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LESSONS LEARNED FROM THREE DECADES OF COLLABORATIVE SPACE MISSION
CAPACITY BUILDING PROJECTS

Abstract

The apparent widespread availability of small and cheap satellites can be deceptive for those nations and organisations wishing to build capacity in space technology, and associated applications. Good understanding of the ultimate objectives, risks and benefits are essential in order to design a development programme that addresses specific needs. Although microsatellites are physically very small, they are nevertheless complex and exhibit virtually all the characteristics of a large satellite. This makes them particularly suitable as a focus for the education and training of scientists and engineers by providing a means for direct, hands-on experience of all stages and aspects (both technical and managerial) of a real satellite mission from mission and subsystem design, through module manufacture, assembly and integration, to qualification and flight model environmental tests, launch and commissioning. The very low cost, rapid timescale and manageable proportions makes this approach very attractive to emerging space nations who wish to develop and establish a national expertise in space technology through an affordable small satellite programme. This paper analyses 18 know-how-transfer-and-training projects carried out within our organisation with feedback from the trainees, papers published by customers, in the context of other such programmes carried out elsewhere. Lessons learned are provided, as well as a number of case studies to illustrate how these programmes have progressed since.