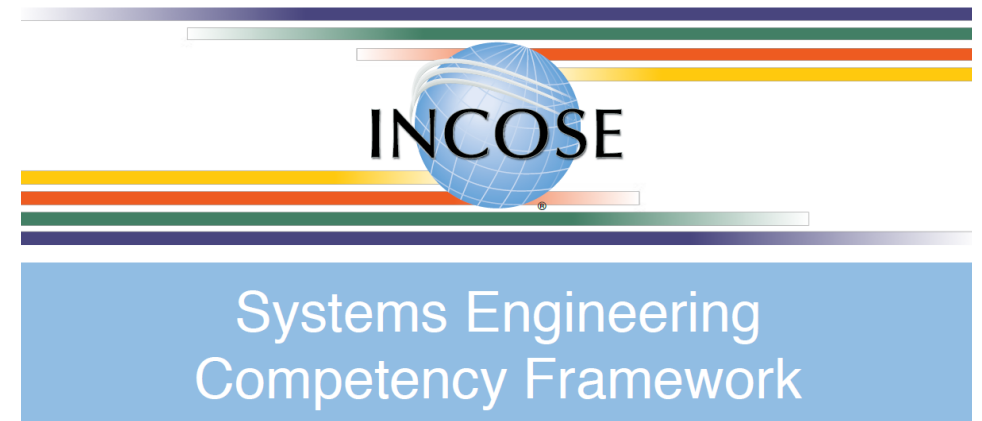


The New INCOSE Systems Engineering Competency Framework

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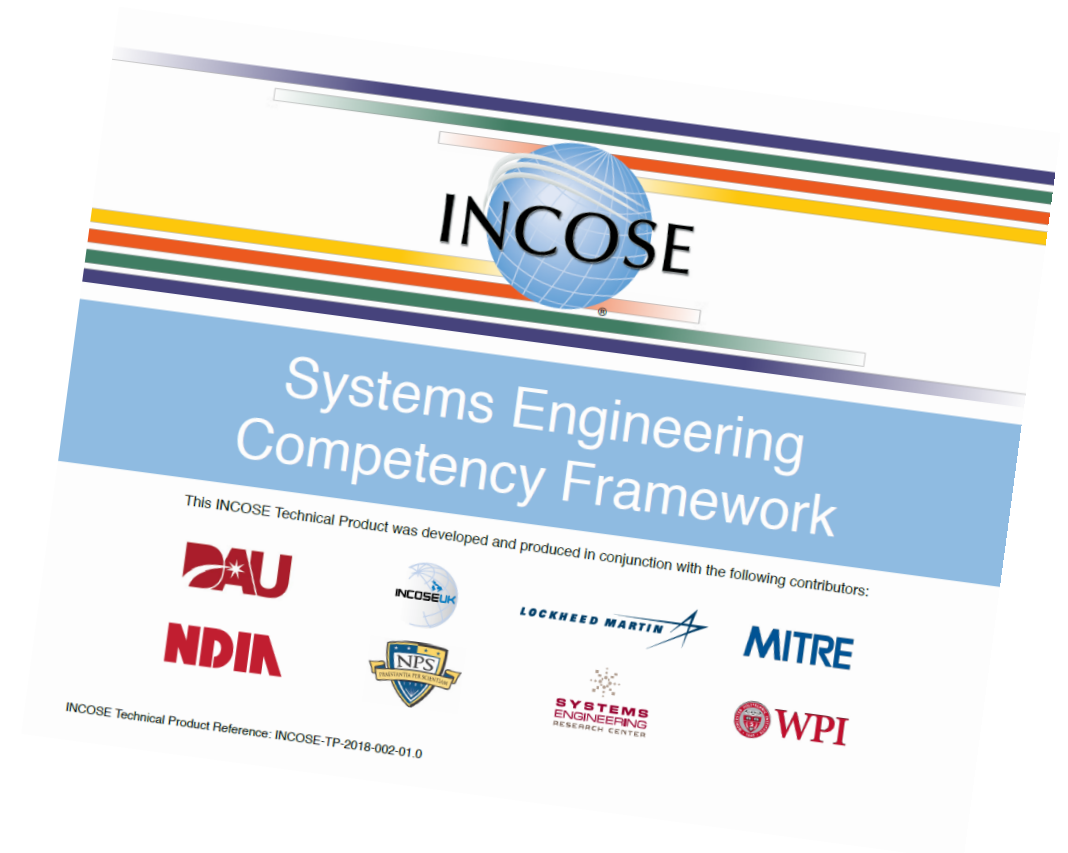


INCOSE Technical Product Reference: INCOSE-TP-2018-002-01.0

Systems Engineering Competency Framework

International and Diverse Collaboration:

- 7 Years
- 2 Professional Societies
- 12 Companies
- 4 Schools
- 1 Research Center
- 1 National Lab
- 5 Primary Authors
- 23 Secondary Authors/Reviewers
- 6 Countries

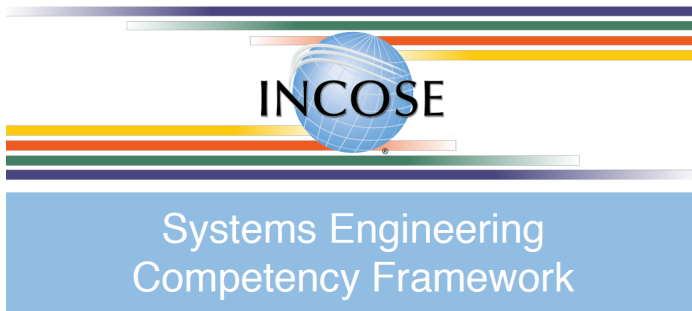


The complete Competency Framework can be accessed at:

<https://www.incose.org/CompetencyFramework>

Systems Engineering Competency Framework

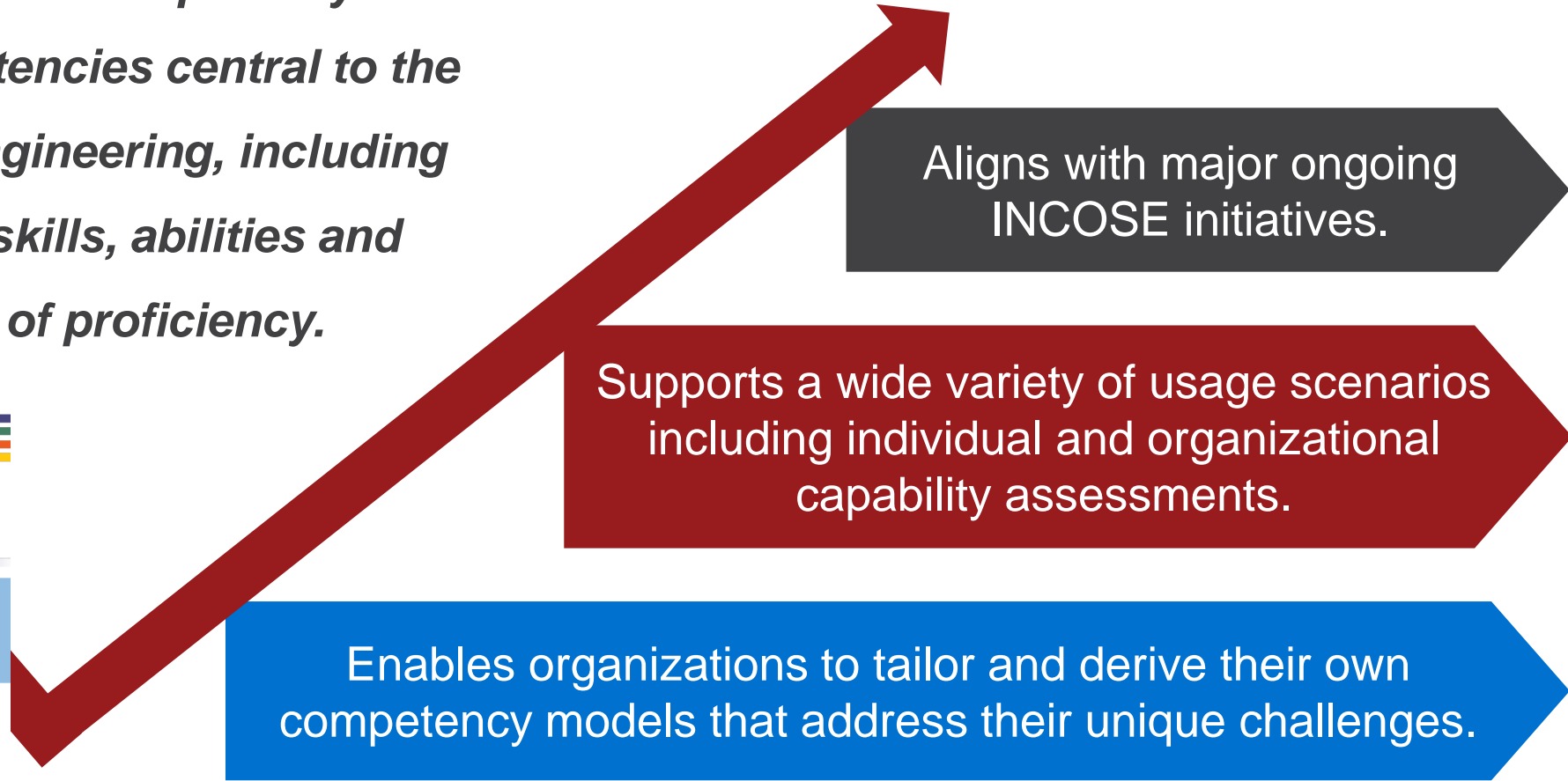
Represents a world view of 5 competency groupings with 36 competencies central to the profession of Systems Engineering, including indicators of knowledge, skills, abilities and behaviors across 5 levels of proficiency.



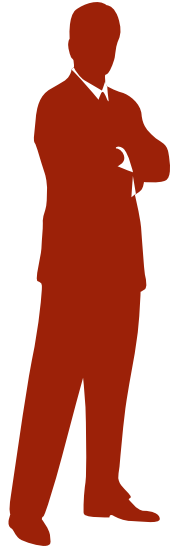
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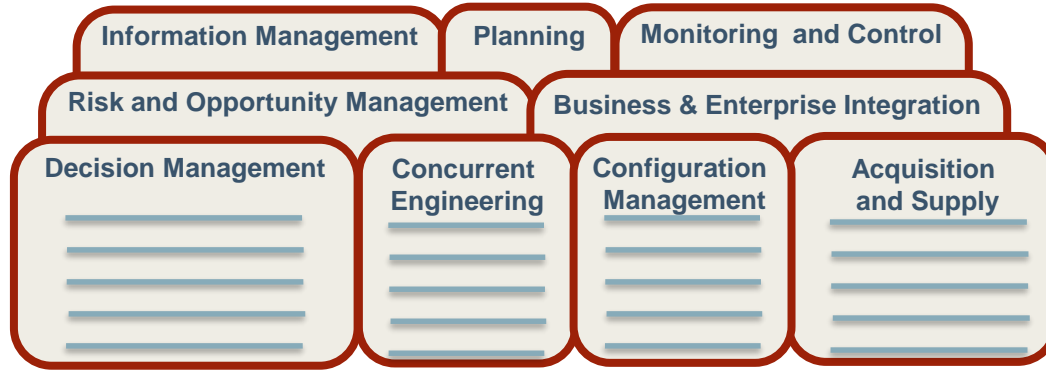
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36 Competencies Across 5 Groups



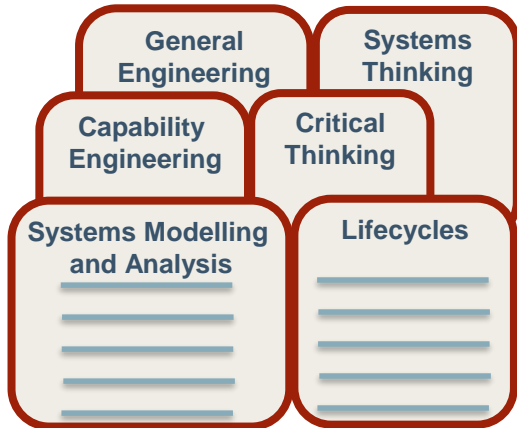
SE Management



Professional



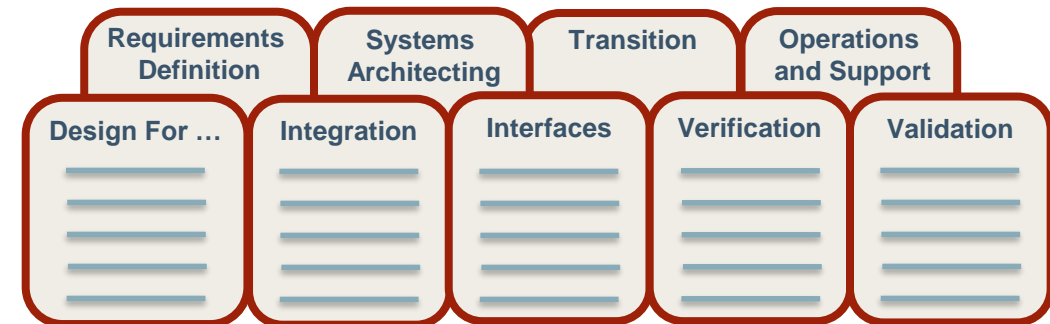
Core SE Principles



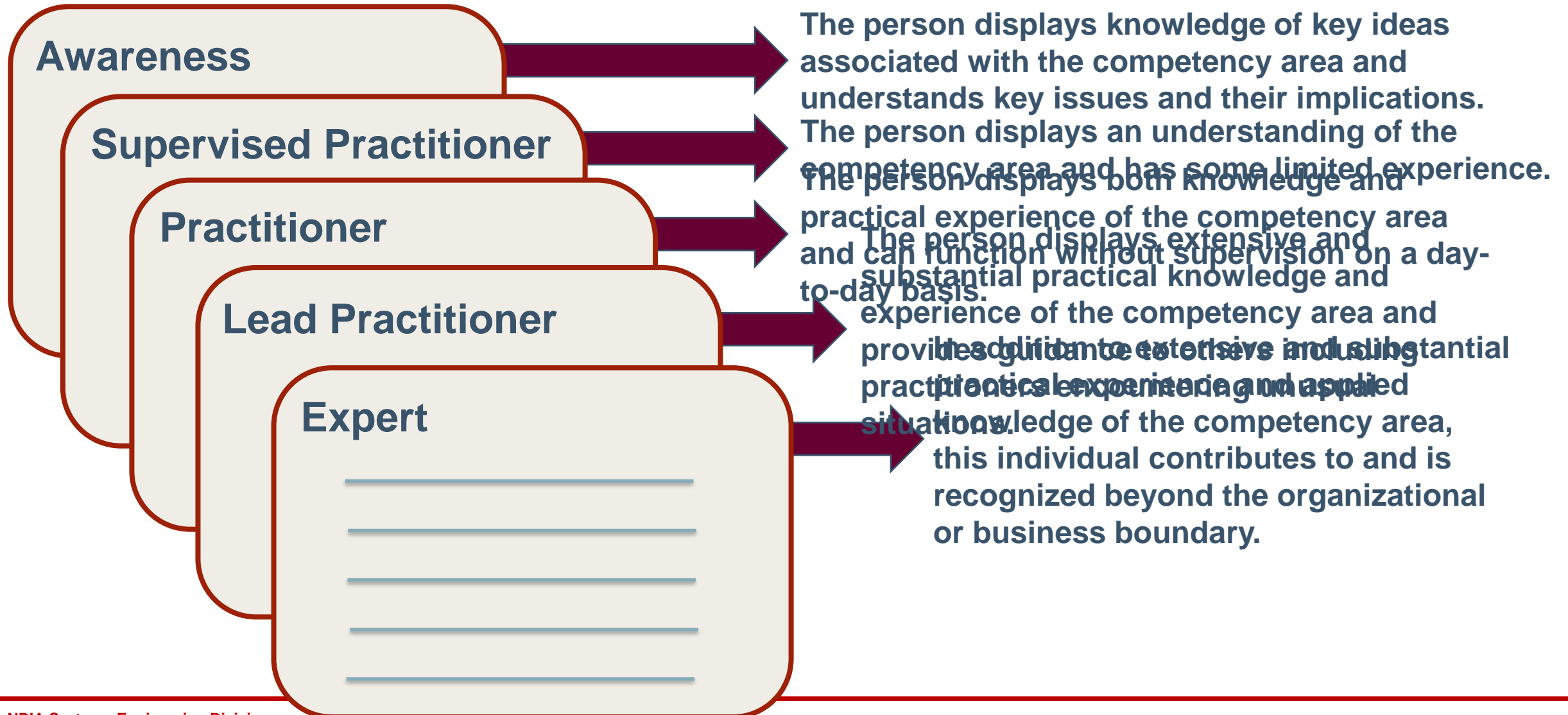
Integrating



Technical



Each Competency has 5 Proficiency Levels



COMPETENCY AREA - Interfaces

Description:

Interfaces occur where system elements interact, for example human, mechanical, electrical, thermal, data, etc. Interface Management comprises the identification, definition and control of interactions across system or system element boundaries.

Why it matters:

Poor interface management can result in incompatible system elements (either internal to the system or between the system and its environment) which may ultimately result in system failure or project/program overrun.

EFFECTIVE INDICATORS OF KNOWLEDGE AND EXPERIENCE

AWARENESS	SUPERVISED PRACTITIONER	PRACTITIONER	LEAD PRACTITIONER	EXPERT
Understands the need for interface management and its impact on the integrity of the system solution	Able to follow interface management procedures	Able to define a process and appropriate techniques to be adopted for the interface management of system elements	Able to liaise and arbitrate where there are conflicts in the definition of interfaces	Able to negotiate on the issues of interface complexity
Understands the possible sources of complexity in interface management, e.g. multinational programmes, multiple suppliers, different domains, novel technology, etc.	Able to identify and define simple interfaces	Able to identify, define and control system element interfaces	Has demonstrated expertise in interface management	Reviews and judges the suitability of interface management strategies
		Able to describe the sources of complexity for the interface management of the system, e.g. multinational programmes, multiple suppliers, different domains, novel technology, etc.	Coaches new practitioners in this field	Champions the introduction of novel techniques and ideas in this field which produced measurable improvements
		Able to identify consequences of changes to interfaces on the system elements, system and/or system of systems e.g. a change to a mechanical interface may impact thermal performance	Contributes to best practice within current organization	Coaches experienced practitioners in this field
		Able to guide supervised practitioner		Contributes to best practices beyond the organizational or enterprise boundary

- **Adjudicate reviews and comments on the initial competency framework release.**
- **Develop “Guide to Competency Evaluation” (Annex E) to provide guidance on how to evaluate people against the competency framework.**
- **Use the framework to develop Competency Models for various domains: SoS, SSE, Oil and Gas, Medical Devices, etc.**
- **Continue to explore use cases for how government, industry and academic organizations can use the framework’s evidence-based indicators to help identify, assess and develop the necessary knowledge, skills, abilities and behaviors at the appropriate levels in their workforce to enhance Systems Engineering effectiveness across the enterprise.**

Questions?



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