

Interactive Presentations (IP)
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IMPLEMENTATION OF A MATRIX TEAM STRUCTURE IN SMALL TO MEDIUM SIZE SPACE
DEVELOPMENT PROGRAMS - AN ANALYSIS IN THE CONTEXT OF THE STRATOS IV
SOUNDING ROCKET PROJECT

Abstract

The Stratos IV sounding rocket project is a suborbital launcher development programme by the Delft Aerospace Rocket Engineering society, the student rocket society at Delft University of Technology in the Netherlands, with the goal of sending the first rocket, fully designed and built by students, across the Karman line; the official boundary of space. Mid-scale development engineering projects like the Stratos IV project, with 50 FTE, have the potential of achieving significantly improved product development times, if the appropriate management structure is implemented. During the Stratos IV project a matrix structure, where a team is split according to the relevant disciplines, and product functions, has proven to be highly effective for an extremely fast-paced project of this scale. This system was implemented in the Stratos IV project in the form of departments governing the disciplines (electronics, recovery, propulsion, structures, simulations and propulsion), and the functions split up into the different sections of the vehicle (nosecone, recovery bay, roll control module, oxidiser tank, engine bay and engine). These two groups had their meetings split between department meetings, focused on knowledge exchange, and section worksessions, focused on design work, production and integration. It is found that the implementation of this system results in a reduction in design iteration time, vastly improved interface management and higher team motivation. It is also recognised that in order to benefit optimally from the implemented matrix structure information sharing should be simple and encouraged by management through the use of plenary update sessions, fostered inter-team relations and simple file sharing infrastructure. The primary area of improvement seen during the Stratos IV implementation is the restructuring of this matrix organisation during the project as the product is developed and the areas necessitating greater focus are identified. Additionally this matrix structure can lead to confusion between the division of responsibilities between disciplines and functions, it is only when this is fully clarified that the structure can be used to its optimal extent.