SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND DEVELOPMENT (D3)
Space Technology and System Management Practices and Tools (4)

Author: Mr. Egbert Jan van der Veen
OHB System AG-Bremen, Germany

Mr. Jason Hay
Bryce Space and Technology, United States

THE ADVANTAGES, OPPORTUNITIES AND CHALLENGES OF MAINTAINING TECHNOLOGY DATABASES.

Abstract

Tracking, assessing, and infusing innovative technology development into new systems is a challenge for all high technology sectors. This challenge is especially present within the space sector, where governments are often the primary or sole customers, products are usually produced individually or in small batches, and there are relatively few opportunities to retire risk associated with new technologies. Because of this environment space technologies often have longer timeframes between conception and realization when compared to equivalently complex terrestrial technologies—for example mechanical components in the automotive or aircraft sectors, or instrumentation and control software. In addition, during the time it takes a space technology to mature, several RD organizations may contribute to the development process. Often these organizations are targeting different applications and different TRL levels. These long development timeframes, multi-organisational RD environments, and simultaneous development of technologies for different applications at different TRLs leads to an unclear view of the status of development for technologies up to TRL 6, harmonisation of a technology domain, and applicability to future mission needs. Technology databases help to provide the insight necessary to foster disruptive innovations or game-changing technology developments that have the potential to significantly enhance space systems. Technology databases provide a common structure and lexicon to capture descriptions and metrics of technology developments like: patents filed, publications made, technology metrics, funding granted, qualifications and supporting technology development. The utility of technology databases can be increased when designed to support multiple organizations with similar technology requirements. Examples include cooperating national space agencies, civil databases open to the public for technology commercialization, and cross sector databases that identify technologies to meet similar technical requirements for agencies with distinct missions and objectives. The aim of this paper is twofold: First, to elaborate the lessons learned from creating and maintaining technology and innovation databases. Second, to provide a guideline for developing technology and innovation databases, which are applicable to other sectors as well.