

30th IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)  
Strategic Risk Management for successful space programmes (6)Author: Dr. Chris Stevens  
AustraliaARE WE MANAGING THE RIGHT RISKS IN A TECHNICALLY CHALLENGING PROJECT?  
AVOIDING WASTE IN A GREAT MISSION WITH POOR EXECUTION**Abstract**

Many great technically (the term used here is either/both engineering and scientific) challenging plans have difficulty getting from concept to completion with their predetermined criteria for success intact. But, in part, is because during the project's development, many changes to the scope may occur. Technically, many of the risks are probably anticipated and mitigated prior to when the changes are proposed.

With technically challenging projects, many (super-) clever people are engaged to 'expand the boundaries' (of the 'knowns') and investigate not only the 'known-unknowns', but the 'unknown-unknowns'. However, project success may be more sensitive to execution risks around teams, as met in all projects – mainly associated around people. It is noted that in a NASA context, a significant number of projects are developmental, and 'cost and schedule growth' causes a rebaselining, once the '...development cost base-line exceeds 30 percent.'<sup>1</sup> Unfortunately, as an example, the same report identifies the Orion project reduced the development cost by US\$156.4million, due, in part to moving funds'... from the development to the formulation phase.

Potentially there may be less 'risk' when technical changes are made, but such changes may cause a disproportionate 'risk' increase associated with the execution (people and teams). Thus, if true, it may be more productive to focus more on 'execution risks', to improve the chances of project and mission success.

This paper is not NASA focussed, nor on any one agency or contractor, but in a general manner of understanding risk management associated with these types of projects/programs, where there are high 'technical risks' in delivery, that often overshadow other aspects that can, and do, impact successful completion – the 'execution risks'. Examples are taken from other, non-space projects/programs to see if lessons can be learnt.

**References**

1 GAO-16-309SP Assessments of Major NASA Projects, 2016, p.11, (<http://www.gao.gov/products/GAO-16-309SP>), accessed 27th February, 2017

NASA/SP-2014-3705, NASA Space Flight Program and Project Management Handbook, 2014, (<https://www.nasa.gov/offices>