

## SPACE PROPULSION SYMPOSIUM (C4)

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PROPULSION SOLUTIONS FOR FUTURE TELECOMS: FINDINGS FROM ESA'S TOMORROW'S  
BIRD STUDY**Abstract**

This paper presents the findings from the "Tomorrow's Bird" Study conducted in parallel by two consortia, one led by EADS Astrium (F) and another one led by Carlo Gavazzi Space (I).

The study, funded by the ESA General Studies Programme, took its inspiration by a simple, but important consideration: "Historically, the time required to develop a new launcher generation is, as an average, as long as the one that takes to develop two generations of commercial platforms". Therefore, with the intention to contribute to the definition of the performance and operational requirements of the Next Generation Launcher, the study aimed to project the European vision towards the future of commercial platforms.

The key idea at the basis of Tomorrow's Bird Study was that the possible architectures of future commercial platforms will be derived by studying the trends of evolution of the satellite subsystem technologies that can more effectively support the future space-based telecommunications scenarios, and not uniquely as a result of the analysis of the market forecast, considered unreliable on such a long time span. Current commercial platform developments do not include all the new technological changes that could be adopted in a long term view project. Due to their short-term timeframe, only a limited number of technology innovations with a reasonably mature TRL can be embarked on board the new commercial spacecraft generations. Nevertheless several new subsystem technologies on the horizon have the potential to revolutionise the satellite design.

The paper gives an overview on the innovative technologies considered by both team focusing mainly on propulsion solutions and describes the future conceptual architecture platform's design derived by the two consortia.