

SPACE SYSTEMS SYMPOSIUM (D1)  
System Engineering Tools, Processes and Training (1) (3)

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SPACECRAFT MANUFACTURING PROCESS OPTIMIZATION THEORY AND ENGINEERING  
PRACTICE

**Abstract**

During 2009-2014, Chinese Academy of Space Technology (CAST) have been facing with multiple challenges, such as mission contract increased sharply, enhanced technology difficulty, new technology issues, as well as product quality. To improve core competition, CAST proposed the philosophy of 'do advance and do scientifically', which emphasized on the objective law and technical process, scientifically arranging the work, resource to increase work efficiency and ensure product quality according to the process optimization theory. By analyzing the weak links and highlight problems in spacecraft manufacturing management, the objective model of the philosophy of 'do advance and do scientifically' was established. Under the guidance of CAST strategy, CAST presented 5 user-oriented functions of process optimization, including system engineering philosophy improvement, manufacturing management process optimization, risk management process optimization, responsibility definition and supporting system enhancement. The proposed method was applied to the manned space project, deep space exploration mission and typical space product manufacturing process optimization practice. The interaction process and effects of the objective model and functions were described. By applying process optimization, the satellite quality and reliability is increased, the satellite cost is reduced and the manufacturing period is shortened. The proposed theory model and practices provide valuable references on spacecraft manufacturing management