**The devil is in the details: lessons learned from operations for Phase 0 studies**

X. Collaud*\**

*\*European Space Agency, Noordwijk, The Netherlands,* *xavier.collaud@esa.int*

1. **Introduction**

The operation phase of a mission puts years of planning and design on the grill of reality. Regardless of the quality of the preparation, the operators are required to maximise mission return with a hardware architecture that cannot be altered. The size of a subsystem, the redundancy scheme, or even the way the spacecraft needs to be interacted with will rhythm the daily work of the operators throughout the mission lifetime.

Under the assumption that an optimised system will have more difficulty to adapt to change, the infusion of lessons learned in the early phases should permit to adapt design decision towards a more robust design that would dramatically increase the overall mission chance of success.

1. **Objective**

This paper aims to propose ways of identify and systematize the return of lessons learned that can add value to the overall mission. As indicated in reference [1], there exist knowledge management procedures within a specialty. The difficulty resides in translating those specific lessons learned to other domains, that have different priorities and whose use of the knowledge may differ from the one intended by the initiator of the data.

It is about underlying the work that can be done in the CDF that would allow to better identify the critical aspects of the mission and address them accordingly.

1. **Covered topics**

The analysis covers the following points:

* Knowledge management methods
	+ Lessons learned from operations
	+ Use of databases in the concurrent design facility
* Interfacing
	+ Identification of relevant information
	+ Pipeline of lessons learned to the early phases databases
	+ Introduction of new data into the feasibility analysis

The lessons learned will be assessed in order to bring into relief the added value of a concurrent review with the aim aptly steer the design decisions in order to facilitate the development of the latter phases following a CDF study.

1. **References**

[1] Roberta Mugellesi Dow, Nicolas Bobrinsky, Siegmar Pallaschke, Mariella Spada, Manfred Warhaut, (2006) "A knowledge management initiative in ESA/ESOC", Journal of Knowledge Management, Vol. 10 Issue: 2, pp.22-35, https://doi.org/10.1108/13673270610656601