

**Space Business Forum: New York, NY June 18, 2008**

The Space Foundation, in a heroic effort to launch a New York based satellite industry forum during a depressed market environment, brought together an A-list of speakers for a crowd of approximately 150 industry executives, government officials and Wall Street bankers and analysts. A great idea and we hope it will become a mainstay of the satellite conference circuit and a must attend event for those interested in space as a “financial frontier.”

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**Newt and Prizes**

The highlight of the day had to be the fiery, thought provoking and highly entertaining luncheon speech by Newt Gingrich who reminds us that life in a democracy does not necessarily guarantee wise policy choices (think ITAR), efficient cost effective policy execution (think NASA) or good long-term planning (think energy policy). Newt is a strong supporter of government incentives to unlock waves of innovation as opposed to the more limiting government contracting process that locks in a “winner.” We have always been fans of prizes too, like the X Prize, only noting that space is really expensive and that prizes should therefore be sufficiently obscene in size. Perhaps XXX Prize would be more appropriate. For instance, the current Lunar X Prize of \$20-\$30 million is really more of a gimmick and promotion for Google than a serious attempt at spurring Lunar exploration, yet even with this half-hearted effort entrepreneurs are coming out of the wood works. McCain’s recently proposed \$300 million prize for an efficient electric car battery is closer to the mark.

**“The First Space Age is Over”**

The above quote from Mark Oderman of CSP Associates echoes similar sentiments from many in the industry. That we are entering a new and different space age should be a wake up call for us fat and sleepy Americans just as it is a welcoming call to the new space faring nations joining the fun. We agree we are entering a new space age and think there are several important aspects of this new age to consider: (1) space is no longer the exclusive high ground of the U.S. and Russia, it is an increasingly international arena of commercial and military competition; (2) rocket science isn’t rocket science anymore, meaning the U.S. should stop pretending other nations do not have access to space age technologies; (3) space is no longer a sanctuary for the U.S. or any country, there are serious threats to monitor, mitigate and counter; (4) space is becoming increasingly driven by commercial interests

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and less ruled by government budgets and priorities; and (5) the aerospace industry and government thinking needs to evolve to better support these new realities. However, there seems to be an understandable lack of urgency as this second space age is just getting started and for the time being, space exploitation it is still heavily influenced by U.S. civilian (~\$20 Billion) and military (~\$60 Billion?) space budgets and secondarily European (ESA ~\$5 Billion, Military ~\$1 Billion) budgets. The nascent programs of China, India, Japan and a host of others, will change this dynamic and perhaps quickly. In short, the second space age will involve more players from more countries, greater international cooperation or at least teaming to share costs, and a higher percentage of non-government funding.

#### **“Sexy Utilities”**

As Mr. Oderman points out, the aerospace primes have become “sexy utilities” living off budgetary market share and cost plus contracts. In a time of volatile equity markets and credit crunches, it is nice to have a stable, recession resistant dividend paying utility, but will that business model be sustainable in an era of highly stressed budgetary priorities? Perhaps it is time for the primes to re-explore the value of vertical integration versus merely systems integration. Perhaps the primes should take more risks and move to full life cycle support to enhance value for their customers like Paradigm is doing with the U.K. Ministry of Defense. The big question in our minds, however, is when should the primes wean themselves, at least a little, from the government gravy train and focus on building commercial space businesses for the 21<sup>st</sup> century. The Europeans seem to get this already, as François Auque, CEO of EADS Astrium, mentioned, they are even exploring such things as space tourism. Perhaps Europe’s lead in this regard is only logical as they must feed from a smaller government trough and must therefore be hungrier for new revenue opportunities.

#### **“Space Has Never Been More Central to Our Way of Life”**

The above quote from Joanne Maguire, EVP Lockheed Martin Space Systems Company, is unquestionably true, yet most citizens of the world are clueless as to the importance of space to their everyday lives and security. The Space Foundation spends much of its time educating various communities as to the importance of space, but much more needs to be done. Whatever funds the U.S. government has dedicated to this task through NASA and other agencies, it is just not getting the job done. Perhaps it is time to take the job away from the government and have them outsource

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more of this education role to groups like the Space Foundation. What was encouraging was Ms. Maguire's statement that Lockheed Martin is successfully attracting the engineering and scientific talent it needs from college campuses. It's good to know that high profile aerospace endeavors are once again capturing the hearts and minds of our youth or maybe it is just that the software and Internet gaming jobs have now gone to lower cost Asian and Eastern European markets. It is beginning to look like aerospace may be one of the U.S.'s and the West's last bastions of technology leadership; that is if it gets the support it needs. One area in particular needs more resources, Earth monitoring. Eric Webster, a Director at NOAA, said that with climate change we have never needed Earth observation more yet budgets are woefully short versus the systems we should be fielding. We would suggest more commercial outsourcing is the solution. Lastly, we would comment that just as space has become more central to our lives we also seem to be getting better at it. Cost effectiveness in terms of on-orbit capacity per dollar of cost has improved significantly (at least on the commercial side) and reliability has steadily improved (although perhaps still not good enough on the commercial side). As for the higher cost, higher quality control military side of the business, according to Gary Payton, Deputy Under Secretary of the Air Force, they have had 58 consecutive successful launches and no failures since 1999. That's impressive.

**“Once a Space Company Becomes Successful, It Ceases to Be Thought of as a Space Company”**

The above quote from Tom Watts, Managing Director at Cowen and Company, agrees with our experience financing commercial space companies. The early adopters may care about the cool satellite delivery, but the mass market consumer just wants the service, information, connectivity or applications. So while Sirius Satellite Radio and XM Satellite Radio may still be “satellite” companies, after 15 million combined subscribers they are increasingly seen more as media/radio companies with Internet and other distribution channels for their proprietary digital audio content. GeoEye and DigitalGlobe have risen as satellite imaging companies serving primarily the U.S. and international governments, but are increasingly being pulled into aerial digital imaging and web-based distribution of value-added imagery for commercial and consumer markets. Are they still remote sensing companies or key players in the rapidly growing geospatial information industry? And Hughes Network Systems, now that they have Spaceway and are signing up hundreds of thousands of

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residential, SOHO and SME broadband customers, are they still just the world's largest VSAT equipment and service company or a major new Internet connectivity firm? From our point of view these transitions from niche satellite companies to major players in the overall telecom and media industries is a very welcome sign of the importance and vitality of the space industry. We would expect over time this trend away from a focus on infrastructure to a focus on service and application to accelerate, especially as end users drive a greater expectation for hybrid networks and solutions. We just hope that investors like those on the Forum's private equity panel (Andrew Africk of Apollo Advisors, C.J. Brucato of ABRY Partners and Hugh Evans of Veritas Capital) continue to see this industry as an attractive place to deploy their growth capital. We are very pleased they are making money in space and hope their success attracts even larger amounts of capital.

### **Is Space Tourism Really Real?**

The Forum included two featured speakers to help answer this question: Eric Anderson, CEO of Space Adventures, Ltd., and Stephen Attenborough, Commercial Director of Virgin Galactic.

It may be too soon to answer this question with any degree of certainty, but there is certainly plenty of evidence that there is actually real customer demand and maybe even business models that close. Space Adventures may have the easier near term business model as it relies on existing technology and infrastructure to offer customers parabolic weightless flight for \$4,000 or a trip to ISS on Soyuz for \$35,000,000. It's good to capture the low and high ends of the market, but what about the middle market of those would be astronauts who can afford more than a vomit comet run but can't quite pull off a Soyuz trip. That is where Virgin Galactic is focused. For \$100,000-\$200,000 they plan to take you into space so you get your astronaut wings, much more weightless flight time and a far superior view of Earth. Their backlog seems to be surprisingly strong, although with people spending \$50,000-\$100,000 to visit the poles or climb Mt. Everest (way to go Armand) perhaps it is not that surprisingly after all. Unlike Space Adventures, however, there is a serious amount of technology and vehicle development to complete. A merger of the two companies would seem to make a lot of sense. Why not offer customers full service, one-stop shopping? Start them with the parabolic flight and then up sale them to space.



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