



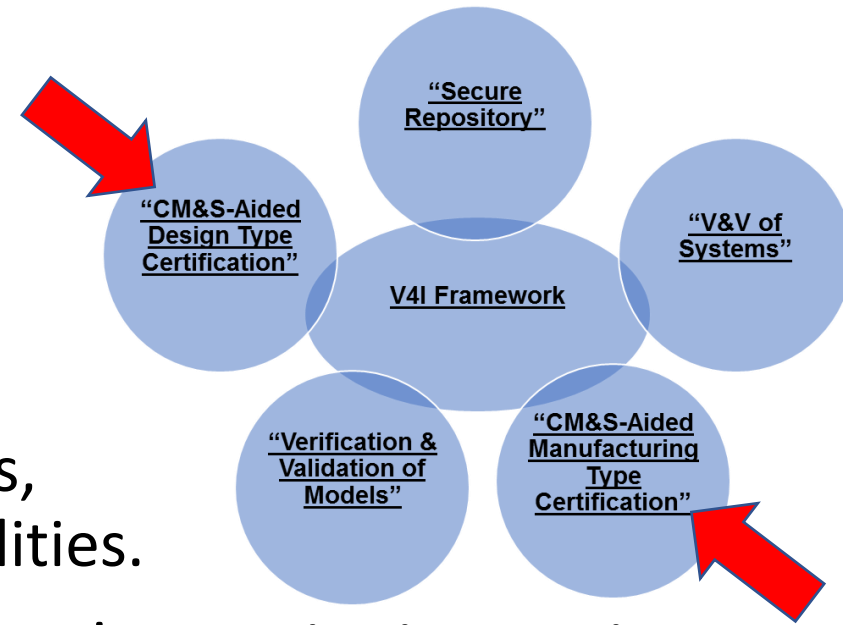
Virtual Verification Validation and Visualization Institute

V4 Institute Workshop: Introduction to the Model Characterization Pattern (MCP) and S* Patterns

Workshop Planning Summary
For V4I Launch Projects Team Members



In a nutshell . . .



1. V4 Institute teams are undertaking V4I Launch Projects, representative of key V4I distinctive values and capabilities.
2. These projects will illustrate methods and team members' expertise in creating and applying domain-specific models, model VVUQ, and justifiable credibility of model-based evidence for decision-making.
3. In addition, and more uniquely, these projects will also illustrate V4I capabilities to integrate and leverage expertise and information in a common interoperable framework across multiple teams, COTS toolsets and repositories, methods, recurring product line instances, hierarchical system levels, and domains, addressing the related challenges widely seen in industry—key V4I values.
4. This workshop is focused on enabling (3) above, using the S* Metamodel, as practiced by the INCOSE MBSE Patterns Working Group and ICTT System Sciences over several decades. Emphasis will include the Model Characterization Pattern (MCP), an S* Pattern.

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Purpose of this material

- This material is a pre-workshop planning summary for attendees of the V4 Institute Workshop, “Introduction to the Model Characterization Pattern (MCP) and S*Patterns”.
- The basic objectives, scope, timing, and location of the workshop are summarized by this material, along with suggested pre-reading.

Objectives of the Workshop

1. Gain an introductory understanding of S*Patterns and their uses, sufficient to plan and undertake its application in the V4I Launch Projects and V4I Framework:
 - Basics of the S*Metamodel, S*Models, S*Patterns, and PBSE.
 - Related “framework” goals of a V4I strategic nature for the individual and collective V4I Launch Projects, enabled by S*Metamodel framework.
 - Working implications for the V4I Launch Projects, in general, and specifically how the “regular” known COTS tools and Model VVUQ approaches will still apply.
 - Initial discussion of how those projects will be managed, individually and collectively, to recognize those implications.
2. Gain an introductory understanding of the Model Characterization Pattern (MCP), an S*Pattern used to characterization computational models (such as those the teams are using in the V4I Launch Projects).
3. Understand approaches to initial illustrative or start-up S*Patterns applicable to manufactured mechanical parts, production processes, model repositories, innovation processes, and the V4 Institute itself.
4. Understand connections to the V4I Roadmap; strategic vs. technical issues.
5. Be able to pursue the V4I Launch Projects within the above context, plan related next steps for those projects.

Workshop pre-requisites and pre-reading

- Workshop attendees are expected to already:
 - Be generally familiar with the V4I Mission and Roadmap;
 - Be part of V4I Member Companies or V4I Member Institutions;
 - Be aware of the uses, methods, and contemporary challenges and opportunities of model-based engineering, model VVUQ and related standards, and interests in the use of models in support of innovation and regulated offerings;
 - Be aware of the identity of the V4I Launch Projects, and their organizations' related project definitional questions prior to project planning;
 - Be familiar and able to speak to the interests of their organization in V4I and the V4I Launch Projects;
 - Have read over the Workshop Pre-Reading listed in the References.

Workshop Outline / Timeline

- Introductions, objectives, agenda, individual interests and concerns
- The V4I Launch Projects—technical summary
- Strategic Goals in support of these projects
- Team technical roles and technical organization
- The Model Characterization Pattern (MCP), an S*Pattern
- S*Metamodel, S*Models and S*Patterns, with examples
- SOI Pattern, General Manufacturing Pattern, Bracket Pattern, Trusted Repository Pattern
- Implications for the V4I Launch Projects—constraints, deliverables, organization, management
- Tooling
- Discussion, issues, next steps

**Day 1
(Wed 5/29)**

**Day 2
(Thu 5/30)**

Day 2 is reserved for a Project Kick-Off, separately planned and conducted by project leaders

Workshop materials

- This Planning Summary is not the “Workshop Materials”:
 - Workshop Materials will be provided at the time of the Workshop
- Meanwhile, you are invited to review the Workshop Pre-Reading listed in the References.

Workshop logistics and contacts

- Workshop dates / times:
 - Wed, May 29, 2019, 8 AM – 5 PM EST
- Workshop location, Day 1:
 - Rolls-Royce Meridian Center, Collaboration Center, Liberty Conference Room
- Workshop registration, accommodations, other arrangements:
 - Clay Courtney, Adjutant Solutions Group, ccourtney@adjutantsolutions.com
 - Office: 317-633-8747
- Workshop facilitators, contact for content matters:
 - Bill Schindel, ICTT System Sciences, schindel@icct.com,
 - Office: 812-232-2062 Mobile: 812-239-5358

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Stephen Lewis	lewis@icct.com	O: 330.795.2504

Confidential workshop information

- This V4I Workshop, and the ensuing V4I Launch Projects, may include exchange of or reference to V4I Member Confidential Information.
- Accordingly, workshop attendees should be part of institutions or enterprises that have executed V4 Institute Member Agreements or relevant confidential information exchange agreements.
- Member Confidential Information should be identified as such according to the related agreements.

Workshop pre-reading

Download from this link:

https://www.omgwiki.org/MBSE/doku.php?id=mbse:patterns:model_characterization_pattern_workshop_prep

1. Schindel, W., “INCOSE Collaboration In an ASME-Led Standards Activity: Standardizing V&V of Models”, in *Proc. of INCOSE International Workshop*, Jacksonville, FL, Jan, 2018.
2. “Applying Model-Based Patterns to Enhance Innovation Productivity Across the Computational Model Life Cycle”, ASME Model V&V Standards Committee, in *Proc. of ASME 2019 V&V Symposium*, May 16, 2019, Las Vegas.
3. “Introduction to the Model Characterization Pattern (MCP), A Universal Characterization & Labeling S*Pattern for All Computational Models”, ICTT System Sciences 2019.
4. INCOSE Patterns Working Group, “MBSE Methodology Summary: Pattern-Based Systems Engineering (PBSE), Based On S*MBSE Models”, V1.5.5A
5. Schindel, W., and Dove, R., “Introduction to the Agile Systems Engineering Life Cycle MBSE Pattern”, in *Proc. of INCOSE 2016 International Symposium*, 2016.

V4I Launch Projects:

