

The journey of Collins Aerospace towards model-based continuous engineering process supported by ESI's contribution in Mission project

Lionel Yapi
Collins Aerospace

Collins Aerospace wants to bring its engineering performance to the next level of maturity to fit digital thread solutions upcoming on the horizon. Developing a platform which embeds workflows from requirements to design validation process, links system design with respect to verification methods and enables real-time collaboration based on ontology web is a new challenge for the company to make engineering more reliable and valuable.

Since ESI contributes as a CorePartner to CleanSky2 project MISSION with its system simulation and data and workflow integration solutions, both parties benefit from each other by exchanging real market demands on the one hand, and virtual prototyping expertise on the other.

In fact, among all industries, modern product development is shifting towards a comprehensive, continuously engaged approach to support engineers at all process levels in facing the challenges of an increasingly complex landscape of specification, definition, simulation and validation artifacts. Current challenges like continuous engineering, virtual certification, distributed development, consolidated virtual proving grounds, homologation, digital twin and operational applications, e.g. predictive maintenance, require well informed decision making in a comprehensive, reliable, traceable and customizable environment. In particular, in aerospace domain, with widespread tight collaborative setups between integrators and suppliers, the capability of tracing each decision and its underlying artifacts becomes a key value of an engineering platform.

This presentation will outline a middleware approach to reuse the produced artifacts and their relationships in a federated engineering environment supporting a “best tool for the job” approach. It is the foundation to fully leverage the strength of the applied methods and tools as well as the power of traceable artifacts in a data and test management backbone. By introducing a layer providing unification and consistency throughout all managed artifacts, the presented approach evolves simple unmanaged processes towards a managed digital tapestry.

Based on a MISSION TRL demonstrator for a Collins Brake Actuation System, the benefits of integrated data and workflows from specification to virtual design verification are highlighted to motivate their value in Collins daily and future engineering business towards MBSE methodologies.

Keyaspects for Collins: **Engineering Continuity, Collaboration Platform**