

SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES,
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CNES NORMATIVE REFERENTIAL : A MANAGEMENT AND ENGINEERING TOOL TO BE
MORE EFFICIENT IN SPACE SYSTEMS DEVELOPMENT

Abstract

Space programs appear more and more technically challenging, financially constrained and involving numerous actors. In this context, the use of standards is to be considered as a management method helping to overcome these difficulties. The use of a coherent system of standards can allow to achieve more cost effective space projects, facilitate clear and unambiguous communication, minimize risk and guaranty interoperability and interfaces compatibility.

CNES has put in place the RNC (Référentiel Normatif du CNES) which is a referential composed of standards and best practices issued from various sources and applicable to customer-supplier relationship in developing space projects.

In a first step we will present how the RNC is developed and structured, and in a second one how projects are implementing the RNC.

The RNC tree structure has four branches : Management, Quality, Engineering, Regulation. CNES experts take an active part in the creation of new standards and in the revision of existing ones for the benefit of the space sector. Every year, CNES devotes about 15 m*y in various disciplines to the working groups of the ECSS (European Coordination for Space Standardization), ISO (International Organization for Standardization) and the CCSDS (Consultative Committee for Space Data Systems). This involment opens also the way for exchanges with space experts from all over the world and makes a significant contribution to maintaining our competence at the highest level.

Once published, standards are assessed regarding our projects needs and their coherence with other documents, before being introduced into the RNC. Feedback from projects and other appropriate sources allow the RNC improvement.

In order to avoid duplication of efforts and standards, we make maximum use of existing one, adopt commonly used international standards, and ensure coordination with space agencies, industrial partners, and standardization organisations at national, European and international level.

When applied to the projects, the RNC is used to implement a series of pre-negotiated requirements in our relationships with suppliers (business agreements). The RNC is designed to be adapted to specific contexts through tailoring. This activity is performed during the preliminary phases. During all the development, requirements management and exchanges, using computing tools, can easily be achieved by partners since they use the same common core.

The paper presents CNES policy, organization, use, and maintenance of the RNC. This tool is an essential element for the management of our projects as well as for the preservation of the competences of our teams.