THE CDO : A NEW OPERATION CENTER FOR THE GUYANA SPACE CENTER

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Abstract:

1. CSG : Facing a changing environment

Founded in 1964, the Guiana Space Centre or Centre Spatial Guyanais (CSG) The CSG is facing an environment that will evolve more and more quicly in the years to come. These evolutions concern several aspects of our activity as evolution of launchers: At term, arrival of the new launchers ARIANE6, VEGA-C. In the medium term the future should be a partially reusable launcher. In the medium and long term, "micro-launchers" type systems to meet the needs of "mini" and "micro-satellite" missions. The CSG must also reduce maintenance and operating costs for all users of the database. Finally the CSG must also respond to the need for flexibility and to shorten operational cycles.

2. Towards a New Guyana Space Center

Since 2017, CNES and ESA management worked to define what could be the concept of New Generation CSG (CSG-NG). The need for increased agility and flexibility, but especially cost reduction requires a fundamental restructuring of the Spaceport's operational concept which can only be implemented via new investments to build the necessary infrastructure and train the personnel to the new operational concept. In summary, the approach proposed is based on three priorities .The first one is the new operations center (CDO). Thanks to a new system architecture, the CDO will bring the capacity to manage several launch campaign in parallel and to strongly reduce the delay and the costs to prepare and be ready for a launch. The second one is to set up new digital collaboration tools allowing a new way to manage operations . The last one is to improve the energy management of the launch base

3. The CDO.

The new operations centre aims at enhanced capabilities of the Launch Range for centralized supervision of operations, which are currently distributed in 12 technical buildings, in particular by fostering the automatization and the remote operability and maintainability, as well as at new capabilities to allow the management of multiple launch campaign configurations in parallel. The expected benefits include:

- increase the operational capacity of the CSG thanks to the possibility of carrying out several operations in parallel.
- bring flexibility thanks to a possibility to quickly and safely reconfigure the means of the base
- Rationalisation and optimisation of processes and operations
- Decreased energy consumption and environmental impacts
- implement digital simulation tools to better train teams and validate systems.

The new operations center will allow to renew deeply all the Launch Range systems and services, including all the IT and the operational equipment that are necessary to support the execution of the launch campaigns. Among all the renewed systems, we can mention launcher data telemetry acquisition and processing , launcher tracking, to determine in real time the launcher trajectory for safety purposes, Weather forecasting, Telecommunications, Synchronization and distribution of times.

This presentation focus into the architecture and the functions of the CDO, but also shows how the new operational concepts are being developed and how the business and the organization will have to evolve and change and what new skills need to be implemented.