



INCOSE Knowledge Management & Ontologies Working Group Charter

1 Purpose

The purpose of the Knowledge Management (KM WG) is to advance the practice, education, theory and development of knowledge management (including Ontologies) within the systems engineering lifecycle.

2 Goal

The goal of the KM WG is to expand and promote the application, education and theory of knowledge management (in the form of all possible knowledge representation schemas, including Ontology) for Systems Engineering as laid out ISO 15288, throughout the whole Systems Engineering (SE) lifecycle as a means to reduce or eliminate existing barriers in the SE practice.

Rationale:

We propose the application of knowledge management (using ontology and other knowledge representation structures) as a driver within systems engineering practice to enable processes, methods and tools harmonization. More specifically, the intention of this working group is to create outcomes that enable the harmonization and interoperability of initiatives, processes or activities like, MBSE, requirements management, traceability management, quality management, etc., and to remove or overcome existing barriers (computational, social, linguistic, etc.) among them. The KM WG has a practical orientation since the beginning. Its intention is to produce applicable outcomes.

3 Scope

Activities relating to best practices for Knowledge Management, Development, and Application throughout the system Lifecycle including:

- Application of the classical knowledge management process activities to concrete implementations in industry.
- Knowledge Organization Systems (KOS)
- Ontologies Definition, Construction and Representation
- Models and knowledge information Indexing and Retrieval
- Knowledge Comparison, Visualization, Access and Trace
- Ontologies Management and Evolution
- Ontologies Verification and Validation



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4 Skills and expertise required

Representation from the following:

- Systems Engineering practitioners and educators
- System science practitioners and researchers
- General Semantics practitioners and researchers
- Knowledge Representation and Management experts and researchers
- Relevant standards body participants
- A diversity of experience levels, disciplines, domains, organizations, enterprises, cultures, and nations

6 Outcomes (Products/Services)

The Knowledge Management working group will realize the following outcomes:

- Disseminate the value of Knowledge Management and Ontologies in the application of Systems Engineering.
- Promote and evolve the knowledge management process within the SE Standards, Handbook and SEBoK
 - Support standard activities relevant to knowledge and ontology engineering
 - Contribute to the development of the Information-related portions of the SE handbook and SEBoK in collaboration with the Digital Artifact WG.
 - Enable accurate and targeted access to relevant SE knowledge, reducing costly duplications and errors
- Promote ontologies and KOS as the means for real knowledge interoperability within the Systems Engineering lifecycle
- Study the implications of Ontologies and Knowledge Management in model-based environments (MBSE), specifically their common and variant aspects.
 - Build and maintain a summary description of the techniques utilizing ontologies in Model Based System Engineering (MBSE)



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- Analyze the common approaches between SE modelling languages (UML/SysML/OPM/IDEF0/AADL and others) and Knowledge representation languages (OWL, RDF, SKOS, RSHIP, ORM, DOGMA, FCO-IM, CogNIAM, etc.)
- Promote (and contribute to) the development of SE ontologies
- Formulate guidance for the development of ontology-based approaches within the SE Lifecycle processes and activities for all kinds of purposes (Model Based System Engineering (MBSE), tool interoperability, traceability, Quality and V&V, Reasoning, Decision making, etc.)
- Maintain the working group charter
- Maintain the KM WG's websites

7 Approach

The KM WG will achieve its purpose and realize its goals by:

- Meeting at international workshop and international symposium
- Meeting virtually via telecom as needed
- Maintaining our work products
- Recruiting champions to lead activities
- Carrying out assignments outside of meetings
- Using INCOSE KM WG discussion groups to facilitate discussions among KM WG members
- Promoting KM WG membership collaboration with other INCOSE working groups, other professional societies, commercial and industry committees, government organizations, and academic institutions
- Communicating to KM WG members and interested INCOSE members via
 - KM WG websites
 - KM WG threaded discussions
 - INCOSE tutorials and webinars

8 Measures of Success



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The KM WG measures of success include:

- INCOSE Members' rating of KM WG activity and products
 - Number of KM WG Members
- Attendance at KM WG meetings
- KM WG meeting outcomes
- Liaison participation with other groups
- Contributions to INCOSE KM WG discussion groups
- Promotional and educational activities (presentations, webinars)
- New and updated work products
- Symposium contributions (paper, panel or tutorial submission)

9 Resource Requirements

A TPP will be submitted for specific projects as required.

10 Duration

This charter will remain in effect until rescinded by the signatory.

1 APPROVAL (INCLUDE MEMBER ROLES & RESPONSIBILITIES IN ADDENDUM)

Technical Director, INCOSE

Date

19 November 2018

A handwritten signature in black ink, appearing to read "M. Clements". The signature is written in a cursive style and is positioned below the "Technical Director, INCOSE" text.