RTT TECHNOLOGY TOPIC
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Hype or Reality?
The Satellite and Space Revolution

The theme of next month's Cambridge Wireless Conference is 'Thinking beyond the Hype', a debate about where specific industries and service offers are on the hype curve, a concept introduced by the Gartner Group some years ago.

As the organiser of the satellite industry session at the Conference I was asked to give an opinion on where the satellite industry was positioned on a range varying from early euphoria though to the pain of implementation.

My answer was that the satellite industry had its hype moment thirty years ago when the first generation of Iridium satellites were launched with a mission to bypass the cellular industry, closely followed by announcements from Teledesic and Skybridge of high satellite count constellations that would transform the way the world rested, worked and played.

Teledesic stopped development in 2002 and Skybridge never got started. Iridium and the competing Globalstar Company went into Chapter 11 but not before their constellations were more or less complete and fully functional. These constellations would have been expensive to deorbit but more importantly were able to play an important part in supporting communications in the Iraq war and subsequent conflicts in the Gulf.

Iridium's recent announcement that they had reached their one millionth subscriber might seem modest in terms of cellular subscriber numbers but these are truly global networks providing coverage in areas that cellular will never be able to service economically.

We are delighted to have Meir Moalem, CEO of SAS, Dan Mercer VP EMEA & Russia of Iridium and Rupert Pearce CEO of Inmarsat presenting their vision of the future of the satellite industry and providing an update on constellation upgrades (Iridium), Cube SAT innovation(SAS) and next generation GSO satellite and cellular service propositions (Inmarsat).

CWIC 2018 is being held at the Genome Campus Centre, Hinxton, near Cambridge on July 4
Follow the link for booking information

https://www.cambridgewireless.co.uk/events/cwic-2018/

The New Space Entrepreneurs - not exactly shy

Of course it is all very well to paint a picture of the satellite industry supply chain as a sober mix of reality driven pragmatists but Mr Elon Musk, Mark Zuckerberg, Jeff Bezos, Mr Richard Branson and Greg Wyler, all individually invested in space and satellite ventures, could hardly be described as shy retiring flowers.

There are however underlying differences between the satellite industry and the mobile broadband industry partly determined by the supply chains which are substantially different and partly determined by the dramatic commercial and practical impact of a launch failure which inevitably focuses attention on managing expectations and minimizing risk.

For this reason, companies such as Mr Musk's Space X are cautious when talking about future launches though happy to keep us posted when things go well which at the moment is most of the time. The five Falcon pay-load lifts for Iridium so far this year (ten satellites at a time) is not hype but a genuine first in space history.

Can a handful of 'new space' entrepreneurs change the future of an industry? Well Mr Ford certainly made an impact on the car industry and the approach taken, a combination of materials and manufacturing and market innovation, is not dissimilar to the innovation being implemented by Space X (Mr Musk), Blue Origin (Mr Bezos), Virgin Galactic (Mr Branson) and OneWeb, (Mr Wyler).

Twenty years ago Motorola set a new benchmark with a horizontally integrated production line capable of producing a satellite in 4.3 days. The Airbus production lines being built for OneWeb in Toulouse and Florida by Airbus are designed to produce 15 satellites a week. Again this is not hype but an evolved approach to satellite manufacturing that draws on the production capabilities needed to produce the A330 range of aircraft supported by an annual manufacturing investment of $150 million euros.

There is of course a substantive difference in volume between the satellite industry supply chain and the mobile vendor supply chain, dimensioned to produce millions of base stations per year and billions of user devices. Lockheed Martin produces hundreds of fighter aircraft but at $90 million dollars for one F35 this is never going to be a volume focussed business.

However there are common interests between these two traditionally separate industrial sectors based on different but mutual needs. The satellite industry supply chain would benefit from scale as a mechanism for defraying escalating R and D costs, the F35 has cost $1.3 trillion dollars so far and is $400 billion dollars over budget. In parallel, the mobile broadband industry needs to reduce the cost of geographic delivery.

There are other interested industries and potential stakeholders including the automotive industry and the web scale majors such as Google (the Alphabet Group), Apple, Facebook and Amazon (the GAFA Quartet) and their emerging Asian competitors, Ali Baba and Ten Cent.

Toyota has a major ongoing programme to implement satellite connectivity into their next generation cars with Kymeta as a partner. Their automotive supply chain, specifically the automotive radar supply chain, has deep expertise in angle of arrival algorithms that are directly applicable to next generation 5G and satellite beam forming.

Car companies and web scale companies have scale, market reach and cash.

Apple could acquire all of the world's satellite operators, paying a 25 per cent premium on present combined enterprise value with a minimal impact on its existing cash reserves. The Alphabet Group (Google's parent company) could do the same and buy the world's satellite TV companies as an added extra.

This of course would be unlikely given present regulatory and competition policy but it makes the point that cash remains king particular when the takeover target, in this case the satellite industry, is fully geared and in the case of Intelsat, over geared and it would provide the web scale majors with direct access and real time visibility to their customers and internet enabled devices.

Our colleague Mr John Tysoe at The Mobile World (MOWO) has written a riveting chapter (Chapter 11 naturally) on these changing financial dynamics in our new book 5G and satellite spectrum and standards, available for shipping at the end of this month. If you order now you can still get the pre-publication discount. (See below).

In the meantime we hope to see you at the Satellite Session at CWIC on the 4th July.

https://www.cambridgewireless.co.uk/events/cwic-2018/

New Book - 5G and Satellite Spectrum, Standards and Scale

We are delighted to announce that our new book, **5G and satellite spectrum, standards and scale** is available to order from Artech House. Follow the link to take advantage of the pre-publication discount which continues for another four weeks.

http://uk.artechhouse.com/5G-and-Satellite-Spectrum-Standards-and-Scale-P1935.aspx

If you apply promotional code VAR30, an additional discount applies which brings the price down to £88.90 (list price £127). There is also a bundle discount promotional code VARRALL5G which allows you to order a copy of our previous book, 5G Spectrum and Standards. The two books together cost £177.80 including free shipping.

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The first technology topic (on GPRS design) was produced in August 1998. 19 years on there are over 220 technology topics **archived on the RTT web site.**

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RTT, **Policy Tracker** and **The Mobile World** are presently working on research and forecasting projects in the mobile broadband, public safety radio, satellite and broadcasting industry and related copper, cable and fibre delivery options.

If you would like more information on this work then please contact **geoff@rttonline.com**
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