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Author: Mr. Laurent Jaffart
Airbus Defence and Space, Germany

Mr. Philippe Moreels
Airbus Defence and Space, Germany

KEYNOTE: CONSTELLATIONS : THE SATELLITE SERIAL PRODUCTION CHALLENGE

Abstract

Airbus has lead the way to create the commercial small satellite industry/ecosystem that is truly transformational. Key to success is alignment and optimization around; price, performance, production quantities and quality (reliability). In the past, achieving a solution set that encompasses all of these attributes was thought unobtainable. Airbus with its Joint Venture OWS achieved all of these resulting in a spacecraft product that:

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Exceeds the quality of the spacecraft in its class – design life of greater than 5 years

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Significantly reduced production time per spacecraft – one per day per final assembly line (FAL)

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Significantly less costly – major investment reduction versus other spacecraft in its class

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Integrated and optimized design efforts including engineering, manufacturing and supply chain starting at conception through manufacturing, test and operations Airbus' extensive technologies and engineering capabilities allows us to bring not only platforms, but total solutions to the challenges of today and tomorrow.

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Our high Technology Readiness Level (TRL)/high Manufacturing Readiness Level (MRL) commoditized commercial bus solution is based on the same spacecraft that is designed to be mass-produced for OneWeb's broadband internet enterprise.

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Our payload designs are mature and all can meet challenging schedule and cost objectives for many of our customers which allows for earlier revenue generation for established customers and startups as well and for a multiplicity of applications such as telecommunication, earth observation, navigation, science, etc. Part of developing this ecosystem is the development of a new supply chain paradigm for spacecraft manufacturing. Substantial effort was made in the harmonization and focus of creating a specialized supply chain that could also meet the price, performance, production quantities and quality (reliability) as referenced at the satellite level. Lastly the innovation/ecosystem can be summarized in the description of "The Machine that Makes the Machine." To date the best way to describe the industry would have been the hand crafting of exquisite satellites one at a time. There was no "Machine that Makes the Machine." We have created that Machine and the opportunity that comes with it. This allows our team to be very

agile in incorporating new technologies and applying these concepts to new components and payloads to bring them into the ecosystem. This can happen in months whereas even bringing in new technology in some arenas can take years or decades.