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Underlying demand continues to increase

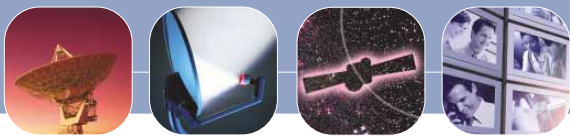


Futron Corporation provides leading edge decision management solutions for the satellite industry. The corporation tracks the satellite manufacturing industry, producing regular reports on its state. Helen Jameson speaks to Dustin Kaiser, an Analyst for Futron Corporation about satellite manufacturing.

Question: Thank you for your time. Would you please begin by giving our readers a sense of the state of the satellite manufacturing industry at the moment?

Dustin Kaiser: Global satellite manufacturing is healthy because underlying demand for satellite products and services continues

to increase. However, government and commercial satellite operators face mixed economic conditions which result in conservative capital spending and ultimately delayed or fewer satellite orders. Manufacturers are being asked to develop satellite systems that offer more capability/flexibility within the



same budget constraints as previous systems.

Question: Operators are demanding more reliability and functionality, yet want cost effectiveness and timely delivery of their satellites to meet launch deadlines. How are these demands impacting on satellite manufacturers?

Dustin Kaiser: In some respects these are not new challenges and are the classic forces which drive innovation. Platform standardization and cross-program technology testing and maturation between defence and commercial satellite programs are possible solutions.

Question: Flexible payloads are becoming increasingly popular as more advanced services are introduced. Why is this, and does this affect the production schedules negatively as more time is required for additional testing?

Dustin Kaiser: Flexible payloads allow for optimization of satellite capability. The developing global economy creates new market niches which may form and dissolve relatively quickly. A flexible payload allows operators to nimbly exploit new markets ahead of competitors. As for impact on production schedules, any new satellite capability requires testing to ensure reliability.

Question: How can manufacturers deliver on time yet meet the standards of quality and reliability required by the customer?

Dustin Kaiser: Building satellites in a series with basic common elements is a useful solution. Designing satellite systems or systems-of-systems that incorporate redundant architectures can improve reliability by minimizing the effects of failure.

Question: How does Futron feel that satellite manufacturing has changed in 21st century and how will it evolve over the coming years?

Dustin Kaiser: In the 21st century manufacturers have become better at adapting existing platforms to accommodate new innovations and new customer requirements while improving upon delivery times.

Satellite manufacturing will continue to develop on two paths. The first path is the manufacturing of large, reliable, high capacity spacecraft that will serve as the backbone of satellite fleets. The second path is the development of smaller satellites that can be built and launched quickly such as Orbital's STAR Bus. These small satellites will also be used to test new technologies prior to integration on larger satellites.

Question: According to your recent report on Satellite Manufacturing, Asia has not produced a great deal of satellites recently. Is there a primary reason why the

region is not as active as other regions in the production of satellites?

Dustin Kaiser: It is difficult for Asian manufacturers to compete with established western manufacturers at their own game. However, as is usual in such a situation, there is opportunity for Asian manufacturers to innovate and create new unique capabilities that will help them gain market share. Japan's WINDS/Kizuna is an example of a satellite which may redefine satellite delivery of broad band IP.

Question: What type of satellites are you seeing most demand for? Is it for broadcast or telecommunications, or the military for example?

Dustin Kaiser: Broadcast is still a strong driver. Roughly 40 percent of the 21 commercial GEO communications satellite orders in 2007 will supply broadcast services. The majority of the remaining 60 percent of orders will supply fixed satellite services. Strong military demand for satellite communications is driven by the global deployment of information-hungry ground forces including remotely operated tactical and strategic aircraft. The military tends to be a key driver of fixed satellite service.

Question: What trends should we be looking out for in the satellite manufacturing sector over the coming year?

Dustin Kaiser: The addition of hosted payload may help satellite operators seal the business case for the purchase of new satellites. A primary challenge with hosted payloads is synchronizing the business cycles of the payload sponsor, satellite operator, and manufacturer. Manufacturers which can help overcome the business challenges of hosted payloads may be able to gain market share from competitors who simply focus on the technical integration.

Looking farther out, a pioneering satellite manufacturer may develop satellites and service vehicles capable performing orbital refuelling and repair. An orbital refuelling capability would allow for the launch of satellites with empty fuel tanks on smaller less expensive launch vehicles. The lighter spacecraft could be refuelled every five years allowing operators to spread out capital expenditures over a longer period of time. A satellite repair capability could reduce the risk associated with satellite failure and allow for less testing prior launching. Alternatively a space tug could be used to rescue stranded satellites or assist with orbital relocations. ■



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