

## The International Council on Systems Engineering Launches the Next Phase of the Future of Systems Engineering (FuSE) Initiative to Realize the Systems Engineering Vision 2035



**SAN DIEGO (24 January 2023)** – The International Council on Systems Engineering (INCOSE) is pleased to announce the launch of the next phase of the Future of Systems Engineering (FuSE, [www.incose.org/fuse](http://www.incose.org/fuse)) initiative to realize the Systems Engineering Vision 2035.

The goal of this initiative is to *inspire the global community to realize the Vision of Systems Engineering*. The leadership of INCOSE is focused on driving this forward, starting with the annual [INCOSE International Workshop \(IW\) in 2023](#) which will focus on FuSE, as well as the usual working group activities of planning products, revising charters, updating webpages, etc.

**Ralf Hartmann, INCOSE President-Elect** says, *“With the SE Vision 2035 we have given to the world and to ourselves an extraordinary piece of inspiration and ambition for the future. We have raised the bar significantly for the global SE community and for INCOSE as an organization. Therefore, we are now strongly increasing our efforts through the “Future of Systems Engineering” initiative helping us to live up to this expectation. Of course, this is a challenge which needs to be addressed together with strong global partners from all domains. To get these collaborations in place will be the initial challenge to be mastered. I am really happy that we were able to get an outstanding leadership team together to act as key thought leaders for the FuSE initiative.”*

The FuSE element of IW is made up of four streams:

**Systems Engineering Vision & Roadmaps Stream.** The Systems Engineering Vision and Roadmaps stream continuously refines, evolves, and complements the SE Vision 2035. Furthermore, we create an integrated set of roadmaps across the four FuSE streams. The IW 2023 goal is to frame the structural relationships and value models to support the roadmaps creation.

**Systems Engineering Foundations Stream.** Systems engineering methods and tools need to be built on foundation principles that are provable and based on theories, laws, experiences, intuition, and axioms that can be tested for falsifiability like those in other well-established disciplines of science and engineering. We hypothesize that the foundations are related to information theory, and the complexity, systems, social, and cognitive sciences. The IW 2023 goal is to assess the foundational value of the “Conservation of System Complexity,” which parallels the Conservation of Energy in the First Law of Thermodynamics and the Conservation of Mass in continuum mechanics.

**Systems Engineering Methodologies Stream.** The Systems Engineering Methodologies stream guides the advancement of practices, methods, and tools for the effective engineering of systems to be fit for purpose in the presence of varying scale, interrelatedness, complexity, non-determinism, and emerging technology innovations such as AI and agility. The IW 2023 goal is to assess the adequacy of current INCOSE technical products and ongoing FuSE projects in this stream and identify gaps.

**Systems Engineering Application Extensions Stream.** The Systems Engineering Application Extensions stream integrates social sciences, soft systems, as well as initiatives such as Smart Cities to address grand challenges to meet human and societal needs as stated in the United Nations Sustainable Development Goals. The IW 2023 goal is to frame the value model to justify systems engineering's role at the policy table for these grand challenges.

***Mapping the five Systems Engineering Vision 2035 categories to the four FuSE streams is as follows:***

- Research goes through the *Foundations (theoretical branch)* and *Methodologies* streams.
- Competencies goes through the *Foundations (practical branch)*
- Tools and environment go through the *Methodologies* stream for Tools and *Application Extensions* stream for environment
- Practices goes through the *Foundations* stream
- Applications goes through the *Application Extensions* stream.

See the International Workshop 2023 schedule and register to attend at [www.incose.org/iw2023](http://www.incose.org/iw2023)

## Suggested Social Media Posts

If you would like to share this news on your social media platforms, we encourage you to use the social media post below:



At the International Workshop 2023 we will be planning how to bring the Systems Engineering Vision 2035 to life. Visit [www.incose.org/iw2023](http://www.incose.org/iw2023) to find out more.

#INCOSE #SystemsEngineering #Engineering #EngineeringFuture



# Press Release

## Notes to Editors:

### About the International Council on Systems Engineering

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization that promotes international collaboration in systems engineering practice, education, and research. INCOSE's mission is to "address complex societal and technical challenges by enabling, promoting and advancing systems engineering and systems approaches." Founded in 1990, INCOSE has more than 65 chapters and over 21,000 members and associates worldwide. For additional information about INCOSE visit [www.incose.org](http://www.incose.org).