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# COST ESTIMATION FOR INNOVATIVE SPACE SYSTEMS: A METHODOLOGY FOR MICROLAUNCHERS AND INFLATABLE HEATSHIELDS

**Abstract**

Cost estimation for innovative space systems, such as microlaunchers and inflatable heatshields, presents significant challenges due to the lack of historical data and their complex and novel nature. In this study, a cost estimation methodology for these systems was developed, which is based on the assumption that there may be similarities in the development and manufacturing costs among these systems.

The cost estimation methodology for microlaunchers considers the cost drivers at the subsystem level and the commercial nature of these systems. The methodology provides a tool for assessing the feasibility and profitability of microlauncher projects.

The methodology for inflatable heatshields adapts the cost estimation methodology used for microlaunchers to account for the innovative nature of this technology. The methodology estimates the development and manufacturing costs of inflatable heatshields for future missions.

The research activity was part of various research projects, including collaborations with the European Space Agency (ESA) and projects funded by the European Commission in H2020 and Horizon Europe programs.

Overall, the cost estimation methodology for microlaunchers and inflatable heatshields provides a useful tool for assessing the feasibility and profitability of innovative space projects. The methodology can help provide rough estimates of costs, and its application can inform decision-making processes and improve the affordability of future space missions.