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APPLYING A SCALED AGILE FRAMEWORK FOR THE DEVELOPMENT OF EUROPE'S SPACEPORT NEW LAUNCHER TRACKING & FLIGHT SAFETY GROUND SYSTEM: AIMING FOR A SUSTAINABLE DIGITAL ECOSYSTEM

Abstract

1 Introduction

To achieve high-level objectives of flexibility, cost reduction, and resilience, while enhancing launch capabilities, the Guiana Space Centre, Europe's Spaceport, is under major renewal through the Core Launch Range Renewal programme, co-financed by ESA and CNES. This programme encompasses the development of a new Launcher Tracking & Flight Safety Ground Software System, complete with a dedicated digital infrastructure and building. Together, these will form the new Operations Centre 'CDO'. At the European Spaceport, CNES the CDO is responsible for safety-critical operations, including neutralizing a launcher if considered dangerous, thus protecting populations and infrastructures.

The main objective of the "CDO-BLA" (ground software) is to provide real-time flight tracking data for the flight safety team and also for the launch operator.

For the first time, via CNES CSG's CLRR program, it was requested, in its biggest call for tender, the application of scaled-agility methodologies for its ground system development. This was mainly to ensure that:

- The future system will be fully compliant with operator needs by placing them at the centre of the development.
- The future system will be sustainable both during development and once in exploitation, meaning:
  - Design changes could be absorbed during development without having to re-design, focusing on a flexible architecture design.
  - The final digital ecosystem is guaranteed to be scalable mainly by configuration.
- Non-detailed requirements could be detailed during development with industrial support.

- A fixed budget would be respected.

Several industrial contracts are underway and others are planned for the development of the ground system. The main contract, known as the i-CDO, co-contracted by TELESPAZIO & GTD (GENESIS consortium) is 6 months along.

This paper will detail the SAFe Agile Framework's application and customization for the development of Europe's Spaceport new Launcher Tracking & Flight Safety Ground System.

We will present how applying agility transformed the project management, how our teams were trained, how we integrated our classical technical specifications to a Minimum Viable Product with Epics and Features. We will share insights on the challenges faced and the benefits on this initial experience, of applying the SAFe framework to a complex organization, with multiple stakeholders, international partners, and a rapid turnover of launch operators. The project's complexity extends to its technical aspects, involving software and material infrastructure development, all while adhering to strict cybersecurity and RAMS requirements.