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The Space Industry: Backwards and Forwards

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It's December and once again time to reflect on the major satellite industry events and trends of 2007 and perhaps extrapolate and squeeze out some predictions for 2008. It may be interesting to start by looking at those events that were expected or hoped for in 2007, but that for one reason or another just didn't happen. Some of these events may happen in 2008 as things frequently take longer than planned in the space business. Then it may be helpful to spend time following the longer term trends affecting the industry and together with the delayed events take an educated guess at 2008. With these goals in mind, let's take a look at the industry sector by sector.

FSS: We were expecting the economic logic of consolidation to prevail mightily in 2007 and did in fact see an impressive combination of Telesat and Loral. The long awaited sale of SatMex, however, cratered on low bids and rumored Mexican government intransigence. Instead of further consolidation, we saw Protostar emerge as a new viable source of Asian capacity and General Electric get back in the game through a swap of SES shares for satellite operating assets. Thus, the number of satellite operators did not really shrink in 2007, although capacity utilization did improve somewhat on more "rationally exuberant" capacity additions accompanied by continued growth in video and data applications and newer growth sectors like GSM back-haul in Africa. The industry can also breathe a sigh of relief after the ITU preserved C-band for incumbent satellite services.

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Going forward, the strong economic growth in many regions of the world suggests further demand growth for satellite capacity, albeit offset partially by continued improvements in bandwidth efficiency. With these factors in mind, most analysts are predicting mid single digit revenue growth for the industry in 2008. The more interesting questions are the availability of free cash flow after debt servicing to fund growth and fleet replacement and how much of the growth in demand will need, for political reasons, to be served by indigenous suppliers versus the larger global operators. It has mostly been national pride and regulatory hurdles that has prevented further consolidation. The key decision point for these smaller operators comes generally when it is time to finance a satellite replacement, especially if the satellite is only partially filled. With smaller GEOs available and the emergence of new lower cost alternatives, particularly from China and India, we would expect the regional and national FSS companies to have a better chance of financing any required fleet replacements and perhaps avoid for a little while longer the consolidating arms of the giants. We may even see a counter trend of



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new market participants joining the party as every emerging country wants to join the space age.

From a Wall Street perspective the major players are fully levered and from an operating point of view perhaps dangerously so. Given the difficult debt financing environment due to the sub-prime mess, a lack of good consolidation opportunities may not be all bad as such deals would be challenging to finance anyway. However, the high leverage did not stop BC Partners from buying heavily into Intelsat, after Intelsat's successful integration of its PanAmSat acquisition. Let's hope the timing works out for them.

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DBS & DTH: Many expected 2007 to be a tough year for DBS in the North American market given the competitive pressures of triple play bundled offerings from the cable industry, the emergence of IPTV, stepped-up investments by telcos in fiber offerings and continued growth in video streaming. Indeed it was, but once again the DBS sector managed to add video subscribers, although perhaps at a slower pace (1.19 million net new add for DISH and DIRECTV for the first 3 quarters of 2007 versus 1.32 million for the same period in 2006). The competitive threats are indeed still out there, but were kept at bay another year largely through significant HD and niche programming additions by DBS operators and larger subsidies for upgraded set top boxes with HD and DVR capabilities. As a result, DBS saw not only subscriber additions, but also increased ARPU and in the case of DIRECTV, lower churn. The question for 2008 and forward is one of economic sustainability as these investments in subscribers come at a material hit to cash flow and require significant ongoing investments in new satellites and the exploitation of new orbital slots and spectrum. EchoStar's acquisition of Slingbox was another example of an attempt to stay relevant in a rapidly evolving digital video marketplace.

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Meanwhile, the competitive threats should become even more pervasive and powerful as the years go on. FiOS and U-verse, in particular, collectively added 277,000 subscribers in a recent 3 month period, which could be a sign of things to come. With this magnitude of impending competition, something major may soon need to happen in the U.S. DBS market, either acquisitions of the DBS companies by Telcos or other strategic firms, or a merger of the two companies. As this article is being written, rumors of an AT&T acquisition of EchoStar are again rampant with a very serious stock price move at DISH. If strategic acquisitions of these firms do not happen in 2007-2009, we would expect them to have an excellent argument for a merger in the 2010 time frame, especially if the Sirius / XM deal gets approved. Alternative video competition should be well in evidence by then, even for the rural markets. Outside of the developed markets, the thirst for direct to home video remains insatiable, especially in Asia, blocked only by government interference and the difficulties of distribution and customer servicing.



Satellite Radio: XM and Sirius announced their intention to merge in early 2007 and have since each continued to add material numbers of new subscribers, although at a slowing pace. Sirius continued to close the gap with XM due largely to higher market share in the after-market from its slate of premium programming, in particular Howard Stern. In 2008, the trend seems to be a shift to factory installs as the key growth driver, as satellite radio is now becoming a standard option in more and more vehicle models. On the downside, meaningful cash generation has still been elusive with rising content costs and royalty rights now set in motion.

If ever there was a case for a benevolent “monopoly” this is it. The benefits to consumers are huge in our minds, not to mention some very much needed relief for satellite radio investors who to date have lost many billions of dollars. The FCC knew this would be a very tough business when they only allowed for two entrants. However, it turns out that two is a very big number in most sectors of the space industry. It is hard to predict whether or not rationality will prevail over knee jerk reaction and heavy NAB lobbying during an election cycle, but XM/Sirius is a merger that many believe should be approved.

Outside the North American market there is only Worldspace and a few early stage contenders like ONDAS hoping to develop services for Europe and elsewhere. In the case of Worldspace, even a “monopoly” position proved insufficient without the spectrum on the ground for terrestrial repeaters. The clock is ticking for WorldSpace and funds are scarce. If its trials in Italy and perhaps later China for the Olympics do not restore momentum, 2008 could be a very dismal year. As for the new entrants, satellite radio in Europe is a much tougher proposition than North America given the multitude of languages, pre-existing digital terrestrial radio, and fewer underserved rural listeners. We wish them success, but it will not be easy.

MSS: The big and little LEOs (Iridium, Globalstar, Orbcomm) followed up their recaps and rebirths of 2006 with continued growth in subscribers in 2007, but with the advent of serious technical issues plaguing Globalstar’s fleet and causing it to lose much of its momentum. Orbcomm’s public equity financings this year seem to cover much of its fleet replacement needs, which are expected to commence in early 2008. However, the ability of Iridium and Globalstar to replace their fleets in coming years is still somewhat in question.

The year 2007 was also supposed to be a year of progress on the exploitation of ATC spectrum, particularly for firms like ICO, MSV and Terrestar, but none of the ATC owners were able to line up the strategic relationships they need to build out their multi-billion dollar nationwide hybrid networks. Next year is looking like a pivotal year for these firms

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with satellite launches by ICO and Terrestar in early 2008 and MSV in 2009 and cash coffers slowly dwindling. Luckily, with the AWS and 700 MHz spectrum auctions to be out of the way, ATC spectrum may be the next block of focus for wireless firms. We have long held that once the “easier” spectrum auctions were out of the way, it would only take one strategic ATC driven transaction to spark a domino effect and scramble for partners. Will 2008 be that year? It is hard to tell, but these firms will have to find some way of getting material value out of their expensive space segment and the market may not be large enough for all to do well. What this industry really needs is consolidation to provide larger swaths of spectrum to entice the wireless firms and greater satellite redundancy. So far, the only meaningful consolidation has been Inmarsat’s acquisition of ACeS. Perhaps Inmarsat will take another bite in 2008 if one of its competitors stumbles and becomes available at an attractive price.

Satellite Broadband & VSAT: One of the big stories in 2007 was the big successes of Wildblue and Spaceway. Finally there appears to be an attractive broadband alternative for the rural residential, SOHO and SME markets. Both firms added broadband subscribers at an impressive rate with their respective multi-beam Ka-band satellite systems. In the case of Wildblue, the company even had to curtail marketing efforts in some beams due to a sell-out of capacity. Similar gains were also achieved in the Canadian market. Outside of North America, there was less exploitation of the Ka-band, but sales of satellite systems for broadband connectivity in the standard Ku and C-band frequencies continued to strengthen, especially in Asia. There may even be some progress in the European market in 2008.

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Despite the onslaught of fiber around the world, the VSAT industry remained intact thanks to improving customer value propositions driven by year after year gains in bandwidth efficiency, the general explosion in digital connectivity demand and a proliferation of new private networks. The big questions are how long will the window stay open before terrestrial alternatives eat away most of the market and how big will the ultimate satellite-only market be. Those are difficult questions to answer other than to say that satellite infrastructure is ultimately a gap filler and a network back-up capability and at some point in the future the growth in demand we are enjoying will be offset by the dwindling geographic area of competitiveness. But, this cross-over point should not be reached for many years to come.

Satellite Manufacturing and Launch: The order backlog for U.S. and European manufacturers appears to have returned to historical levels, with some expectations for further growth. The ITARS driven transfer of market share from the U.S. to Europe seems to have abated somewhat in 2007, with strong gains by firms like Space Systems/Loral and Orbital Sciences with its smaller GEO offering. There are several potential explanations for the return of the U.S. manufactures, including a weak



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dollar, top tier technology and quality and more customer experience navigating the ITAR process. This year also saw the emergence of Chinese and India satellite manufacturers which over the longer term will not bode well for the current market share leaders in higher cost countries, but should not be too important a factor in 2008. We do expect the use of small GEOs to grow as new slots and frequencies are developed to serve hard to predict markets.

With Delta and Atlas leaving the commercial market and a failure at Sea Launch, launch capacity was somewhat constrained this year allowing for more robust pricing and a trend toward longer term and volume commitments. With a return of SeaLaunch and new vehicles from India and other countries set to join the market in 2008, the launch delays should be mitigated and competition should become more intense. We had expected SpaceX's Falcon to also join the field in 2007, but it looks like their success will have to wait until 2008. Over the long term, we believe it will be very hard for countries with high manufacturing costs to make money in the launch business without the support of their governments through mandated launch business or other subsidization. As more and more nations gain the required level of technical sophistication (rocket science isn't rocket science anymore), we believe most of them will view independent access to space as a critical national security priority. This fact should ensure the continued market presence of numerous competing launch vehicles.

Satellite Ground Segment: The satellite communications ground segment, including hardware and software providers, integrators and teleport operators, is still massively fragmented and in serious need of consolidation. There are dozens and dozens of firms that generate under \$50 million in annual revenues that struggle to sustain acceptable profit margins while keeping up with R&D requirements and funding global sales and marketing efforts. In 2006, we saw the beginnings of a growing realization among the boards and senior management of these firms that they needed to either grow by acquisition or seek a buyer. Arrowhead was acquired by CapRock, GCS was acquired by L3, Globalsat was acquired by Globecom, Pointecast was acquired by Helios and Wegener announced a strategic alternatives process. The economics of such consolidation is so powerful, that we would expect to see the pace pick up in 2008 regardless of the difficulties of negotiating relative valuations and navigating very personal issues like who gets to run the combined business. We also expect there will be a few new entrants in 2008 with disruptive technologies and experienced management teams to make things even more interesting.

Lastly, I would like to borrow some perspectives from two current New York Times best sellers, "The Black Swan, The Impact of the Highly Improbable" by Nassim Nicholas Taleb, and "The Age of Turbulence" by Alan Greenspan, in order to better inform our star gazing.

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Age of Turbulence: According to Greenspan and others, we are living in an age of increasing turbulence marked by greater market and political volatility. This volatility is due to a greater globalization of the economy and the reliance on high-tech telecommunications for the unprecedented availability of instant information. Much of the friction that used to be inherent in our systems and that served to dampen wild fluctuations has been removed by light speed communications linking almost anyone, anywhere, anytime. Most trading is done by computers and capital can move quickly on the slightest rumor. Combined with tightly linked and highly levered global economies, we now live in a very fragile world. Greenspan also points to these same technologies and linkages as providing economies a much greater degree of resilience to unexpected shocks through better decision making and coordinated responses. Oddly, this turbulence and need for resilience may benefit the satellite industry. In times of market volatility, investors tend to prefer businesses like FSS that have long term contracts and high cash flow margins, even in cases where growth potential may be less than exciting. Secondly, turmoil tends to lead to more communications (not less) and a greater importance to assured communications, in both the commercial and government spheres. Video and audio distribution and broadband connectivity have also proven to be somewhat recession resistant and increasingly more of a staple than a luxury. As for resilience, satellite connectivity is increasingly seen as a vital means of back-up for the world's communication infrastructure.

Black Swans: A Black Swan is an event that lies outside the realm of regular expectations, carries an extreme impact, and in hindsight appears explainable and predictable (think 9/11). Black Swans are not by their nature predictable, but perhaps there are some Grey Swans that are a little more evident and yet still important to keep in mind. One example of a Grey Swan would be an attack upon commercial space assets. Commercial satellites are increasingly instrumental in today's war fighting, for example in Iraq and Afghanistan, and it would not be beyond comprehension to see an attack upon them. An article in the November issue of Discover is in fact entitled "The 8 Ways to Blow up a Satellite." China blew up one of its own in a test this year. The results of such an attack would be profound upon the future financing, insurance and operation of commercial space assets. FSS and MSS companies are in essence taking on potentially catastrophic risks not necessarily priced into their current businesses. Other Grey Swans might include cyber attacks, terrorist events or extreme weather that shut down a nation's or region's telecommunications network. In these cases, the Grey Swan might have a positive impact on the satellite industry, demonstrating the ability of satellite systems to quickly restore vital communications links. That should have been obvious after Katrina, but the avalanche of orders is still awaited.