dollars beyond first year Multi-year contracts are limited to 5 years; Termination liability concern
Hosted Payloads	DoD furnished payload; special needs; short timeframe	Timely ITU frequency coordination to bring service into use; current NTIA spectrum certification policy requires project funding prior to filing; adds significant delay to timeline; US launch vehicle requirement per Space Trans. Policy
Pathfinder	Finding optimal approach to leverage COMSAT technologies; long term solution	Long term solution with little time to solve near term budget issues and potential demand with the ongoing challenge to accept large scale non-traditional approaches to satisfy requirements; acquisition, policy and legal concerns manifest risk

4. DoD's management structure and strategy is currently not optimized

During interviews, multiple DoD officials expressed the need to create a SATCOM strategy that incorporates tactical requirements, operational support, and acquisition demands, yet no senior official or organization claimed responsibility for this task. Currently, the Defense Space Council serves as the overarching DoD advisory forum to synchronize requirements, planning, programming, budgeting, and execution yet, they lack the authority to implement a comprehensive DoD strategy for all DoD space activities. Recognizing this gap in space management, in January 2013, the DoD Chief Information Office (DoD CIO) defined a SATCOM governance framework and established a C4 Capability Integration Board to address mid-level executive matters relating to SATCOM.

As COMSAT capabilities evolve, DoD will need a comprehensive strategy to meet future aerial and terrestrial requirements. The Joint Force 2020 Capstone Concept of a highly networked force and the trend towards mobile computing will require significant increases in DoD SATCOM capacity. With no new MILSAT assets becoming available until 2025, DoD will have to work closely with industry and develop a strategy to acquire additional COMSAT capability. In delivering COMSAT capability, commercial and government SATCOM acquisition time frames are not equal.

As previously discussed, commercial industry typically plans future capability 3-4 years in advance to facilitate financing, development, launch, and deployment, while MILSAT operates on a 10+ year timeline from concept to delivery. With these differing timelines, DoD must quickly identify requirements and insert them early into the commercial industry's planning cycle to secure COMSAT availability. Of concern, DoD will need to acquire additional COMSAT services in emerging geographies such as the Middle East – Africa, Indian Ocean Region, Pacific Ocean Region, Asia Pacific, and Latin America, but has not created a plan to do so and capacity is limited. In addition to obtaining COMSAT services, DoD must engage in the appropriate electromagnetic frequency spectrum planning for the emerging geographies.

RECOMMENDATIONS

Based on the Task Group's findings and observations, the Board recommends the Department consider the following recommendations to better leverage opportunities with commercial satellite providers.

1. Designate a single lead organization for SATCOM strategy

Overarching the near and long-term recommendations below, the Board recommends DoD designate a single lead organization/agency responsible for developing and implementing a comprehensive SATCOM strategy that includes the joint use of MILSAT and COMSAT.

Near-Term

2. Take advantage of more investment/capital lease opportunities (Action: DoD CIO/DISA)

DoD should consider all viable options in other procurement models to meet this growing demand. Specifically, DoD must take advantage of DISA's experience with the Assured Satellite Service in a Single Theater (ASSIST) program and lengthen the terms of COMSAT capital leases. Although multi-year contracting authority is available through GSA, DoD is reluctant to use this authority due to the upfront costs. By implementing commercial capital leases in multiple increments for up to 10-15 years to meet COCOM needs, DoD could save up to $100M per year.

3. Continue Hosted Payload efforts (Action: Space Command and the Defense Space Council)

DoD must continue to pursue hosted payload opportunities through IDIQ contracts to meet short-timeframe special needs. To support hosted payload opportunities, DoD can make all of the necessary International Telecommunication Union (ITU) filings in advance. A mix of hosted payloads and COMSAT should be considered to maximize the resilience and effectiveness of space assets.

4. Consider alternative new contractual opportunities and arrangements (Action: Defense Space Council/Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L))

To provide greater flexibility in acquiring COMSAT services, DoD should consider alternative contractual arrangements such as "indefeasible right of use" temporary ownership and pursue legislative action that permits anchor tenancy 10 year firm-fixed contracts.

5. Use the 2014 Quadrennial Defense Review to elevate the importance of SATCOM by addressing the balance of COMSAT/MILSAT (Action: Under Secretary of Defense for Policy (USD (Policy))

USD (Policy) must work with the DoD Executive Agent for Space, US Strategic Command (STRATCOM), and the DoD CIO to enhance MILSAT and COMSAT capacity opportunities and examine the cost savings potential for shifting the balance of DoD SATCOM toward COMSAT, provided specific military technical requirements can be met.

6. Increase DoD outreach to COMSAT platform and service providers commensurate with the increased importance of COMSAT in a MILSAT/COMSAT rebalancing (Action: USD (AT&L))

Since MILSAT timelines are too long to meet future and emerging requirements, DoD must closely partner with COMSAT service providers to address the projected increased demand for bandwidth in new geographic areas such as the Asia-Pacific. To facilitate this outreach and partnerships, DoD should adopt the recommendations contained in the DBB's Report, "Public-Private Collaboration in DoD," (FY12-04) to expand collaboration and authorities to allow DoD to partner with the private sector.

7. Continue in parallel a Pathfinder approach for better economical solutions (Action: USD (AT&L))

To identify the most economical approaches for SATCOM services, DoD should pursue a series of small scale acquisition efforts (pathfinder initiatives) to investigate non-traditional approaches and gain experience with attractive business opportunities and models.

Long-Term

8. Support the DoD CIO in establishing a governance and usage plan for the MILSAT and COMSAT ecosystem including aerial and terrestrial elements (Action: DoD CIO/STRATCOM/Defense Space Council)

The DoD CIO has already defined a SATCOM governance framework and established a C4 Capability Integration Board to address mid-level executive matters relating to SATCOM. The other stakeholders in the MILSAT and COMSAT ecosystem must support the CIO's initiatives to achieve unity of effort.

9. Address which organization(s) has operational and tactical execution authority (Action: STRATCOM/Joint Staff/COCOMs)

DoD is already working in the direction of a SATCOM governance plan via the CIO's SATCOM governance framework and C4 Capability Integration Board. The governance plan must define roles and authorities, and be coordinated through the Defense Space Council.

10. Facilitate future governance by designating a single DoD organization for procuring all SATCOM assets and services (Action: SecDef/CJCS)

DoD should designate and resource a single organization (possibly DISA) for the acquisition and management of SATCOM assets and services in the same manner that the Defense Logistics Agency is a one-stop shop for the Services' common logistical commodities. This activity would be handled in a managed service type approach. The designated organization will maintain an inventory of available resources, ensure their disciplined use, and procure military and commercial aerial/terrestrial resources to obtain the best value.

CONCLUSION

SATCOM is critical to supporting the warfighter and DoD will require additional capacity in the future as new missions evolve and

communication technologies further develop. To meet DoD's needs, the commercial satellite sector is a cost effective source for obtaining technologically advanced services. As this report details, DoD can efficiently leverage the commercial satellite sector by designating a single lead organization to develop and implement a comprehensive MILSAT/COMSAT strategy, using new COMSAT procurement models, and increasing its outreach to the commercial sector. Implementation of these initiatives will successfully posture DoD to meet today's needs as well as future warfighter communications requirements.

Respectfully submitted,

Neil F. Albert
Task Group Chair

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Defense Business Board

TAB A

TERMS OF REFERENCE

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DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

SEP 0 3 2012

MEMORANDUM FOR CHAIRMAN, DEFENSE BUSINESS BOARD

SUBJECT: Defense Business Board Terms of Reference – "Taking Advantage of Opportunities for Commercial Satellite Communications Services"

Members of the satellite commercial sector often approach the Department of Defense (DoD) with opportunities to provide highly desirable and time-sensitive commercial satellite communication capabilities. Some propositions require a DoD commitment to take service when available, sometimes on an annual basis, while others may require a commitment of up front dollars covering services for a multi-year period. DoD has been unable to take advantage of these ideas due to either existing processes (i.e., the Federal Acquisition Regulations, Joint Capabilities Integration Development System, and Planning, Programming, Budgeting and Execution) or a DoD culture that appears to resist dependence on commercial providers for satellite services.

Some obstacles, like congressional funding and other statutory restrictions (such as the Competition in Contracting Act 10 U.S.C. § 2304), are beyond our control; however, there may be some changes in existing regulations processes that could allow DoD to take advantage of these operationally useful, yet fleeting opportunities. Consistent with the National Security Space Strategy and National Space Policy, and to meet the capability need of the Combatant Commanders, we must take action to assess whether it is possible to realize the potential benefits offered by the commercial satellite communications sector.

I request that you, as the Department's independent advisory board for best business practices, conduct a study to identify impediments to DoD's ability to better utilize the commercial satellite sector and recommend ways forward that allow DoD to better leverage opportunities from the commercial satellite service providers. In particular, review the opportunities, internal obstacles to implementation, and any corrective actions required to enable DoD to rapidly evaluate and take advantage of potential commercial satellite communications services.

Specifically, the Task Group should provide the following deliverables:

1. Opportunities. Explore potential business arrangements including "nontraditional" methods for rapidly acquiring commercial space goods and services that enable expedited review and decision for space capabilities. Examples of space goods and services include but are not limited to: payloads hosted on commercial satellites, service-level agreements for commercially provided space-based capabilities.

2. Obstacles to Implementation. Identify potential roadblocks in the acquisition process related to the commercial satellite sector that prevent DoD from taking advantage of opportunities to provide commercial satellite communications capabilities, including administrative, programmatic, cultural, legislative, and legal impediments. Examples include but are not limited to: the lack of multi-year contract authority for acquisition of commercial space products and services which is found in Title 51 of the United States code for some civilian agencies (anchor tenancy authority) but not in Title 10 for DoD; the need by commercial vendors for an initial commitment upfront to secure debt financing; the lengthy timeline for a sole source award which may move the procurement outside of the vendor's product's availability; and the lengthy acquisition process that may not allow the Department to take advantage of fleeting commercial opportunities.

3. Corrective Actions. Provide potential actions the department can take to reduce roadblocks and increase opportunities to provide commercial satellite capabilities and services to the Combatant Commanders. The corrective actions should specify which actions can be accomplished within existing legal authorities, and which actions require a change to existing statutes, regulations, or processes.

Mr. Frank Kendall, USD(AT&L), will serve as the primary DoD liaison for this task and will provide technical assistance as needed. The Joint Chiefs of Staff will support the task group as required.

As a subcommittee of the Board, and pursuant to the Federal Advisory Committee Act of 1972, the Government in the Sunshine Act of 1976, and other appropriate federal regulations, this Task Group shall not work independently of the Board's charter and shall report its recommendations to the full Board's public deliberation. The Task Group does not have the authority to make decisions on behalf of the Board, nor can it report directly to any federal officer who is not also a Board member.

cc:
USD(AT&L)
Director, Joint Staff

Defense Business Board

TAB B

FINDINGS AND RECOMMENDATIONS

PROVIDED TO THE BOARD ON JANUARY 24, 2013

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DEFENSE BUSINESS BOARD

Taking Advantage of Opportunities for Commercial Satellite Communications Services

Task Group

January 24, 2013

Agenda

- Task Group Overview
- Process
- Background
- Findings
- Recommendations
- Next Steps

Task Group Overview

Terms of Reference

- Identify impediments to DoD's ability to better utilize the commercial satellite sector
- Recommend ways forward that allow DoD to better leverage opportunities from the commercial satellite service providers
- Review the opportunities, internal obstacles to implementation, and any corrective actions required to enable DoD to rapidly evaluate and take advantage of potential commercial satellite communications services

Task Group Members

Mr. Neil Albert (Chair)

Mr. Joseph Wright

Mr. David Langstaff

Ms. Leigh Warner

DBB Assistants

COL Lawrence Kominiak, USA

COL Chris McPhillips, USMC

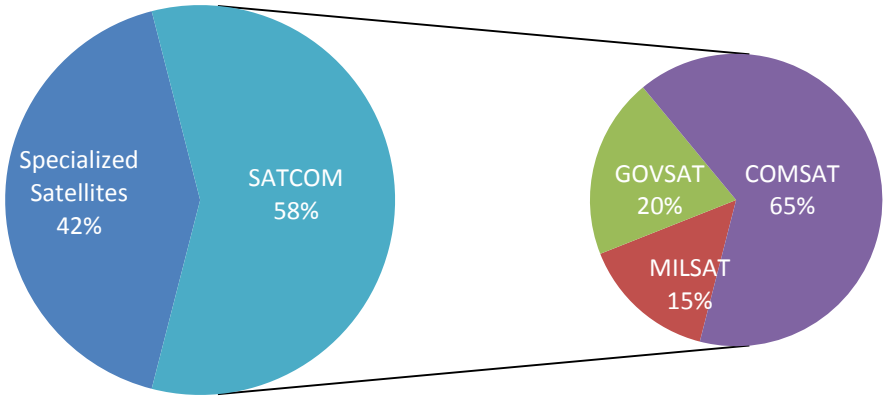
Ms. Kelsey Keating

Process

- **Interviews**
  - 20+ interviews across DoD & Commercial Space Industry
    - DoD CIO, USAF Space and Missile Command (SMC), OSD AT&L, CAPE, EA Space, Joint Staff, Dir., Defense Information Systems Agency (DISA), Gen. James Cartwright (Retired)
    - Commercial partners representing a major cross-section of the Space Industry: Boeing, Hughes, Intelsat, SES, US Space, Universal Space, ViaSat, InmarSat, Orbital Science
- **Bibliographical/Literature Review**
  - National Defense Strategy, January 2012
  - National Space Policy, June 2010
  - National Security Space Strategy, January 2011
  - Industry provided products & documents
  - DISA 2013-2018 Strategic Plan
  - DISA AOA for Satellite Communications, October 2012
  - JP 6-0: Joint Communications System, June 2010
  - JP 3-14 Space Operations, January 2009
  - DoD Information Enterprise Architecture, July 2012
  - DoD CIO SATCOM Governance Framework, January 2013
  - Capstone Concept for Joint Operations: Joint Force 2020, September 2012
  - GAO reports
  - White Papers

Background – Context and Common Terms

- SATCOM: All satellite communications (approx. 58% of total global satellite market)
  - MILSAT: Military satellite communications
  - GOVSAT: Civilian government satellite communications
  - COMSAT: Commercial satellite communications
- Specialized satellites: approx. 42% of total global satellite market (e.g., meteorology, navigation, remote sensing, etc.)
- Acronyms:
  - AEHF: Advanced Extremely High Frequency Satellite
  - EPS: Enhanced Polar System Satellite
  - MUOS: Mobile User Objective System Satellite
  - WGS: Wideband Global SATCOM System



Background
Basic Facts

- DoD controls MILSAT: USAF SMC procures MILSAT assets and selected frequencies to meet end-user requirements
- COMSAT assets and services are owned by commercial sector, independent of DoD
- DISA procures COMSAT services as needed to augment MILSAT, based on end-user requirements
- MILSAT and COMSAT services are not interchangeable in all instances due to unique DoD needs
  - Further complicating the issue, SATCOM services are complex with various owners and multiple bands (including K_u-band, X-band, K_a-band, and others)

Background
DoD Market

- Total FY10 DoD SATCOM costs (excluding GOVSAT): $1.6B*
  - MILSAT 60% ($960M/year) *
  - COMSAT 40% ($640M/year) *
- DoD COMSAT requirements met by
  - Leases 75% *
  - "Spot market" purchases 25% *
- DoD/DISA leases COMSAT predominately through one-year leases
- The cost of COMSAT services purchased by DoD/DISA could grow to $3B - $5B in the next 15 years

* Source: DISA

Background
COMSAT Market

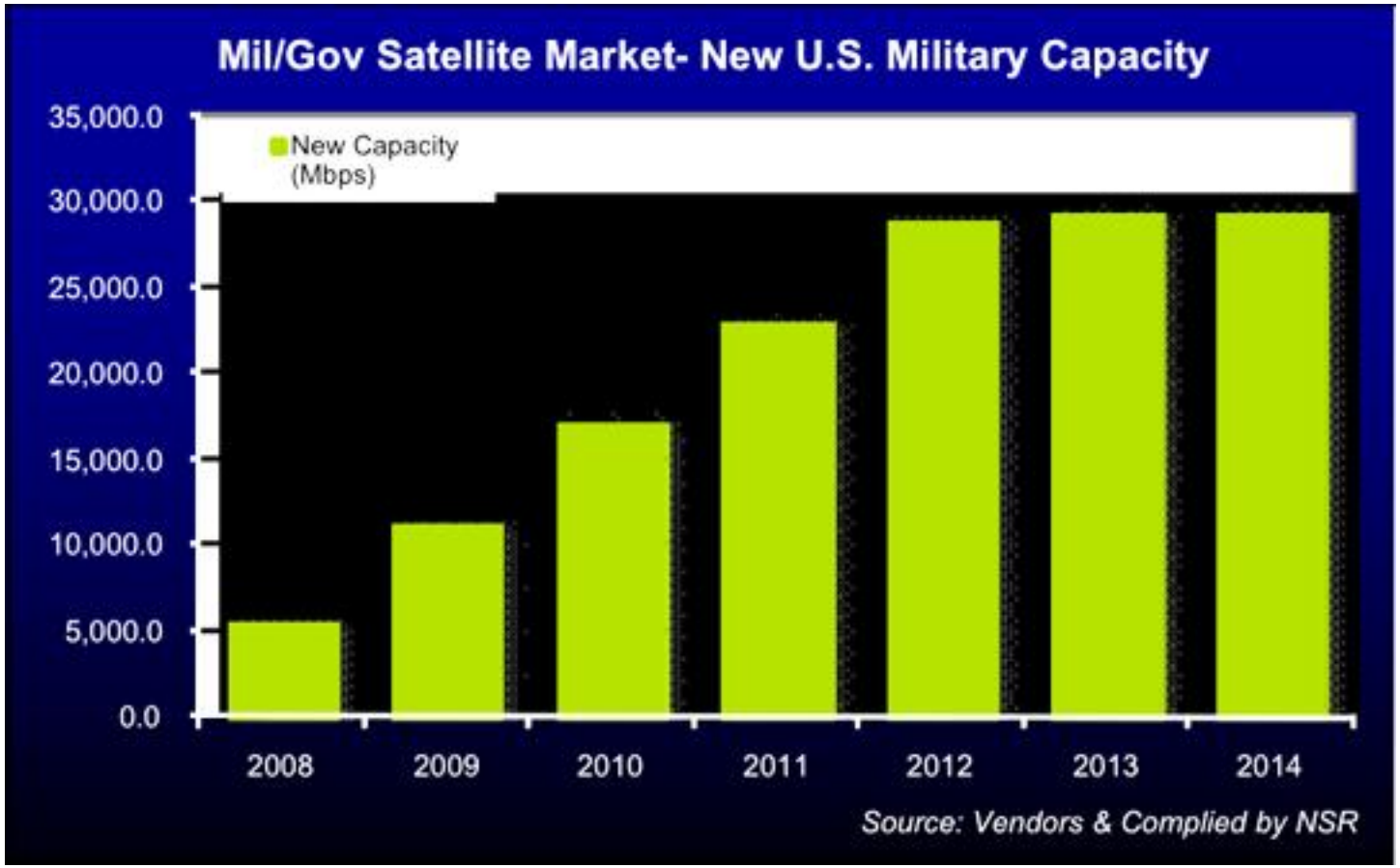
- COMSAT experiencing explosive private sector growth and new technological capabilities
- COMSAT capabilities (frequency) similar to MILSAT
- Commercial business decisions based on Return on Investment
- Commercial SATCOM industry is multinational and some may not partner with DoD in all geographies
- COMSAT "fill rates" in many geographies are currently at 80% without DoD contracts
- DoD is not driving the growth of the industry
  - Satellite TV, HD TV, etc.

"*Unsure if DoD is really interested in doing business with us*"
--U.S. Private Sector COMSAT Senior Executive

Findings Overview

- COMSAT needed to satisfy future DoD requirements
- SATCOM is a mission critical resource for all of DoD
- “Nontraditional” opportunities for rapid COMSAT acquisition exist but obstacles exist to implementation
- DoD strategy and management structure for interfacing with rapidly evolving COMSAT ecosystem is not optimized

Military Satellite Capacity



MILSAT will soon reach 30 Gbps capacity – Is that enough?

Finding 1
COMSAT Needed To Satisfy Future DoD Requirements

- Implementation of National Defense Strategy and Capstone Concept for Joint Operations will require additional SATCOM capacity
  - Future strategy includes expanded presence into varied geographies
  - Withdrawals from existing geography requires increasing reliance on surveillance
  - New platforms and sensors (e.g. UAVs, ISR) require increasing satellite communications
- COMSAT provides 40% of DoD SATCOM – expected to increase over next decade by 68% (Source: NSR, 2011)
  - Rebalance toward Asia Pacific
  - Greater Navy support to patrol the sea lanes
  - Monitoring world events
  - Increased activity in the war on drugs

Finding 1
COMSAT Needed To Satisfy Future DoD Requirements

- DoD needs to partner with COMSAT to meet growing requirements and available capability
  - MILSAT capacity unlikely to expand due to reduced DoD budgets
    - MUOS, WGS, AEHF, and EPS expected to be the total extent of U.S. MILSAT communications for the foreseeable future
    - WGS sold satellites (#6 and #9) to foreign investors – losing the use of bandwidth to non-US countries
  - COMSAT is faster/cheaper to launch than MILSAT
  - COMSAT technology is advancing, in some cases faster than MILSAT
- Problem: Existing contracting procedures for COMSAT make partnership between DoD and Industry difficult
  - DoD COMSAT procurements on an annual basis
  - Difficulty accepting unsolicited proposals and new ideas from COMSAT service providers, limiting relationships with DoD

Finding 2
SATCOM is a Mission Critical Resource

- SATCOM is used to support the Warfighter with greater capacity needed in the future
  - New missions in current AORs
  - New geographies
  - Evolving technologies with new communications requirements
  - Total Force 2020 command and control
- Warfighter requirements
  - Interoperability - seamless connectivity
  - Global coverage - operate anywhere in the world
  - Assured, real-time access - available on-demand
  - Capacity - meet current and emerging requirements
  - Protection - from all forms of information warfare
  - Flexibility - match the dynamic operational environment
- Growing constraints on COMSAT availability for DoD
  - Global economic growth has placed greater demand on COMSAT capacity
  - Consumer markets in new geographies are growing – (e.g., Asia Pacific, Middle East/Africa)

Finding 3

"Nontraditional" Opportunities For Rapid COMSAT Acquisition But Obstacles Exist

- Industry is generally ready and willing to partner with DoD and USG in traditional and innovative business arrangements
  - As long as relationship is as profitable as growing commercial contracts
  - Obstacles exist particularly in contractual and statutory concerns
- Largest obstacles to using commercial opportunities (based on Commercial providers)
  - DoD Institutional Barrier: The decision cycle associated with any of these (commercial) proposals is light years ahead of the DoD decision cycle which is generally 2-3 years.
  - DoD does not have the capability to corporately ingest these proposals: The main roadblock is in terms of policy, culture, and process. It is difficult to assume all are untenable.
- Currently DISA/GSA has three types of contracts (Indefinite Delivery, Indefinite Quantity (IDIQ))
  - "Bent Pipe" service
  - Buy bandwidth directly
  - Provided end-to-end support services
- Procured through GSA Schedules – IDIQ contracts
  - Future COMSATCOM Services Acquisition (FCSA)
  - Custom SATCOM Solutions (CS2)
  - Previously DISN Satellite Transmission Services-Global (DSTS-G)

Finding 3

"Nontraditional" Opportunities For Rapid COMSAT Acquisition But Obstacles Exist

	Identified traditional and non-traditional approaches for COMSAT acquisition	Identified traditional and non-traditional obstacles for COMSAT acquisition
Buy to Lease	Make offer to a commercial operator for system use and obtain quid pro quo global service access for discount/zero charge	Funds derived from DoD asset must go to the national treasury vs. global service access deal
Capital Lease	Long term lease for satellite life (>10yrs)	Programmers resist O&M dollars for investment (termination liability, competitive annual priorities); Procurement dollars ineligible for these deals; Existing regulation is for 5 year max lease option
Anchor Tenancy	NASA/NOAA ability to enter into multiyear contracts to serve as the anchor tenant for commercial space ventures	Termination liability concerns; Statute limited to NASA/NOAA3 – AT&L offering changes; Cannot be used for COMSAT unless approved by Congress
Indefeasible Right of Use (IRU)	Pays for up-front costs; signs agreements with others to get services and pays a large up-front fee, followed by annual charges for maintenance and upkeep	Failed providers pulling out early; poor pricing methods
Multi-year/Long term lease	Opportunity to reduce cost with longer leases	Congress uncomfortable committing dollars beyond first year Multi-year contracts are limited to 5 years; Termination liability concern
Hosted Payloads	DoD furnished payload; special needs; short timeframe	Timely ITU frequency coordination to bring service into use; current NTIA spectrum certification policy requires project funding prior to filing; adds significant delay to timeline; US launch vehicle requirement per Space Trans. Policy
Pathfinder	Finding optimal approach to leverage COMSAT technologies; long term solution	Long term solution with little time to solve near term budget issues and potential demand

Sources: "Taking Advantage of Opportunities for Commercial Satellite Communications Services", Oct 2012
"Commercial Satellite Communications Services Analysis of Alternatives (AOA) Final Report", Oct 2012
"Space Disruptive Challenges, New Opportunities and New Strategies", Strategic Studies Quarterly, Spring 2012

Finding 4
DoD Strategy And Management Structure Currently Not Optimized

- No senior official claimed sole responsibility for SATCOM
  - Multiple DoD officials asserted ownership for key components of SATCOM (i.e., strategy, operational, tactical, and acquisition support, etc.)
  - From an outside view, appears current roles and responsibilities are ambiguous
- Defense Space Council (DSC) currently serves as advisory forum (Deputy Sec Def Memorandum, 22 November 2011):
  - Aligns requirements, planning, programming, budgeting, and execution
  - Synchronizes Defense Space activities
- As COMSAT capabilities evolve, DoD will need to be more proactive and innovative
  - Joint Force 2020 Capstone Concept of highly-networked force depends on redundancy and diversity of communications links
  - Mobile computing trends require significant increases in both USG and DoD capacity
  - New MILSAT assets not anticipated until 2025

Finding 4
DoD Strategy And Management Structure Currently Not Optimized

- Commercial and government SATCOM acquisition timeframes are not equal
  - Commercial industry typically plans future capability 3-4 years in advance to facilitate financing, development, launch, and deployment
  - Commercial sector generally operates on more efficient and cost effective timelines (24-48 months)
  - MILSAT operates on a >10+ year timeline from concept to delivery
- Emerging geographies require DoD to use more COMSAT, yet no plan to do so
  - Middle East - Africa, Indian Ocean Region, Pacific Ocean Region, Asia Pacific, Latin America
- Need to differentiate the type of communications capacity requirements: aerial or terrestrial
- However, as of January 2013, the DoD CIO defined a SATCOM governance framework, including a "C4 Capability Integration Board" (C4CIB) to address mid-level executive matters related to SATCOM

Recommendations
Near-Term

1. Take advantage of more capital lease opportunities (Action: CIO/DISA)
   - Take advantage of DISA Assured Satellite Service in a Single Theater (ASSIST Experience) and lengthen COMSAT capital leases
   - Although multi-year authority is available through GSA, DoD is reluctant to use due to upfront costs
   - Commercial Capital Lease of multiple increments for up to 10 years to match COCOM needs, DoD saves up to $100M per year
2. Continue Hosted Payload efforts (Action: Space Command and Defense Space Council)
   - Ability to fill special needs in short time frame
   - Use IDIQ contract instrument
   - Make all necessary International Telecommunication Union (ITU) filings to take advantage of opportunities in advance
   - Consider a mix of COMSAT and Hosted Payload opportunities to maximize the resilience and effectiveness of space assets
3. To provide additional flexibility – consider alternative new contractual opportunities and arrangements (Action: DSC/USD (AT&L))
   - “Indefeasible Right of Use” (IRU) temporary ownership
   - FY 14 “Anchor Tenancy” language: 10 year firm-fixed contracts (draft legislation already exists)

Recommendations
Near-Term

4. 2014 QDR to elevate importance of SATCOM by specifically addressing the balance of COMSAT/MILSAT (Action: USD (Policy))
   - Work with the Executive Agent for Space, STRATCOM, and DoD CIO to enhance capacity opportunities for both MILSAT and COMSAT
   - Evaluate technical and cost savings potential for shifting balance of DoD SATCOM toward COMSAT, providing specific military requirements can be met
5. Increase DoD outreach to COMSAT platform and service providers commensurate with increased importance of COMSAT in a MILSAT/COMSAT rebalancing (Action: USD (AT&L))
   - Related to increased demand for bandwidth in new geographies
   - MILSAT timeframe is too long to meet requirements
6. Continue in parallel a Pathfinder approach for better economical solutions (Action: USD (AT&L))

Recommendations
Long-Term

1. Support the DoD CIO in establishing a governance and usage plan for MILSAT and COMSAT ecosystem including aerial and terrestrial elements (Action: CIO/STRATCOM/DSC)
2. Address which organization(s) has operational and tactical execution authority (Action: STRATCOM/Joint Staff/COCOM)
   - DoD already working in the direction of CIO governance plan
   - Collaborate through DSC on priorities and synchronization with all opportunities
3. Facilitate future governance by designating a single DoD point for procuring all SATCOM assets and services (Action: SecDef/CJCS)
   - Model after the authority DLA has (possibly DISA) as a one-stop shop for logistics support of commodities
   - Recognize the fungibility of communications commodities across the Services and across geographies
   - Coordinate military and commercial resources for best value opportunities (e.g. considering COMSAT's cost advantage vs. MILSAT)
     - Major strategic sourcing opportunity – in support of all Military Services
     - Include aerial and terrestrial communications to get full benefit

Next Steps

- Briefings to USD (AT&L), DASD, SPACE, VCJCS, Service Secretaries, CIO, STRATCOM

- Convene follow-on DBB task group to explore business models for implementation of centralized DoD SATCOM governance and acquisition

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Questions?

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Business Excellence In Defense of the Nation

Defense Business Board

TAB C

Study Interview List

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Key Interviews

Taking Advantage of Opportunities for
Commercial Satellite Communications Services
(not all inclusive)

Department of Defense

- The Honorable John Stenbit, former Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (C3I) and Assistant Secretary of Defense of Networks and Information Integration / Department of Defense Chief Information Officer
- The Honorable Arthur Money, former Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (C3I)
- Ms. Teresa Takai, Department of Defense Chief Information Officer
- Mr. Gil Klinger, Deputy Assistant Secretary of Defense, Space and Intelligence
- Mr. Richard McKinney, Deputy Under Secretary of the Air Force (Space) and Director, Department of Defense Executive Agent for Space Staff
- General (Ret) James E. "Hoss" Cartwright, former Vice Chairman of the Joint Chiefs of Staff
- Lieutenant General Ellen Pawlikowski, Commander, Space and Missile System Center, Air Force Space Command
- Mr. John Orem: Director, Intelligence, Surveillance, and Reconnaissance Programs and C4I Divisions, Office of the Secretary of Defense for Cost Assessment and Program Evaluation
- Mr. Bruce T. Bennett, Director Satellite Communications, Teleport, and Services/PEO for Communications, Defense Information Systems Agency
- Ms. Susan Raps, Deputy General Counsel (Acquisition and Logistics), Department of Defense Office of the General Counsel
- Major General Jay Santee, Principal Director, Office of the Deputy Assistant Secretary of Defense, Space Policy
- Brigadier General Teresa Djuric, Deputy Director, Space and Intelligence Office; Deputy Assistant Secretary of Defense, Space and Intelligence
- Brigadier General Richard Stapp, Deputy Director for Requirements (J8), Joint Staff
- Brigadier General Robert McMurray, Director, Space Programs, Office of the Assistant Secretary of the Air Force for Acquisition
- Mr. Joseph Vanderpoorten, Technical Director, Military Satellite Communications Systems Wing, Space and Missiles System Center, Air Force Space Command

Key Interviews

Taking Advantage of Opportunities for
Commercial Satellite Communications Services
(not all inclusive)

Commercial Sector

- Boeing – Mr. Jim Simpson, Vice President, Business Development Space and Intelligence Systems
- Cisco Inc. - LTG (Ret) Steve Boutelle, Vice President, Government Solutions Cisco, Inc and former US Army Chief Information Officer
- Hughes Network Systems – Mr. Rick Lober, Vice President, Defense and Intelligence Systems
- Intelsat General Corporation – Ms. Kay Sears, President
- SES Government Solutions - Mr. Tip Osterthaler, President and CEO
- US Space - Mr. Craig Weston, President and CEO

Written Input from:

- Jacques & Associates
- Orbital Sciences
- Universal Space
- ViaSat
- XTAR