

Space Investment Summit #8 Meeting Notes

May 26, 2010 Chicago, IL

Meeting Description

The Space Investment Summit #8 (SIS8) was a continuation of a well established series of forums offering a full day of exclusive dialogue sessions with prominent investment leaders and an entrepreneurial showcase of pre-qualified space-related business plans.

The summit series helps investors gain knowledge that might guide future investment decisions and assists entrepreneurs by increasing investor interest in their efforts and developing new partnership opportunities.

Twitter Notes

The notes below were taken on May 26, 2010, and appear in reverse chronological order. Read them starting with the last entry (#103) and continue backward to entry #1.

1. The end! 5:34 PM
2. Synergy between commercial and civil sector capabilities is important and becomes a source of wealth. 5:33 PM
3. Customer orientation is key. Space commerce is incremental in nature. Diversification in mkts, apps, cust base. 5:32 PM
4. Closing remarks now from Paul Eckert, an overview of the day's panel sessions. 5:22 PM
5. Creating a company by partnering with other companies with complementary capabilities is a great strategy. 5:15 PM
6. Space ppl are honest, hard working, can plan risks, scheduled, but can't speak financial terms. 5:14 PM
7. Big secret in the space biz from the VC perspective is that the margins are there. Need to educate investors. 5:13 PM
8. The panel is talking about which of the biz cases seen today they liked. They recommend pitching ideas to ppl in India. 5:11 PM
9. Need a clear IP strategy. Getting a patent lawyer (paid in stock?) is important. Investors hate paying for legal fees. 4:59 PM
10. Can we change from a govt demand to private demand? 4:56 PM
11. Petter Kleppan is talking about private capital investment in long-term R&D capabilities to meet NASA needs. 4:55 PM
12. Is patent protection relevant? Licensing a space technology for terrestrial markets will require patent protection. 4:49 PM
13. Richard Garriott is a great example of how to produce value. 4:46 PM

14. X Prize folks best at motivating high net worth individuals toward space travel biz. 4:42 PM
15. Last SIS panel "Meeting Customer Needs: Space-Related Business Opportunities" in progress. 4:42 PM
16. Short break now and then one more panel! 4:01 PM
17. IPP Seed Fund has morphed into the CTO Center of Innovation funds. MoonRox Challenge ended and prob won't come back. 4:01 PM
18. Isle of Man has a tax-free environment. 4:00 PM
19. (Buzz Aldrin is now in the room.) Will incr in capital gains hurt investment in space? NASA will work w/ other agencies. 3:59 PM
20. Acquired by Dynetics in Dec 2009. Dynetics built their own satellites and started hiring rocket guys. 3:56 PM
21. Used SBIRs, got chummy w/Boeing to improve their quality processes. Customer base DoD, NASA, comm'l. 3:52 PM
22. Supported Bogelow Aerospace on Sundancer. Did a lot of igniter work. His goal was the product of research, not the R&D \$ 3:48 PM
23. He strives to get a diverse customer base incl NASA. Wanted to start his biz with no investors. Started Orion Propulsion 3:47 PM
24. Last on the panel is Tim Pickens of Dynetics. His presentation didn't make it on to the computer, so he's improvising. 3:44 PM
25. Nanoracks is all about economical space research. Now has 5 paying customers. 3:41 PM
26. NASA is a landlord, partner, and (hopefully soon) customer. Different entities value payoffs differently. 3:39 PM
27. Nanoracks based on cubesat geometry. ISS transition to operation is great opportunity to use nanoracks. 3:37 PM
28. Next up is Chris Cummins of Nanoracks. 3:35 PM
29. Doug is talking about NASA's CTO programs and what they can offer entrepreneurs (funding, technology, partnerships). 3:34 PM
30. The afternoon session of the SIS starts "Govt-Industry Synergy in Expanding Comm'l Space Opportunities" w/ Doug Comstock 3:32 PM
31. Garriott Microgravity Research was the company set up for his flights. We are now breaking for lunch. 1:18 PM
32. RG owns the Lunakhod2 rover on the moon! He ends with "the road to space is open!" 1:16 PM
33. Suborbital space tourism market very price sensitive, must get to tens of thousands per flight. 1:12 PM
34. Talking about Astrotech and his own protein crystal growth expts. 1:11 PM

35. Reusability is a profound game-changer. RG spent tens of millions to go, but did millions worth of work while there. 1:09 PM
36. AA will have significant cost advantages. XCOR systems are a great workhorse for the future. 1:07 PM
37. Skylon reaction engine technology is well funded in UK. Talking about Armadillo Aerospace now. 1:06 PM
38. Different space companies "poopoo" on each other. :-P 1:04 PM
39. Discussing "parts and pieces" of emerging comml human spaceflight hardware. 1:02 PM
40. Why explore now? Leadership, research, STEM, etc. Constellation Program had problems. Need to grow comml human spaceflt. 12:59 PM
41. RG strongly identifies with "Orphans of Apollo" although he refers more to non-realization of vision from movie "2001". 12:56 PM
42. RG wearing a lot of jewelry. Astronauts not hired because they were great entrepreneurs. 12:55 PM
43. "Insights; Assessment of Market Development and Business Segments". 12:50 PM
44. Biz case presentations done for now. Now a special presentation by Richard Garriott. 12:49 PM
45. Lowered recurring cost of on-orbit assembly will allow increased profit margins. 12:47 PM
46. New NASA orientation emphasizes on-orbit assembly. This will facilitate SkyCorp's competitiveness. 12:46 PM
47. Everything SkyCorp is doing is moving toward On-Orbit assembly. Crew assembly of sat in one EVA at ISS for 250K\$/hr. 12:42 PM
48. Does SkyCorp have diff biz centers like Orbitec? No. Skycorp also invested in Greentail Energy. 12:40 PM
49. How much do you want and why? 125M\$ builds first OO processing center and parts for 3 systems. Partner w/DLR, 12:38 PM
50. How is on-orbit assembly cutting costs? Custom components will be the same, but the construction is different. 12:37 PM
51. Dennis just gave me a totally unnecessary and misguided shout-out! He's ranting about his market opp. 12:35 PM
52. Can cut break-even time of geo sats from 7 to 3 yrs. On orbit assembly is just a diff way of delivering the same sat. 12:31 PM
53. Market opp is changing the way satellites are built. Cost of putting a sat in Geo is fairly insensitive to launch 12:29 PM
54. Then moved to aerospace industry developing payloads, sats, at UAH the started biz in 1998. 12:25 PM

55. Next presentation is SkyCorp with Dennis Wingo. Started in late 1970s in computer industry, then TV industry. 12:24 PM
56. Petter Kleppan is an investor in Orbitec. Their VORTEX engines are patented, cold wall operation, scalable (5-2500lbf). 12:22 PM
57. New technologies are developed in-house *and* brought in from outside sources through relationships. 12:19 PM
58. Potential exits for investors include ownership of spin-out or expansion of biz units. 12:17 PM
59. 75% of investment will go to fire suppression market. 12:15 PM
60. Orbitec has been profitable for 20 yrs and looking for 2-3M\$ more. 5 biz units all have growth forecasts. 12:14 PM
61. Orbitec system takes less water and less time and is mobile (lower mass). Also peddling BioProducts and BioProduction. 12:10 PM
62. Presenting Ultra High Pressure fire suppressant technologies. Under study with DoD. (Waiting for tie-in to space...) 12:07 PM
63. Company is 22 yrs old but restructuring to new comml opportunities. Mobile fire apparatus mkts 5.2B\$ in US, same in EU. 12:05 PM
64. Next presentation is Orbital Technologies (Orbitec) by Tom Crabb. 12:03 PM
65. I just got back to the SIS. Greg Mockett of Linear Signal peddling comml lunar communication. Now in the panel Q&A part. 11:59 AM
66. Now time for a networking break. Biz case presentations are next. I have to work, so no tweets for a while. Ciao! 11:09 AM
67. Space-based Solar Power companies are working on a time-scale outside the VCs norm. 11:07 AM
68. How does a VC convince the lending partners to invest in space? Disruptive technologies can change industry structures. 11:05 AM
69. Has there been linkages between clean energy and rocket biz? Not yet... The market isn't large enough. 11:01 AM
70. Growth of start ups are hard to finance. How can this problem be eased? VCs don't fund growth capital, just innovation (working capital). 10:59 AM
71. How does DFJ address concerns of entrepreneurs? Entrepreneurs are considered partners to align values. 10:57 AM
72. What is DFJ's exit strategy for SpaceX? IPO is the ideal exit. Mechanics of IPO are in the hands of investment bank. 10:55 AM
73. Generally, Vcs don't play in industries w/heavy govt exposure. 10:52 AM
74. VCs raise larger funds from a variety of investment sources. VCs tend to have a lot of oversight in their investments. 10:49 AM

75. Joshua now talking about Angel investors. Finding exit strategies for investors is the hardest part for entrepreneurs. 10:47 AM
76. Disruption is interdisciplinary and non-linear. Disruption causes structural changes in markets and uses new channels. 10:39 AM
77. Not just looking for arbitrage opportunities. "Change the world." VCs seek disruption b/c it is a key variable to success. 10:36 AM
78. DFJ has 3B\$ in investment over 650 companies. Look for passionate entrepreneurs, unique ideas, companies to change the world. 10:35 AM
79. DFJ is an international VC firm. VC perspective, the disruption and how it's considered by the firm. Lastly, the SpaceX investment decision. 10:33 AM
80. The next presentation is "Success Story: Commercial Opportunities for Space Enabled Markets" by Joshua raffaelli of DFJ. 10:30 AM
81. There's about 100 people in the room right now. Max is replying to a question about high capital requirements of commercial space companies. 10:28 AM
82. Max: in Europe, VCs are scared off if a company has the word "space" in its name. 10:24 AM
83. Commercial space biz can be billionaire backed, govt backed, university backed, traditionally backed. 10:21 AM
84. Amaresh: companies foster an ecosystem of companies around them. NASA has broadened scope of involvement. 10:19 AM
85. NASA is considering attaching BA module to ISS for tech demos. BA has lunar and Mars ambitions. 10:16 AM
86. Oop! Mike L is giving the BA case study. Sundancer module and BA330 being described. Bigelow has invested 180M\$ and willing to go to 500M\$. 10:14 AM
87. Tasking of SpotImage sats is possible. Showing pic of oil spill. Amaresh talking about Bigelow Aerospace. 10:11 AM
88. SpotImage created by French govt in 1982, but progressively acquired by EADS starting in 2005. 10:08 AM
89. Demonstrating imagescape software that takes sat images and allows fly-thru capabilities. Max now talking about SpotImage. 10:06 AM
90. 3 sats in orbit can cover entire surface of earth every year. 10:04 AM
91. DigitalGlobe, privately funded in 2001. Variety of apps for variety of customers, mainly US govt (DoD, USDA). 10:03 AM
92. Rapid response sats provide disaster monitoring and other remote sensing services. Amaresh now talking about Digital Globe. 10:02 AM
93. Btw, I can't reply to questions b/c I have to SMS these tweets due to FAA policy not allowing twitter app on bberry (slam!). 10:00 AM

94. Max G. Now talking about Surrey Satellite Ltd. SpaceX bought 10% share in 2005. EADS Astrium buys Surrey in 2010-ish. 9:59 AM
95. 15 F9 flight under ISS CRS for 1.6B\$. Can grow under crewed options. F9 launch cost listed at 50M\$. SpaceX presentation by Mike L. 9:57 AM
96. Elon also aided by DARPA who bought first two launches. Howing Falcon1 video. Falcon9 ready to launch. 278M\$ from COTS. 9:55 AM
97. SpaceX is case study of infrastructure operator. Self-funded (100M\$) + Founder's Fund (20M\$) + VC (DMJ-??M\$) + NASA \$. 9:52 AM
98. Revenus from apps is 4x that of infrastructure. 3 types of companies: infrastructure, apps, operations. 9:50 AM
99. Space is an enabler or enhancer. Infrastructure is a precursor (satellites, launch, in-space platforms). These drive comml space apps. 9:49 AM
100. Amaresh is up first. What is comml space? CS is depicted by GPS, digital TV, GIS, and pharma applications. The apps are where the \$ are made 9:47 AM
101. The 1st session "An Overview of Commercial Space Markets" w/ Amaresh Kollipara (Earth2Orbit), Michael Leventhal (mc^2), Max Grimard (EADS). 9:42 AM
102. Dr. Paul Eckert will give the welcome address. 9:36 AM
103. I'm going to tweet notes from this morning's sessions of the Space Investment Summit. It should start soon.