

Space Commercialization Conference
– Reach to Space –

Military Perspectives on Space Commercialization

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Space Perspectives...



Army



Navy



Marines



Air Force



NASA



NRO



Commercial

Topline:

Defense vs Commercial Industry Tension

- Defense industry offers unique capabilities for military advantage
 - Military depends on industry for:
 - Systems development
 - Operations
 - Industry depends on military for:
 - Contracts
 - Protection
- Commercial industry is accessible by anyone
 - Industry looks for generic capabilities to broad markets
 - Needs govt protection of intellectual and physical property
 - Military wants best value for commercial needs

Bottomline:

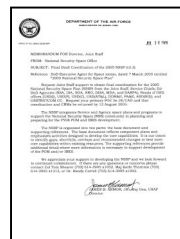
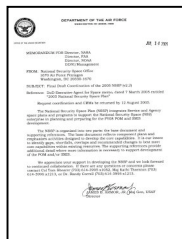
Government is a TERRIBLE customer

- Unpredictable needs, priorities and funding
 - “Policy is not self-actualizing”
 - Often requires political advocacy to sustain contracts
 - Uneven customer competence
- Government is competitor to commercial industry
 - Internal-external decisions opaque
 - Inherently governmental functions seem arbitrary
- Unacknowledged dependence on commercial industry
 - R&D
 - Processes and professionals

Executive Agent for Space Initiatives on National Space Policy

Dr. Sega's Initiatives include:

- Back to Basics discipline in acquisition
- Block approach to system development
- Continuity of Service
- Operationally Responsive Space
- International Relationships
- Space Industrial Base



AF Promotion of Commercial Launch

- Jan 2005 US Space Transportation Policy
 - “Encourage and support commercial...launch development”
- Umm...Evolved Expendable Launch Vehicle (EELV)
 - Procedure for new providers to compete (yikes!)
- Operationally Responsive Space (ORS) program
 - FY04-07 funds on joint AF/DARPA Falcon program
 - 9 contractors to varying levels of effort
 - New capabilities can “onramp” to Responsive Small Spacelift (RSS) contract
 - SpaceX is on RSS contract
- AF has no plans to fund further SLV development

Inherently Governmental

- It depends – gray lines abound
- “...provide for the common defence,...”
 - Lethal force for National Defense
 - Spying for National Security
- “...promote the general Welfare,...”
 - Risky new technology (nuclear, medicine, space)
 - Too much capital (railroads, highways, space)
 - No profit (National Parks, farming, hmm..space again)

US Government

- Congress builds laws by consensus and other than quantifiable criteria or effectiveness
 - Re-election underlies EVERYTHING
- Congress owns the money
 - Drives the size of Exec Branch
 - They meddle
- Has NEVER, EVER passed up an opportunity to save money in the short term so they can spend more in the long term
 - Free's up near term funds for pork

So..., What?

- Examples
 - Satcom – military expedient: good
 - Blackwater – government expedient: not so good
 - Global Positioning System – military as commercial
 - Remote sensing – military constraint of free market fails
 - Weather – international cooperation trumps
 - Computers – 21st Century paper clip
- Two dynamic criteria:
 - Defense industrial base (not inherently governmental)
 - Effectiveness (“economy of force” in military parlance)

Recommendation to Industry

- Don't count on Gov as a prime customer unless willing to sustain public advocacy
- Unique system or S&T requires advocate in USG
 - Sustained lobby
- Make your business case outside defense
 - As industry grows, military will use

Despite All That,

What Capabilities Does Military Need?

But isn't necessarily smart enough to know yet

- Needs now: more and cheaper
 - PNT, communications, remote sensing (esp imagery)
 - Real time
 - Archival and value added services
 - Seamless integration with terrestrial systems
 - Launch (Space Access)
 - Infrastructure support (satellite control network, ranges, space surveillance, etc.)

Despite All That,

What Capabilities Does Military Need?

But isn't necessarily smart enough to know yet (cont'd)

- Needs upcoming:
 - Protection!
 - Space Situational Awareness (SSA) – Earth orbit, and beyond
 - Defensive Counter Space (DCS) – Govt AND commercial systems AND allied systems
 - Cheaper to orbit – by order of magnitude
 - Manned Transport – USMC really wants
 - Military manned space – only curiosity for now
 - Gov will “buy” habitat use for...whatever
 - Space based Solar Power

Space Based Solar Power (SBSP)

- NSSO Report, 10 Oct 07: Architecture Feasibility Study
 - Collaborative, no-cost study (www.acq.osd.mil/nssso/index.htm)
 - 170 academic, technical, legal, business, govt participants
 - 13 space associations endorsed at Press Conference
- Critical benefits of SBSP
 - Renewable energy
 - Reduced ecological impact
 - Industry, jobs, and general spacefaring
- Report recommendations:
 1. Organize US Govt to conduct analyses and allow development
 2. US Govt should retire major portion of technical risk
 3. Create a facilitating policy, regulatory, and legal regime
 4. US Govt should be early demonstrator/adopter/customer

What's Not Being Said?

- Significant gap between stated National Space Policy and observed priority and funding
 - Credibility of NASA, USAF, NRO, and other programs disintegrating
 - Credibility of US diplomacy on space issues fading
 - Export controls eroding domestic space industrial base
- Major vulnerabilities exist in all space assets
 - Threats growing quantitatively and qualitatively
- Space Situational Awareness systems not capable of causal attribution of space events
 - Intelligence collection/analysis of threats is moribund

What Else is Not Being Said?

- Space control – a vital element of US policy – still substantially a taboo topic
- Military space professionals – especially scientist/engineers – intentionally scattered
- No coherent space organization or management
 - Knowledge of a situation, no matter how insightful, cannot be acted upon without organizational alignment
- Failure of vision and leadership
 - This is fate of the free world issue

What's Needed?

- Presidential level Space Council
 - Oversee policy implementation and enforce priority
 - Coordinate department and agency programs
 - Domestic public education & international diplomacy
- Significant increase in civil, military, and intelligence space budgets
- Significant increase in government space S&T funds to insure long term US leadership
- Integrated National Security Space management
- Autonomous DoD Space Corps accountable for securing the space domain for all legal use

What Should Industry Do?

Oh, yeah, and US citizens, too...

- Demand protection of space systems
- Demand space industrial base and ITAR reform
- Support education programs
- Press for US space governance reforms
- Demand expansive U.S. space goals with funds

**Commercialization of Space
Requires a Secure Domain**

Time for action is NOW



Will the U.S. be his partner or just his customer?

BACKUP CHARTS

Space Industrial Base Assessments

- NSS systems inherently hard – harder at sub-prime levels
- Current government program management approach not attracting investment to solve hard problems
- Domestic supply base eroded
- Lack of government insight into supply chain hinders risk management
- Prime's make/buy decisions not necessarily best value to government
- Export controls place significant burden on suppliers
- Workforce issues have greater impact on suppliers

National Space Policy

Principles of National Space Policy

- Ensure Freedom of Action in Space
- Seek to cooperate with other nations
- Exploration and Use of Outer Space for peaceful purposes
- Encourage and facilitate entrepreneurial U.S. commercial space sector

**Space is a
Vital National
Interest**

What's Different from 1996?

- Developing core space professionals
- Refocused space acquisition
- Interagency collaboration
- Multi-/Inter-national cooperation
- Space Industrial Base

