INCOSE MBSE Patterns Working Group—2H2021 Writing Projects

Overview of Writing Projects

V1.2.1

MBSE Patterns WG--2H2021 Writing Projects

1. "Semantic Technologies for Systems Engineering (ST4SE):
   An MBSE Patterns Working Group Project Report"

2. "S*Patterns: A Primer"

3. "What Is The Smallest Model of a System? A Primer on S*Models"

4. "The Innovation Ecosystem : An Application of the INCOSE ASELCM Pattern"

Several projects

- As a result of several MBSE Patterns WG projects, we have accumulated information which ought to be effectively shared.
- INCOSE has some history of generating "Primers" (subject introductory overview) and more comprehensive publications:
    - They may be consulted for examples, from the respective working groups.
    - Product Line Engineering Primer, Complexity Primer, SoS Primer, etc.
    - All available to INCOSE members for download without charge.
- Technical Product Plans have also been more recently introduced by INCOSE, and the ST4SE Project is operating under such a TPP.
- The following briefly summarizes "plans for plans".

"Semantic Technologies for Systems Engineering (ST4SE): An Introductory MBSE Patterns Working Group Project Report"

- This is part of the existing ST4SE Project, operating under an existing INCOSE Technical Product Plan (TPP).
- It is about semantic technologies applications for systems engineering—a more focused subject than semantic technologies in general.
- This publication is planned as a "project report" instead of as a "primer" because:
  - First, it is narrower than the broad subject of semantic technologies;
  - Second, it is even narrower than the SE application space for semantic technologies, because it is reporting on the specific project described by the existing INCOSE TPP.
- But, it can certainly provide an introduction to at least key aspects of the subject of ST applications in SE.

"S*Patterns: A Primer"

- Since this is about the main purpose of the MBSE Patterns WG, a number of writings have been generated over its ~8 year history:
  - These provide a substantial base of at least input materials and references.
  - For example, as a tutorial provided during a number of INCOSE conferences.
  - A various example applications.
- One publication that was generated in 2015, updated in 2019, was focused as a "terse" overview of the subject and especially its connection to "other" subjects.
- The "INCOSE Primer" approach is somewhat newer, and the MBSE Patterns methods and theoretical base have continued to expand enough to justify a new publication.

"What Is The Smallest Model of a System? A Primer on S*Models"

- This is planned as a "true primer" on the underlying nature of S*Models:
  - Part of the foundation of S*Patterns.
  - But separable, and a pre-requisite.
- There are many years of publications and papers available on aspects of S*Models, including the formal S*Metamodel (~100 pages).
- This primer could be considered as an updated packaging of or reference to those materials, helping "get started" on the subject, primer-style.

"The Innovation Ecosystem :
An Application of the INCOSE ASELCM Pattern"

- The ASELCM Pattern is an S*Pattern describing any system of innovation.
- It grew out of collaboration by the Patterns WG with the Agile Systems Engineering WG and the System Sciences WG:
  - Resulting in a whole series of INCOSE case study publications on agility across different enterprises and domains, winning award recognition, etc.
  - Originally during 2013-2017
- In more recent years, has been applied in collaboration with AIAA and ASME to describe digital engineering ecosystems, digital threads, digital twins, planning ecosystems, et al, at the ecosystem level:
  - This produced many documents.
  - Although we have a lot of material to take advantage of, this subject is due for a new introductory summary.
- We could discuss whether to call it a "primer" or not.