

SPACE SYSTEMS SYMPOSIUM (D1)  
Poster Session (P)

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## BUSINESS-PRODUCT-SERVICE PORTFOLIO APPROACH APPLIED TO SPACE SYSTEMS

**Abstract**

This paper presents the business-product-service portfolio approach applied to a space system. There are numerous types of space systems providing a wide variety of capabilities and services, this paper uses a satellite as an example of the space system for implementation of the BPSPM approach. Satellites provide essential capabilities in communications, reconnaissance, surveillance, positioning and navigation, weather monitoring and forecasting, environmental monitoring, mapping and geodesy. The purpose is to apply the BPSPM approach in the development of a satellite in three scenarios, being the development of a new satellite, the development of a satellite derivation, and then the development of a satellite versioning. To illustrate the development, the SysML diagrams are used to represent the system structure and behaviour.

Space systems are composed of several complex products and services designed to perform specific functions throughout the life cycle of the space systems. To develop and maintain a space system in operation over its life cycle it is required intensive management of the relationships between the space system, facilities, technical teams, users, providers and globalised market.

The Business-Product-Service Portfolio Management (BPSPM) is an approach to manage the business product and business service portfolio, variations and versioning in order to succeed a business into more marketable set of products and services, jointly capable of fulfilling the stakeholder's needs. There are five life cycle systems that the company must consider in BPSPM: 1) the life cycle activity relationship between the global market and company, 2) the life cycle activity relationship between the providing company and customer, representing a product-oriented and a service-oriented view respectively; 3) the life cycle activity of the business product and business service portfolio, variations and versioning; 4) the life cycle activity of the product and service portfolio, variations and versioning regarding its stages of life; 5) the life cycle activity of the product and service portfolio, variations and versioning regarding its hierarchy and heterarchy. The BPSPM framework uses the concepts of System Engineering, Concurrent Engineering, Service Engineering, Project Management and Business Portfolio presented in five dimensions, being Business dimension, Outcome dimension, Variety dimension, Life dimension and Structure dimension.