A SMARTER WAY TO MANAGE THE VERIFICATION AND VALIDATION OF YOUR ENGINEERING ITEMS

V&V MANAGEMENT CAPABILITY
By The REUSE Company
Automatization
Verification
Validation
Dashboard
Certification
Full License

ABOUT

V&V and Quality work together. In Systems Engineering, the Verification process is synthesized as "developing the system right" (according to standards, requirements, etc.), while Validation is in a nutshell addressed as "creating the right system", meeting the needs & objectives of the stakeholders.

Both concepts are clearly connected with the notion of Quality Management and Assurance. The V&V process is applied on both sides of the V-Model, verifying on the left-side the quality of requirements, models, etc. against the consequent standard or regulation, while checking on the right side the physically built elements against the corresponding requirements, models, etc.

Throughout this verification process, the validation against the higher abstraction levels takes place to ensure alignment with the needs & objectives intended for the particular subsystems/components and the overall system.

By means of seemless Evidence Management, the V&V Management Capability within **SES ENGINEERING Studio** provides any Systems Engineer with the required tools for managing and completing the V&V of any work product.

For more information regarding the specific Quality Management & Assessment processes, please refer to the corresponding RQA - QUALITY Management Capability flyer.

STANDARD ALIGNMENT & TAILORING

Verification & Validation processes fully aligned with the desired standard, while offering the possibility to completely tailor the approach selected.

COMPLETE V-MODEL COVERAGE

Both, the V&V processes on the right side (system elements, components, SoI, etc.) and the left side (requirements, models, etc.) of the V-Model can be prepared for, executed and the results managed.

TIME SAVING

By automating extremely timeconsuming tasks such as generating the V&V results of the entire specification after providing the required information (and/or resources), the V&V engineer is granted with more time to invest into the actual V&V processes of analyzing, simulating, etc.

MONEY SAVIOUR

Reducing the additional costs caused by late detection of flaws during the development can be achieved by effortlessly applying the V&V processes over any Engineering Element involved since the project kickoff.

MANAGING VERIFICATION & VALIDATION OF ANY ENGINEERING ITEMS

SES ENGINEERING Studio is a software environment aimed to digitalize systems engineering processes. It was designed with the intention to properly manage the System Life cycle, from inception to retirement. It works providing SELM (System Engineering Life cycle Management) capabilities by CONNECTING TO already existing software tools dedicated to managing ISO 15288 and ISO 29110 technical processes (IBM DOORS, Siemens Polarion, Siemens Teamcenter Requirements, DS CAMEO, IBM Rhapsody, Capella, Simulink, MS Excel, MS Word, etc.).

VERIFICATION & VALIDATION OF ALL YOUR WORK PRODUCTS

Once the V&V Management Capability is installed in **SES ENGINEERING Studio**, you'll be able to verify and validate any engineering item; system, system element, requirement, model, etc. These V&V items are extracted from any connection available within the environment. As long as there is a connection to the source, a V&V item can be created.

VERIFICATION AND VALIDATION MANAGEMENT CAPABILITY

For SES ENGINEERING Studio

A SMARTER WAY TO MANAGE VERIFICATION AND VALIDATION OF YOUR ENGINEERING ITEMS
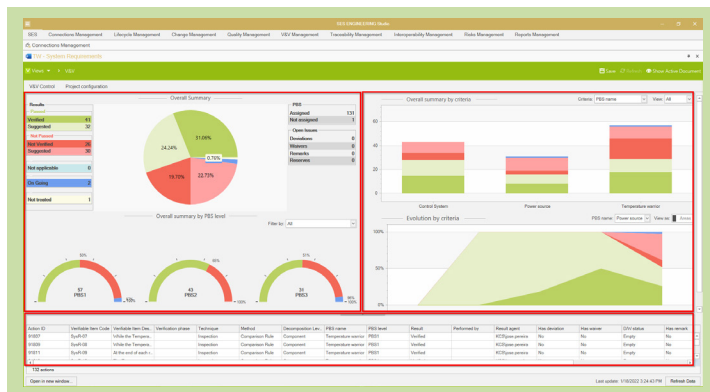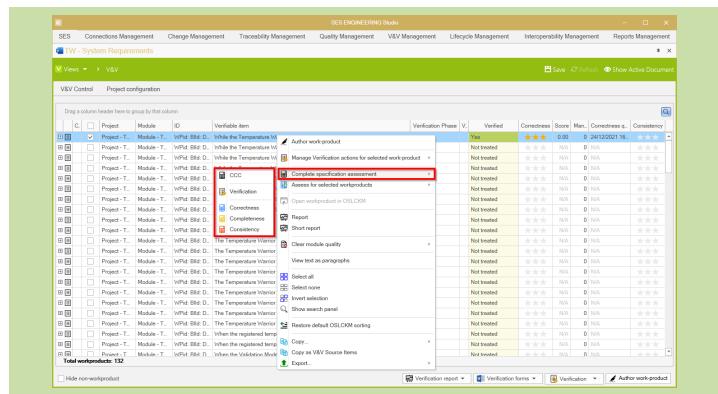
PURPOSE

The purpose of V&V Management Capability for **SES ENGINEERING Studio** is to provide means for ensuring that engineering items (requirements, SysML models, functions, simulations, documentation, etc.) are the "right ones" and have been "built right." With the V&V Management Capability, the V&V engineers are granted the tools to digitally manage the process, including the production and generation of evidence reports. Therefore, contributing to the defects reduction throughout any System Development stage.

QUALITY ASSURANCE FOR V&V

SES ENGINEERING Studio allows the systems engineer to define and manage Verification & Validation on both sides of the V-Model.

For this purpose, when the V&V Management Capability is installed, **SES ENGINEERING Studio** includes also all the QUALITY Management and Assurance capabilities of the RQA – QUALITY Analysis Capability.

THE V&V ACTION

The Verification & Validation of any work product is done through a set of V&V Actions. Each of these digital templates is designed to allocate any data (context, restrictions, technique, resources allocation, etc.) concerning the Verification & Validation of a work product.

A classical implementation of the V&V Actions supports, at least, the following attributes (integrated and supported by **SES ENGINEERING Studio**).

- Verifiable & Validatable Item: work product being assessed
- The Verification & Validation Techniques to be used
- Activity to Perform
- Obtained Evidences
- Verification State

- Source Items: Any Engineering Item providing Source Information
- Objectives & Conditions
- Expected Evidences
- Estimated Time Resource
- Reponsible Agent & Date of Verification
- Date of Verification

V&V MANAGEMENT CAPABILITY AND THE SUPPLY CHAIN

The different work products needed to complete the desired system are defined and built/produced by potentially divergent organizations accross the supply chain. The quality of these work products against standards is required as evidence for the V&V processes in a vast number of scenarios. Therfore, it must be managed and monitored throughout the entire system life cycle. Based upon this need, the V&V Management Capability reduces the interactions between OEMs and Suppliers by allowing all parties to share a common view. OEMs can define a Quality Certificate and share it with everyone inside the supply chain. After that, the OEM can receive periodic Verification Reports from the Supplier, digitalizing and automating the results visualization.

SMART SCOREBOARDS

Throughout the Verification & Validation processes, the different engineering items are continuously evolving (moving through versions). Using the V&V Management Capability for **SES ENGINEERING Studio**, any systems enginner can visualize and revise the progress in real time by means of the Evolution Scoreboard.

Aside from the evolution, the Dashboard section involves also a complete view resembling the overall current status from divergent perspectives.

V&V MANAGEMENT CAPABILITY WITHIN THE SYSTEMS ENGINEERING SUITE

SES ENGINEERING Studio is a software tool designed to help engineers deal with one of the most important processes within the SE development, Verification & Validation. Of course, this is one important part of a complex scheme of SE and as such, it must be tightly connected with the remaining tools within the environment, having any updates regarding authoring, controlled and propagated accordingly toV&V Management Capability. The quality of those elements is assessed using baseline metrics from RQA - QUALITY Management Capability and patterns from KM - KNOWLEDGE Management Capability. Finally, during those V&V processes, the involved items can be traced, linking the source & target by means of the TRACEBILITY Management capabilities.

CONNECTORS

CONTACT