

IAA-BR-16-0S-0P**T-PROST: A Transdisciplinary Process Modelling Methodology and its Application to the Systems Engineering Lifecycle in Space Missions**

Renato Fernandez¹, Elaino Kelson Teixeira Silva², Germano de Souza Kienbaum¹, Álvaro Augusto Neto³.

This work describes a transdisciplinary process modelling methodology, denominated T-ProST, for creating a conceptual reference model of the Systems Engineering lifecycle processes, which can then be transformed into specialized models, making use of the traditional autonomous methodologies and techniques originated from disciplines that deal with complex discrete event process problems, namely: (Model Based)Systems (Concurrent) Engineering, Project Management, Business Process Management, and Simulation Modelling. The transformation of the Systems Engineering lifecycle processes (an aggregate of the system's engineering and the organization's management processes) into specialized models and their implementation, making use of the appropriate inherent methodology and tools originated from the referred study areas, result in integrated applications that can be used as tools to support basic Product Lifecycle Management in small satellites project developments. The main benefits originated from this approach derive from: The systematization of the model creation encompassing both the systems engineering and the management processes; The use of a Framework for model implementation and analysis, based on the simultaneous use of diverse disciplines and their respective methodologies and tools; The joint assessment of the multifaceted models created to provide better solutions and to improve project development.

¹ LAC/INPE, São José dos Campos, SP

² BPMExpert Engenharia de Sistemas, Ltda, São José dos Campos, SP

³ ITA, São José dos Campos, SP