

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)

Launch Services, Missions, Operations, and Facilities (2)

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ARIANE 6 PRODUCTION : A NEW APPROACH FOR A COST EFFECTIVE EUROPEAN LAUNCH SERVICE

Abstract

The phase A/B1 of the future European Launcher Ariane 6 has been contracted by the European Space Agency to Airbus Defence and Space as Prime Contractor for the Launcher System. The overarching aim of the European new Launch System is to provide guaranteed access to space to Europe requiring no public sector funding for the support of its exploitation. The major challenge is then to offer a competitive launch service for the period 2025 to 2050, targeting a launch service cost of less than 70 M for a 6,5t payload in GTO.. To cope with this technico economic challenge, Airbus Defence and Space intends to explore new ways of producing a launch vehicle. This new approach has to be implemented at the very beginning of the development in order to design a launcher system that meets its lifecycle cost objectives. This paper first presents how the industrialisation and production activities are integrated within the system development during phase A/B1. This phase is essential since one of the way to reduce the recurring cost is to master the forecast expense in the field of manufacturing, logistic, operation and maintenance of the system qualified status all along the exploitation phase. During the major system trade off involving the industrialization and production teams, it is not only dealt with raw material and manufacturing process but mainly with industrial and geographical organisation driven by lean approaches. Then will be presented two main investigation topics driving industrialization activities which are to be addressed in the design phase. First is the Design-to-Cost approach, from the customer main requirement down to the product specification. A rigorous value analysis is carried out to highlight the “just needed” feature. Second is the analysis of operational expenses from the mission analysis, the hardware and software production and testing up to the launcher assembly and lift-off. In this area many factors enter into consideration: standardisation, geographical optimisation to streamline resources and logistic. The result of this optimization exercise will be materialised in the launch system design and the industrial organisation setup. A constant monitoring and detailed implementation will then be carried out throughout phase C/D, including the MAIT facilities building and qualification, the first development model manufacturing and testing, and of course the maiden flight campaign in 2021.