



34th Annual **INCOSE** international symposium

hybrid event

Dublin, Ireland
July 2 - 6, 2024

PROGRAM DIRECTORY



Symposium 2024 Sponsors

Platinum



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Welcome to the 34th Annual INCOSE International Symposium

INCOSE's International Symposium is the world's premier systems engineering forum. Practitioners, researchers, and educators from around the world and across application domains share their insights, experiences, and innovations to further systems engineering. The technical program comprised of presentations, panel discussions, and tutorials attracts an international mix of professionals from the earliest stages in their career to seasoned global leaders. All those who attend the Symposium have the opportunity to share ideas, network, advance their competency, pursue certification, and forge new partnerships.

The symposium has been held every year since 1991 and has a rich history of delivering high-quality content focused on advancing the state of practice and charting the future of systems engineering.

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1 Influence INCOSE's strategic direction

2 Gain access to impactful products

(status as of June 20, 2024)

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Why INCOSE ?

INCOSE is the premier professional association choice of systems engineers across the globe creating a better world through a systems approach



CONNECT

Network and engage with the systems engineering community

LEARN

Enhance your knowledge through collaboration, research, and education



LEAD

Serve as an expert and thought leader to influence products and standards

PROSPER

Find career resources and improve your professional status



For additional information about INCOSE,
Please come to our INCOSE Village in the Exhibit Hall
or visit our website www.incose.org
or contact us at info@incose.net

INCOSE's Vision, Mission, and Objectives

Overview

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.

Vision

To unite and advance the global systems community.

Mission

INCOSE fosters systems engineering knowledge exchange, application, education, and research. We are dedicated to being the world's trusted authority and forum for the practice, science, and art of systems engineering.

Strategic Objectives

1. Advance systems engineering as the world's trusted authority.
2. Expand the systems engineering community while growing INCOSE.
3. Foster professional development and systems engineering competencies.
4. Achieve operational excellence.

23,000+

Members and
CAB Associates

130+

Corporate Members

50+

Working Groups

68

Chapters Worldwide

73

Countries with
Active Members

Systems Engineering Professional Certification

Offering three levels of internationally
recognized systems engineering
certification



Beginning of career
as a Systems Engineer



5+ Years
Practicing as a
Systems Engineer

25+ Years
Practicing as a
Systems Engineer



What is Certification?

Certification is a formal process whereby a community of knowledgeable, experienced, and skilled representatives of an organization, such as INCOSE, provides confirmation of an individual's competency (demonstrated knowledge, education, and experience) in a specified profession.

www.incose.org/certification

SYSTEMS ENGINEERING VISION 2035

ENGINEERING SOLUTIONS FOR A BETTER WORLD

The purpose of the Systems Engineering Vision 2035 is to inspire and guide the strategic direction of systems engineering across diverse stakeholder communities, which include:

- **ENGINEERING AND EXECUTIVE LEADERSHIP**
- **ENGINEERING PRACTITIONERS**
- **PROFESSIONAL ORGANIZATIONS**
- **RESEARCHERS, EDUCATORS, AND STUDENTS**
- **STANDARDS BODIES**
- **TOOL VENDORS**
- **POLICY MAKERS**

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”

– Charles Darwin

“As for the future, your task is not to foresee it, but to enable it.”

– Antoine de Saint Exupéry



Visit the Systems Engineering Vision 2035 website and download a PDF www.incose.org/sevision

Notes

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General Information

PLEASE WEAR YOUR NAME BADGE AT ALL TIMES. IT IS REQUIRED FOR ENTRY TO ALL SESSIONS, EVENTS, AND MEALS.

Symposium Venue

The Symposium venue, registration, technical sessions, business meetings, exhibits, receptions and lunches are all held at the

The Convention Center Dublin

Spencer Dock, N Wall Quay
Dublin, Ireland

Messages

Messages will be posted regularly on a board near the Registration Desk. The daily modifications of the schedule are announced at plenary sessions and will be posted on the information boards near the Registration Desk.

Badges

- Green**Speakers
- Orange**.....Exhibitors
- White**.....Full Registration
- Yellow**Day attendance
- Purple**Guests

Registration & Information Hours

The Forum Foyer – Ground Level

- Monday0900 – 1900
- Tuesday - Thursday0700 – 1700
- Friday0800 – 1700
- Saturday.....0700 – 1700

APP

Flash the QR code below or connect to the symposium website with your smartphone or tablet and you will receive instructions on how to download the app for Apple or Android devices.



QR Code

All badges will contain a QR Code.

Definition: A QR Code (quick response code) is a type of 2D bar code that is used to provide easy access to information through a smartphone or tablet. The QR Code may be used as a way to quickly and easily share your contact information with our exhibitors and follow delegates. Your QR Code includes your name, company, state and country and the email address that you entered during the registration process. You may share your contact information with others, but at no time are you obliged to do so.

Internet Access

A free Wireless Internet network is available in the venue.

Connect to Wireless Open Network :
CCDGuest

Speaker and Session Chair Breakfast

Location: Liffey Hall 1 – Level 1

- Tuesday to Thursday0700 – 0745
- Location: EcoCem Room – Level 2*
- Friday0800 – 0845
- Saturday.....0700 – 0745

Speaker Ready Room Hours

Location: Liffey Hall 1 – Level 1

- Monday1300 – 1800
- Tuesday to Thursday0745 – 1700

Location: EcoCem Room – Level 2

- Friday0845 – 1700

Exhibit Hall Hours

The Forum – Ground Level

- Tuesday0800 – 1700
- Tuesday (Ice Breaker Reception).....1800 – 1930
- Wednesday0800 – 1740
- Thursday.....0800 – 1530

General Information

Meals

Continuing the long tradition of lunch in the Exhibit Hall, Tuesday - Thursday, this year lunches will consist of food items that you can easily eat while strolling through the Hall. Plan to enjoy this extra opportunity to learn more about symposium exhibitors and sponsors. Friday lunch will be in The Liffey B on Level 1.

Tickets

Additional tickets can be purchased, at the registration desk for the following (subject to availability).

- Ice Breaker Reception for guests and day attendees
- Official Dinner

eProceedings

Connect to the e-proceedings using Symposium URL:

conference.confmr.com/IS2024

Enter the email address used to register to the Symposium and the confirmation number included in your confirmation e-mail. Then you can navigate through the program to download individual papers or all papers.

INCOSE Business Meetings

Working groups and other committees also meet during the symposium. The room assignments and information about these meetings can be found on the APP, and website, under Business Meetings. Announcements about additional meetings or room changes will be posted on the information boards. This is an opportunity to learn about or become more involved in the business of INCOSE.

Key Reserve Papers

All posters will be available to view Tuesday to Thursday - **Exhibit Hall area**, and Friday - Level 1 and Level 2. Papers for all key reserve papers can be found in the symposium proceedings.

INCOSE Village

Learn more about the services and products provided by INCOSE at the village. Meet members of the staff and discover ways to get more involved.

New Products

Be the first to get copies of the newest INCOSE products by visiting the village. As an added bonus, meet the experts who developed those new products!

Upcoming Events

Learn more about upcoming events from the event organizers at the INCOSE Village.

Award Announcements and Presentations

Best papers were selected by Technical Operations prior to the Symposium and are indicated in the program.

Tuesday – July 2

Awards for Best Symposium Papers *

Brian Mar Award for Best Student Paper *

Wednesday – July 3

INCOSE Fellows *

Founders Award *

International Science & Engineering Fair (ISEF)

** Presented during plenary*

Social Events

Corporate Advisory Board Dinner

(By invitation only)

Monday, July 1 1900-2200

Fire Steakhouse Restaurant

Dawson Street, The Mansion House, Dublin

18:30 Meet at the entrance of the Convention Center for a transfer by bus.

Dress code: Business Casual

Official Dinner

(Ticket required)

Thursday, July 4 1900-2130

Royal Dublin Society, Merrion Road, Ballsbridge, Dublin

18:30 Meet at the entrance of the Convention Center for a transfer by bus.

Dress code: Business Casual

Welcome First Time Attendees Tea Time

(By invitation only)

Monday, July 1 1700-1830

Auditorium Foyer – Level 3

New to INCOSE? Find out how to make the most of INCOSE and the symposium as you join us for an Irish Tea Time. Take advantage of this special opportunity and have some fun as you make new connections across the systems engineering community. Learn from INCOSE leaders and seasoned systems practitioners who will share how INCOSE can help advance your career.

Join in the fun at the INCOSE Official Dinner in Dublin! The Royal Dublin Society Concert Hall hosts gala events in a beautiful setting. For almost 300 years, the RDS has contributed to Dublin's economic well-being and culture. The Society activities benefit many aspects of life in Dublin, and include the annual Dublin Horse Show, charitable events, sporting contests, and a wide variety of cultural events. The INCOSE dinner will take place in an exquisite Concert Hall, featuring Irish themed food and drink, along with entertainment to enhance the party mood. Bring a shamrock for luck, and a good time will be had by all!

Ice Breaker Reception

Tuesday, July 2 1800 - 1930

Exhibit Hall, The Forum – Ground Level

The Ice Breaker Reception offers a unique opportunity to mix and mingle with other Symposium attendees, gather information from INCOSE vendors, and enjoy a taste of Ireland! Featuring favorite Irish canapes and beverages, the Ice Breaker is the place to be to celebrate the Symposium in Dublin and to greet members from around the world.

Sponsored by



Keynote Speakers

TUESDAY



Brian Collins

University College London

*Emeritus Professor of Engineering Policy - Department of Civil, Environmental and Geomatic Engineering
Vice Chair, National Preparedness Commission*

Keynote Title:

Systemic leadership in a TUNA world

WEDNESDAY



Dave Snowden

The Cynefin Center

Director and Founder

Keynote Title:

Risk, uncertainty and complexity

THURSDAY



Mark Kelly

AI Ireland

Global AI Transformation Leader

President of AI Ireland

Keynote Title:

AI in Action: Current Applications Transforming the World and Their Unintended Consequences

FRIDAY



Kathryn Cormican

University of Galway

Professor of Systems Engineering and Director of the Enterprise Research Centre in the School of Engineering

Keynote Title:

Engineering Tomorrow:
Navigating Pathways to Industry 5.0

Notes

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SE Fundamentals Program Highlights

New to systems engineering and building your foundation? New to INCOSE and wanting to understand its terminology and framing for SE? An experienced practitioner looking for a refresh on the fundamentals? Wherever you are on the systems engineering spectrum, the SE Fundamentals track has what you are looking for.

The SE Fundamentals track will be broadcast making it available to in-person and virtual delegates alike. Tailor to your specific interests by picking and choosing from the seven presentations. Or take advantage of all seven to learn from compelling speakers who are experts in the field of systems engineering.

These presentations will be made available from the app so if you miss one, catch up when you have free time. After the platform closes, watch any presentations missed or rewatch them all from the INCOSE Content Library.

In person (IST)

Tuesday, July 2

10:00-10:40

Broadcasted

Engineering the Future

Paul Nielsen

10:45-11:25

Broadcasted

Systems Thinking: What Systems Engineers Need to Know

Dr. Michael C Jackson

11:30-12:10

Broadcasted

Requirements—Why Bother?

Dr. Mike Ryan

13:30-14:10

Broadcasted

Architecture starts when you carefully split a system into two subsystems. There it begins...

Maarten Bonnema

14:15-14:55

Broadcasted

Interfaces and the Somebody Else's Problem Field

Paul Davies

15:30-16:10

Broadcasted

Engineering in the Digital Age - Revolutionize Digital Engineering with MBSE

Prof. Dr.-Ing. Lydia Kaiser

16:15-16:55

Broadcasted

Embrace Yourself! Our Responsibilities and Competencies as Complex Problem Solvers

Nicole Hutchison

Technical Leadership Program Highlights

Whether or not you formally lead a team, all systems engineers are leaders as they work to elicit needs, connect insights, and facilitate a shared understanding of both problem and solution. Developing your leadership skills is an important part of being a systems engineer as you learn to better engage in the socio dimension of socio-technical problems. Leverage IS 2024 to advance your leadership knowledge, skills, and abilities to better address problems at the product, enterprise, and societal levels.

The Technical Leadership track on Thursday will be broadcast as will a few other presentations making them available to in-person and virtual delegates alike. Presentations that will be broadcast have been marked in the list below. Broadcast presentations are recorded and available from the app during the event and for four weeks post event. After the platform closes, watch any presentations missed or rewatch them all from the INCOSE Content Library.

In person (IST)

Tuesday, July 2

10:45-11:25

Broadcasted

Systems Thinking: What Systems Engineers Need to Know

Dr. Michael C Jackson

13:30-14:10

Promoting Neurodiversity Through MBSE and Other Technical Approaches

Maria Romero

16:15-16:55

Broadcasted

Embrace Yourself! Our Responsibilities and Competencies as Complex Problem Solvers

Nicole Hutchison

Wednesday, July 3

08:00-09:30

Broadcasted

Plenary Keynote speaker Dave Snowden will be addressing issues relevant to complexity and leadership



Dave Snowden

*The Cynefin Center
Director and Founder*

13:30-14:55

Panel: What works and what does not work in teaching non-Systems Engineers about systems thinking

Moderator: Jill Speece

Panelists: Kamran Eftekhari Shahroudi, Martin Span, Kirk Reinholtz, Quentin Saulter, Sarwat Chappell, Graeme Troxel

Technical Leadership Program Highlights

Thursday, July 4 (Technical Leadership Track)

10:00-10:40

Broadcasted

Perspective and Influence and Leverage, Oh My! Leadership for Systems Engineers

David Long

10:45-11:25

Broadcasted

A System Dynamics Model of Organizational Resilience

Ivan Taylor

11:30-12:10

Broadcasted

A Systems Engineering Approach to Driving the 'Right' Organizational Culture and Life at the Right Pace

Enanga Fale

13:30-14:10

Broadcasted

How Systems Thinking Provides the Foundation for A W-Shaped Model of an Effective Technical Leader

Michael Wozniak

14:15-14:55

Broadcasted

A Model for Trust and Distrust: The Systems Dynamics Approach

Takashi Matsuura

15:30-16:10

Broadcasted

Implications of Cultural Differences in the Systems Engineering Professional Competencies

Heidi Hahn

16:15-16:55

Broadcasted

Evolving Roles in Systems Engineering — Insights from Germany's Mechanical and Plant Engineering Sector

Lydia Kaiser, Felix Förster

Friday, July 5

13:30-14:55

Panel: Building Cultural Intelligence: The Role of Organizational Culture in Nurturing Leaders in Systems Engineering

Moderator: Stueti Gupta

Panelists: Alice Squires, Anabel Fraga, Javier Calvo-Amodio, Victoria Patterson

Saturday, July 6

08:00-17:00

Tutorial: Embracing the Social Dimension of Systems Engineering

Suja Joseph-Malherbe, David Long

AI Program Highlights

Artificial Intelligence (AI) and Machine Learning (ML) is revolutionizing the way we design and interact with systems in the world today. Whether it's Generative AI for ChatGPT with underlying Large Language Models or Small Language Models, AI generated custom Art or Graphical Designs, or novel ways to interact with PCs via CoPilot, all include some form of AI/ML. AI and ML are beginning to impact our daily lives and are already intersecting with Systems Engineering. Come see what the Systems Engineering thought leaders and researchers have to say about how these technologies impact the systems we engineer and how we engineer them.

INCOSE IS 2024 features a robust AI program with SE4AI and AI4SE. The AI track on Thursday will be broadcast as will a few other presentations making them available to in-person and virtual delegates alike. Presentations that will be broadcast have been marked in the list below. Broadcast presentations are recorded and available from the app during the event and for four weeks post event. After the platform closes, watch any presentations missed or rewatch them all from the INCOSE Content Library.

In person (IST)

Tuesday, July 2

13:30-14:10

Validation Framework of a Digital Twin: A System Identification Approach

Ibukun Phillips and C. Robert Kenley

Thursday, July 4

08:00-09:30

Broadcasted

Plenary Keynote speaker Mark Kelly of AI Ireland will be addressing issues relevant to AI



Mark Kelly

AI Ireland

Global AI Transformation Leader, President of AI Ireland

10:00-10:40

Broadcasted

Survey of LLM Applications for Systems Engineering

Barclay Brown

10:45-11:25

Broadcasted

The Updated SERC AI and Autonomy Roadmap 2023

Tom McDermott

11:30-12:10

Broadcasted

AI Systems Modeling Enhancer (AI-SME): Initial Investigations into a ChatGPT-enabled MBSE Modeling Assistant

Brian Johns

11:30-12:10

Model-Based Systems Engineering (MBSE) Methodology for Integrating Autonomy into a System of Systems Using the Unified Architecture Framework

Ali Raz

13:30-14:10

Broadcasted

Optimizing Systems Engineering Workflows through Novel Applications of Large Language Models

Edward Serzo

14:15-14:55

Broadcasted

AI-Enhanced Autonomous Formation Flying - Definition of a Mission-driven and Safety-critical Software Development Environment

Bernard Dion

15:30-16:10

Broadcasted

Integrating IV&V into a generative AI Enterprise work culture

Jason Blevins

16:15-16:55

Broadcasted

Integrating AI with MBSE for Data Extraction from Medical Standards

Mohammad Chami

AI Program Highlights

Friday, July 5

09:00-09:40

A Case Study of AI Usage within the INCOSE Technical Process

Kenneth Harkenrider

Saturday, July 6

08:00-12:00

Tutorial: Hands-on Journey on Variant Modelling with SysML: Features Models, Methods, SysML v2, and AI Insights

Marco Forlingieri

08:00-17:00

Tutorial: Systems Engineering for a Sustainable Future: Leveraging Emerging Technologies and Systems Modernization

Randall Anway

Virtual (IST)

Tuesday, July 2

10:45-11:25

Systems and Software Engineering Cost Modeling of AI Assistance

Raymond Madachy

Posters

Tuesday, July 2

LLM-based Approach to Automatically Establish Traceability between Requirements and MBSE

Maria Bonner, Marc Zeller, Gabor Schulz and Ana Savu

Requirement Discovery Using Embedded Knowledge Graph with ChatGPT

Braxton Vangundy, Nipa Phojanamongkolkij, Barclay Brown, Ramana Polavarapu and Joshua Bonner

Thursday, July 4

Do Algorithms Dream of Electric Requirements? Leveraging AI-Based Approaches for Automated Allocation and Classification of Requirements in Railway Engineering

David Martin and Jaume Sanso

Leveraging Large Language Models for Direct Interaction with SysML v2

John DeHart

Friday, July 5

Impact Analysis of using Natural Language Processing and Large Language Model on Automated Correction of Systems Engineering Requirements

Arthur Hendricks Mendes de Oliveira, Pedro Almeida Reis, Mairon Sena Cavalcante, Fernando Sarracini Júnior, Jonathan Vinicius de Lima, Luis Fernando Soares and Lucas Henrique Marchiori

FuSE Program Highlights

In January 2022, INCOSE published the Systems Engineering Vision 2035: Engineering Solutions for a Better World <https://www.incose.org/about-systems-engineering/evision-2035>. The Vision recognizes the exponentially increasing scale, interconnectedness, and non-determinism of 21st Century systems. The Future of Systems Engineering (FuSE) is the engineering and systems communities' initiative to realize the Vision in a holistic and comprehensive transdisciplinary manner <https://www.incose.org/about-systems-engineering/fuse>. The FuSE initiative addresses both the enablers and impediments, considering the political, economic, social, technical, environmental, and legal (PESTEL) factors. The challenges span applications, practices, tools and environment, research, and competencies. The path forward addresses the set of challenges while inspiring systems community collaboration and managing the culture change required to shift mindsets and approaches from the current state to the future state in the engineering of systems. FuSE is framing the realization of the Vision and measures to assess progress to proactively engage stakeholders. The four FuSE streams to realize the Systems Engineering Vision 2035 are 1) Vision & Roadmaps, 2) Fundamentals, 3) Methodologies, and 4) Application Extensions.

Presentations that will be broadcast have been marked in the list below. Broadcast presentations are recorded and available from the app during the event and for four weeks post event. After the platform closes, watch any presentations missed or rewatch them all from the INCOSE Content Library.

In person (IST)

Tuesday, July 2

- 10:00-10:40 *(Foundations/Socio-Technical)* **The Human-Technology Spectrum: A Framework for Evaluating Sociotechnical System Function Allocation, Risk, and Performance**
Graeme Troxell
- 11:30-12:10 **Broadcasted** *(Methodologies/Architecture & Security)* **Enabling FuSE Security Objectives through Cyber Survivability Methods**
Barry Papke
- 11:30-12:10 *(Foundations/Verification)* **Theoretical Underpinnings to Establish Fidelity Conditions for Defining Verification Models**
Paul Wach
- 13:30-14:10 **Broadcasted** *(Methodologies/Security: Secure Design)* **A Practical Approach for Systems Engineers**
Mark Winstead
- 13:30-14:10 *(Foundations/Validation)* **Validation Framework of a Digital Twin: A System Identification Approach**
C. Robert Kenley
- 14:15-14:55 **Broadcasted** *(Foundations/Networks)* **Building a Scientific Foundation for Security: Multilayer Network Model Insights for System Security Engineering**
Susan Caskey
- 14:15-14:55 *(Methodologies/Complexity & Risks)* **Concept Design Failure Modes and Effects Analysis Using System Level Assessment**
David Genter

FuSE Program Highlights

Wednesday, July 3

- 10:00-10:40 *(Foundations/Principles & Heuristics)* **Case Studies for Complexity Pattern Identification**
Andrew Pickard
- 14:15-14:55 *(Foundations/Complexity)* **Enterprise: Exploration of Concepts, Perspectives and Implications for Systems Engineering**
Charles Keating
- 15:30-16:10 *(Foundations/Transdisciplinary)* **Advancing Transdisciplinarity from Concept to Practice**
Javier Calvo-Amodio, James Martin
- 16:15-16:55 *(Fundamentals & Applications Extensions/Principles & Socio-Technical)* **Innovation Ecosystem Dynamics, Value and Learning I: What Can Hamilton Tell Us?**
William Schindel

Thursday, July 4

- 10:45-11:25 *(Methodologies/Traceability)* **Traceability – A vision for now and tomorrow**
Adriana D'Souza
- 10:45-11:25 *(Foundations/Metamodels):* **One Model to Rule them All ... and Through Emergence, Bind Them**
Jawahar Bhalla
- 11:30-12:10 *(Foundations/Complexity)* **Systems Engineering Innovation through 'Futures' Methods**
Bonnie Johnson
- 13:30-14:10 *(Foundations/Principles)* **Synergizing Structure and Agility: A Comprehensive Analysis of SAFe Agile Framework through the Lens of Stafford Beer's Viable System Model**
Juan Martin Cadena
- 14:15-14:55 *(Application Extensions/Smart Cities)* **Human-centered Smart Cities: an evaluation of a small community using the Smart Cities Initiative framework**
Jennifer Russell

Friday, July 5

- 10:30-11:10 *(Foundations/Uncertainty):* **Modeling of Uncertainty in System and Enterprise Models**
Daniel Brookshier, James Martin
- 11:15-11:55 *(Foundations/Complexity & Emergence)* **Dealing with Emergence in Systems Engineering Models--Fewer Surprising Failures and more "Happy Little Accidents"**
Steve Holt
- 13:00-13:40 *(Foundations/Complexity & PESTEL)* **An Agent-Based Ontology to Support Modeling of Socio-Technical Systems-of-Systems**
Jakob Axelsson
- 13:00-13:40 *(Application Extensions/Influence)* **Human Frailties: Springboard to Increased Systems Engineering Influence**
Dorothy McKinney

Broadcasted

MBSE - DE Program Highlights

In person (IST)

Tuesday, July 2

- 10:00-10:40 **ANDES, the high-resolution spectrograph for the ELT: the adoption of Model-Based Systems Engineering approach**
Alessio Zanutta
- 10:00-10:40 **A Proposal for Model-Based Systems Engineering Method for Creating Secure Cyber-Physical Systems**
Gerrit Muller
- 10:45-11:25 **Black Hole Cinema: Application of Systems Engineering Methods to Expand and Enhance an Earth-sized Telescope**
Garret Fitzpatrick
- 14:15-14:55 **Extending Systems Engineering for Safety-Critical Defence Applications**
Katia Potiron
- 15:30-16:10 **Developing an Integrated Mission Simulation to Evaluate Technology Impact on Military Scenarios**
Tara Sarathi
- 15:30-16:10 **Engineering in the Digital Age – Revolutionize Digital Engineering with MBSE**
Prof. Dr.-Ing. Lydia Kaiser

Wednesday, July 3

- 10:00-12:10 **MBSE Lightning Round**
Daniel Call, Yilong Yang, Sean Flanagan, Ryan Noguchi, Terry R. Hill
- 10:00-10:40 **An MBSE group project challenge as a learning experience for Masters degree students**
Paul Davies
- 13:30-14:10 **Accelerating Digital Transformation through MBSE, Multi-physics Simulation and Digital Twin in Industry**
Jacques Martinez
- 14:15-14:55 **The A to Z for Implementing a Digital Transformation on a Systems Project**
Kerry Lunney
- 16:15-16:55 **The Digital Engineering Factory: Considerations, Current Status, and Lessons Learned**
Joe Gregory
- 17:00-17:40 **How the INCOSE Model-Based Capability Matrix has Steered Model-Based Systems Engineering Transformation at NASA**
Gregory Pierce

MBSE - DE Program Highlights

Thursday, July 4

- 10:00-10:40 **Enhancing Data-Driven Decision Making through MBSE**
Greg Parnell
- 10:00-10:40 **How to Develop a Digitization Plan for Standards**
Leslie McKay
- 10:45-11:25 **One Model to Rule them All ... and Through Emergence, Bind Them**
Jawahar Bhalla
- 11:30-12:05 **Digital Data Packages: Making the Digital Thread Work**
David Long
- 13:30-14:55 Panel: **Peace, Love, and Digital Understanding: How system models will bring us all together**
Moderator: Kirsten McCane
Panelists: Becky Petteys, Dennis Reed, Cristina Valera Munoz, Risa Gorospe, Alexandra Beaudouin
- 14:15-14:55 **Practice to adapt MBSE as agility enabler to the agile software development for mobility platforms**
Daisuke Hashimoto
- 15:30-16:10 **Enabling Digital Engineering with Federated PLM - Experiences from the Heliple-2 Project**
Jad El-Khoury
- 16:15-16:55 **Integrating AI with MBSE for Data Extraction from Medical Standards**
Mohammad Chami
- 16:15-16:55 **Towards a Systems Engineering Ontology Stack**
Joe Gregory

Friday, July 5

- 09:00-09:40 **Digital Engineering Capability Guidance and Maturity Assessment Framework**
Michael Shearin
- 09:00-11:10 Panel: **Building the digital bridge between MBSE and Engineering Simulation**
Moderator: Phyllis Marbach
Panelists: Bernardo Delicado, Tim Morris, Alexander Busch, Hans Peter DeKoning
- 11:15-11:55 **Excuse me Sir/Madam, which Model?**
Erik Herzog

Saturday, July 6

- 08:00-17:00 Tutorial: **Open Source System Modeling with Python**
Ryan Longshore

Platinum Sponsors



www.3ds.com

Sponsor track:

Tue 02, Jul 10:30-10:50 (Liffey Meeting Room 1 - Level 1)

Wed 03, Jul 11:00-11:20 (Liffey Meeting Room 1 - Level 1)

Booth: 6-8

Dassault Systèmes provides business and people with 3DEXPERIENCE universes to imagine sustainable innovations capable of harmonizing product, nature and life. Our business is innovation. Thanks to the 3DEXPERIENCE platform, we provide software solutions that allow customers to create innovative new products and services using virtual experiences.

SIEMENS

www.sw.siemens.com/en-US/

Sponsor track:

Wed 03, Jul 10:30-10:50 (Liffey Meeting Room 1 - Level 1)

Thu 04, Jul 10:00-10:20 (Liffey Meeting Room 1 - Level 1)

Booth: 2-4

Siemens Digital Industries Software and Siemens Xcelerator are transforming the everyday by giving companies like yours the agility, flexibility and adaptability to turn ideas into innovation with greater efficiency and speed.

Gold Sponsors



www.jamasoftware.com

Sponsor track:

Tue 02, Jul 11:30-11:50 (Liffey Meeting Room 1 - Level 1)

Booth: 32

Jama Software® is focused on maximizing innovation success in multidisciplinary engineering organizations. Numerous firsts for humanity in fields such as fuel cells, electrification, space, software-defined vehicles, surgical robotics, and more all rely on Jama Connect® requirements management software to minimize the risk of defects, rework, cost overruns, and recalls. Using Jama Connect, engineering organizations can now intelligently manage the development process by leveraging Live Traceability™ across best-of-breed tools to measurably improve outcomes. Our rapidly growing customer base spans the automotive, medical device, life sciences, semiconductor, aerospace & defense, industrial manufacturing, consumer electronics, financial services, and insurance industries.

ZUKEN®

www.vitechcorp.com

Booth: 5-7

Zuken is a global software company delivering software and consulting services in the Digital Engineering space, with special emphasis on electrical and electronic subsystems design and model-based systems engineering. To learn more, visit www.vitechcorp.com.

Silver Sponsor



www.ansys.com

Sponsor track:

Tue 02, Jul 11:00-11:20 (Liffey Meeting Room 1 - Level 1)

Booth: 14-16

Powering Innovation That Drives Human Advancement When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality with Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push boundaries by using the predictive power of simulation. From sustainable transportation to advanced semiconductors, from satellite systems to life-saving medical devices, the next great leaps in human advancement will be powered by Ansys.



www.dentsusoken.com/english

Sponsor track:

Tue 02, Jul 14:30-14:50 (Liffey Meeting Room 1 - Level 1)

Under its corporate vision of “HUMANOLOGY for the future: bringing people and technology together to shape the future,” DENTSU SOKEN will coordinate the three functions of System Integration, Consulting and Thinktank to deal in earnest with society as a whole, including companies, government agencies, municipalities and consumers. In doing so, we aim to create a cycle that runs from the proposal of issues to their technology-driven solutions, supporting and realizing an evolution into a better society. DENTSU SOKEN will promote X Innovation beyond the boundaries of technologies, industries, companies and regions, harnessing the power of people and technology to pioneer the future and continually create new value.

Bronze Sponsors



www.aerospace.org

Sponsor track:

Tue 02, Jul 10:00-10:20 (Liffey Meeting Room 1 - Level 1)

The Aerospace Corporation is a national nonprofit corporation that operates a federally funded research and development center and has approximately 4,000 employees. With major locations in El Segundo, Calif.; Albuquerque, N.M.; Colorado Springs, Colo.; And the Washington, D.C., region, Aerospace addresses complex problems across the space enterprise and other areas of national significance through agility, innovation, and objective technical leadership. For more information, visit www.aerospace.org. Follow us on Twitter: @AerospaceCorp.



jobs.boeing.com

Sponsor track:

Wed 03, Jul 16:00-16:20 (Liffey Meeting Room 1 - Level 1)

As a leading global aerospace company, Boeing develops, manufactures and services commercial airplanes, defense products and space systems for customers in over 150 countries. Boeing's diverse team is committed to innovating for the future, leading with sustainability, and cultivating a culture based on the company's core values of safety, quality and integrity.

Bronze Sponsors



Open Source MBSE Solution

mbse-capella.org

Capella is an open-source and field-proven Model-Based Systems Engineering (MBSE) solution to successfully design systems architecture. It provides systems, software and hardware architects with rich methodological guidance relying on Arcadia, a comprehensive model-based engineering method based on both industrial experimentations and system engineers' feedback : better understand the customer need, define and share the solution, secure SW/HW engineering and subcontracting, early evaluate and justify architectural choices, prepare and master V&V.



www.ibm.com

Sponsor track:

Tue 02, Jul 16:30-16:50 (Liffey Meeting Room 1 - Level 1)

Booth: 11

IBM helps organizations worldwide leverage hybrid cloud, AI, and consulting expertise to unlock data insights, streamline processes, and gain a competitive edge. We are a leader in software and systems engineering, powering mission-critical solutions for clients in over 175 countries.

Bronze Sponsors



intercax

www.intercax.com

Sponsor track:

Wed 03, Jul 15:30-15:50 (Liffey Meeting Room 1 - Level 1)

Intercax is a pioneer and trusted global innovator in the field of model-based systems engineering (MBSE). Our digital thread platform, Syndeia, is a scalable enterprise software environment enabling engineering teams to collaboratively and concurrently develop a digital connected graph of diverse modeling, design and simulation tools and data repositories.

MID

www.mid.de/en/

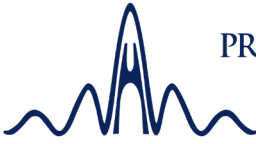
Sponsor track:

Tue 02, Jul 16:00-16:20 (Liffey Meeting Room 1 - Level 1)

Booth: 24

MID develops Smartfacts, the most comprehensive OSLC based vendor neutral traceability platform covering the complete "V" from requirements to source code. Smartfacts Cross Domain Configuration Management allows to define configurations across a vast number of engineering tools and helps to manage the digital thread in engineering across tools and domains.

Bronze Sponsors



PROJECT PERFORMANCE
INTERNATIONAL

www.ppi-int.com

Sponsor track:

Thu 04, Jul 11:00-11:20 (Liffey Meeting Room 1 - Level 1)

Booth: 17

PPI helps professionals and companies reach a new level of engineering capability. With alumni of 18,000+ professionals across various sectors in 41 countries, we train and consult for professionals like you. With our proven track record, even experienced engineers and teams can acquire valuable new knowledge and skills, guaranteed.



www.ptc.com/en/products/pure-variants

Sponsor track:

Wed 03, Jul 14:00-14:20 (Liffey Meeting Room 1 - Level 1)

Booth: 26

pure::variants from ptc is a PLE software tool that integrates with existing development processes to streamline product line development. It centralizes variability management, enhancing engineering efficiency and ensuring consistent results. Additionally, pure::variants automates variant generation, integrating with more than 20 engineering tools to enable access to and manage complexity of assets throughout a product's lifecycle.

PTC is a global software company that enables industrial manufacturing companies to digitally transform how they engineer, manufacture, and service the physical products that the world relies on. Headquartered in Boston, Massachusetts, PTC employs over 7,000 people and supports more than 30,000 customers globally.

Bronze Sponsors

SENSmetry

www.sensmetry.com

Sponsor track:

Wed 03, Jul 13:30-13:50 (Liffey Meeting Room 1 - Level 1)

Booth: 19

Sensmetry is a 'systems as code' company developing 'SysIDE', a leading open source SysMLv2 textual editing and analysis tool. Sensmetry creates and provides products for model-based systems engineering and risk management covering the full system lifecycle. Sensmetry unites model-based Systems, Software as well as Data & AI engineering through an interdisciplinary approach and rigorous machine-readable specifications.



www.spread.ai

Sponsor track:

Tue 02, Jul 15:30-15:50 (Liffey Meeting Room 1 - Level 1)

SPREAD makes product data accessible, intuitive, and actionable. Our Engineering Intelligence Network connects all kinds of product information, so engineering teams can better understand how complex products like cars, aircraft, and machinery work, and apply that understanding to improve those products, more efficiently.

Bronze Sponsors



THE
REUSE
COMPANY

www.reusecompany.com

Sponsor track:

Wed 03, Jul 11:30-11:50 (Liffey Meeting Room 1 - Level 1)

Booth: 29-31

The REUSE Company is a Systems Engineering Tool vendor specialized in the application of technology for information, knowledge, functionality, methods, and tools reuse. We promote SE digitalization by connecting the tools' ecosystem in a common repository, offering interoperability between them, quality, CM, V&V to the content, and project workflow management.



Tom Sawyer
SOFTWARE

www.tomsawyer.com

Sponsor track:

Tue 02, Jul 13:30-13:50 (Liffey Meeting Room 1 - Level 1)

Booth: 12

Tom Sawyer Software is a pioneer in graph visualization, layout, and analysis technology helping organizations uncover hidden connections in their data by visualizing complex systems. Our Model-Based Engineering solution lets you instantly visualize, customize, filter, and navigate SysML diagrams from No Magic model definitions in Teamwork Cloud and in MagicDraw.

Bronze Sponsors



www.methodpark.com/stages/industries/aerospace-and-defense.html

Booth: 33-34

As part of global safety science leader UL Solutions, three experts in E/E systems R&D have joined forces: Kugler Maag Cie, Method Park and kVA. The consultancies support the automotive industry in the transformation to software-defined mobility. To build up software expertise at scale, they align people, processes and technologies.

Academic Sponsors

Caltech

ctme.caltech.edu

Sponsor track:

Wed 03, Jul 10:00-10:20 (Liffey Meeting Room 1 - Level 1)

Booth: A2

Caltech CTME is the preferred choice of systems engineering leaders seeking customized professional development. Our learning labs cultivate organizational capabilities, foster adaptive adept teams, and encourage innovative mindsets. With a range of on-site and online courses, including SE/MBSE, Agile SE, AI/Machine Learning, Industrial DevOps, and Technology Management, our highly experienced instructors ensure comprehensive learning experiences for all. Email: execed@caltech.edu.



SYSTEMS ENGINEERING
COLORADO STATE UNIVERSITY

col.st/5GpMQ

We're industry-connected academics who engineer through complexity to address the most important problems of our time. Choose from five of our graduate program options in systems engineering: Certificate, MS, ME, PhD, or Professional Doctorate. Study in-person or online for maximum flexibility.

CornellEngineering Systems Engineering

www.systemseng.cornell.edu/se

About Cornell University, Systems Engineering Program Cornell University's Systems Engineering Program offers PhD, MS, and MEng with options of both on-campus and distance learning. Its program is continuously evolving to accommodate industry expectations, student needs, and to maintain the interdisciplinary flavor which forms the very basis of this program.

Academic Sponsors



S Y S T E M S
E N G I N E E R I N G
R E S E A R C H C E N T E R

Sercuarc.org

Booth: A6

The Systems Engineering Research Center (SERC) was established in 2008 by the Department of Defense as the first networked University Affiliated Research Center. More than 20 SERC universities nationwide contribute expertise on digital engineering, test & evaluation, modeling, workforce development and other fields for advancements in national security.



WPI

www.wpi.edu/admissions/graduate

Sponsor track:

Tue 02, Jul 14:00-14:20 (Liffey Meeting Room 1 - Level 1)

In Systems Engineering, rapid innovation demands close academia-industry collaboration. WPI's graduate programs blend engineering, science, and management courses to equip professionals for dynamic careers. Discover how WPI prepares you for evolving challenges: grad.wpi.edu

Exhibitors

Exhibition Hours

The Forum - Ground Level

Tuesday.....	0800 - 1700
Tuesday (Ice Breaker Reception)	1800 - 1930
Wednesday.....	0800 - 1740
Thursday.....	0800 - 1530

Corporate Booths

14-16 - Ansyswww.ansys.com

Sponsor-exhibitor track: Tue 02, Jul 11:00-11:20 (Liffey Meeting Room 1 - Level 1)

Ansys is a Silver sponsor - please see the sponsors pages for more information.

9 - Belcan Engineering Group, LLC.....www.belcan.com

Founded in 1958, Belcan is a global supplier of design, software, manufacturing, supply chain, information technology, and digital engineering solutions to the aerospace, defense, space, government services, automotive, and industrial markets. Belcan engineers better outcomes for customers - from jet engines, airframe, and avionics to heavy vehicles, automobiles, and cybersecurity.

6-8 - Dassault Systèmes www.3ds.com

Sponsor-exhibitor track: Tue 02, Jul 10:30-10:50 (Liffey Meeting Room 1 - Level 1)

Sponsor-exhibitor track: Wed 03, Jul 11:00-11:20 (Liffey Meeting Room 1 - Level 1)

Dassault Systèmes is a Platinum sponsor - please see the sponsors pages for more information.

27 - Georgia Tech Research Institute..... www.gtri.gatech.edu

The Georgia Tech Research Institute (GTRI) is the nonprofit, applied research division of the Georgia Institute of Technology (Georgia Tech). Founded in 1934 as the Engineering Experiment Station, GTRI has grown to more than 2,900 employees, supporting eight laboratories in over 20 locations around the country and performing more than \$940 million of problem-solving research annually for government and industry. GTRI's renowned researchers combine science, engineering, economics, policy, and technical expertise to solve complex problems for the U.S. federal government, state, and industry.

11 - IBM www.ibm.com/products/engineering-lifecycle-management

Sponsor-exhibitor track: Tue 02, Jul 16:30-16:50 (Liffey Meeting Room 1 - Level 1)

IBM is a Bronze sponsor - please see the sponsors pages for more information.

21 - IncQuery Labs Zrt incquery.io

IncQuery offers customized digital engineering products and services for automotive, aerospace & defense, and industrial automation. We support engineers with customization and integration, to help them work more efficiently avoid costly errors and shorten time-to-market cycles.

Exhibitors

32 - Jama Software.....www.jamasoftware.com

Sponsor-exhibitor track: Tue 02, Jul 11:30-11:50 (Liffey Meeting Room 1 - Level 1)

Jama Software is a Gold sponsor - please see the sponsors pages for more information.

18 - MathWorks..... www.mathworks.com

The MATLAB and Simulink product families are fundamental applied math and computational tools adopted by more than 6,500 universities and colleges. MathWorks products help prepare students for careers in industry, where the tools are widely used for data analysis, mathematical modeling, and algorithm development in collaborative research and new product development.

24 - MID GmbHmid.de/en/

Sponsor-exhibitor track: Tue 02, Jul 16:00-16:20 (Liffey Meeting Room 1 - Level 1)

MID GmbH is a Bronze sponsor - please see the sponsors pages for more information.

20 - PDSVISION UK Ltdpdsvision.com

With 450 staff in 16 countries, PDSVISION is a global provider of leading Systems and Digital Engineering software and services. Our solutions centre on PTC's Codebeamer ALM platform, with complementary MBSE, Functional Safety, Reliability, Cybersecurity and Simulation capabilities from Ansys and ReliaSoft, to manage risk and compliance to industry standards.

17 - Project Performance International.....www.ppi-int.com

Sponsor-exhibitor track: Thu 04, Jul 11:00-11:20 (Liffey Meeting Room 1 - Level 1)

Project Performance International is a Bronze sponsor - please see the sponsors pages for more information.

26 - ptc..... www.ptc.com/en/products/pure-variants

Sponsor-exhibitor track: Wed 03, Jul 14:00-14:20 (Liffey Meeting Room 1 - Level 1)

ptc is a Bronze sponsor - please see the sponsors pages for more information.

15 - QRA Corp.....qracorp.com

QRA's GenAI tools streamline artifact generation, evaluation, and prediction, freeing engineers for critical path development. Our solutions streamline the intricate processes involved in specifying, designing, and certifying the systems our customers create. By automating the artifact tasks within the development cycle, we empower organizations to focus their energy on innovation.

23 - SE Scholar, LLC.....se-scholar.com

SE Scholar is a company dedicated to helping Systems Engineers get their INCOSE SEP certification. Our goal is to reach all Systems Engineers with affordable, high-quality instruction no matter where they live and work!

Exhibitors

19 - Sensmetrysensmetry.com

Sponsor-exhibitor track: Wed 03, Jul 13:30-13:50 (Liffey Meeting Room 1 - Level 1)

Sensmetry is a Bronze sponsor - please see the sponsors pages for more information.

2-4 - Siemens Digital Industry Software www.sw.siemens.com/en-US/

Sponsor-exhibitor track: Wed 03, Jul 10:30-10:50 (Liffey Meeting Room 1 - Level 1)

Sponsor-exhibitor track: Thu 04, Jul 10:00-10:20 (Liffey Meeting Room 1 - Level 1)

Siemens Digital Industry Software is a Platinum sponsor - please see the sponsors pages for more information.

10 - Studio SE, Ltd. www.studioSE.design

Studio SE professionals bring exemplary experience, knowledge, and ingenuity that empowers your organization to develop innovative, unique solutions and effective processes through effective training in Systems Engineering and MBSE.

25 - Systems Engineering A/S www.systemsengineeringconcept.com

An engineering company making systems engineering work in daily life for the design and implementation of complex industrial commercial products.

1-3 - Thales & Obeo mbse-capella.org

Capella is an open-source and field-proven Model-Based Systems Engineering (MBSE) solution to successfully design systems architecture. It provides systems, software and hardware architects with rich methodological guidance relying on Arcadia, a comprehensive model-based engineering method based on both industrial experimentations and system engineers' feedback : better understand the customer need, define and share the solution, secure SW/HW engineering and subcontracting, early evaluate and justify architectural choices, prepare and master V&V.

29-31 - The REUSE Company www.reusecompany.com

Sponsor-exhibitor track: Wed 03, Jul 11:30-11:50 (Liffey Meeting Room 1 - Level 1)

The REUSE Company is a Bronze sponsor - please see the sponsors pages for more information.

12 - Tom Sawyer Software www.tomsawyer.com

Sponsor-exhibitor track: Tue 02, Jul 13:30-13:50 (Liffey Meeting Room 1 - Level 1)

Tom Sawyer Software is a Bronze sponsor - please see the sponsors pages for more information.

30 - tracecloud www.tracecloud.com

TraceCloud, a SaaS/On-Prem platform, streamlines requirements management and traceability. It fosters team collaboration, end-to-end traceability, and aligns with INCOSE project templates. Try it free for a year, pay only if you choose to continue.

Exhibitors

33-34 - UL Solutions.....www.methodpark.com/stages/industries/aerospace-and-defense.html

UL Solutions is a Bronze sponsor - please see the sponsors pages for more information.

28 - VWAY eng.vway.co.kr

VWAY provides software tools for teams of all sizes, increasing their productivity and agility as they create safe, secure products & systems, that are fully compliant to international standards.

5-7 - Zuken Vitech Inc. vitechcorp.com

Zuken Vitech Inc. is a Gold sponsor - please see the sponsors pages for more information.

ACADEMIC

A2 - Caltech..... ctme.caltech.edu

Sponsor-exhibitor track: Wed 03, Jul 10:00-10:20 (Liffey Meeting Room 1 - Level 1)

Caltech is a Academic sponsor - please see the sponsors pages for more information.

A1 - Johns Hopkins Whiting School of Engineering ep.jhu.edu

Johns Hopkins Engineering for Professionals offers 21+ online and part-time programs and is ranked #6 among other online graduate engineering programs. Courses are offered at times that complement the busy schedules of today's practicing engineers and scientists. Each master's program is comprised of 10 courses and can be completed in five years or fewer.

A6 - Stevens Institute of Technology sercuarc.org

Stevens Institute of Technology is a Academic sponsor - please see the sponsors pages for more information.

INCOSE Village

INCOSE www.incose.org

Learn more about the services and products provided by INCOSE at the village. Meet members of the support team and discover ways to get more involved.

New Products. Be the first to get copies of the newest INCOSE products by visiting the village. As an added bonus – meet the experts who developed those new products!

Upcoming Events. Learn more about upcoming events from the event organizers at the INCOSE Village.

Website. Do you have questions about the new website? Get your questions answered at the village.

Sponsor/Exhibitor Track

Liffey Meeting Room 1 - Level 1

Tuesday, July 2

The Aerospace Corporation.....	10:00-10:20
Dassault Systèmes (6-8)	10:30-10:50
Ansys (14-16).....	11:00-11:20
Jama Software (32).....	11:30-11:50
Tom Sawyer Software (12).....	13:30-13:50
Worcester Polytechnic Institute.....	14:00-14:20
DENTSU SOKEN INC.	14:30-14:50
SPREAD GmbH.....	15:30-15:50
MID GmbH (24).....	16:00-16:20
IBM (11)	16:30-16:50

Wednesday, July 3

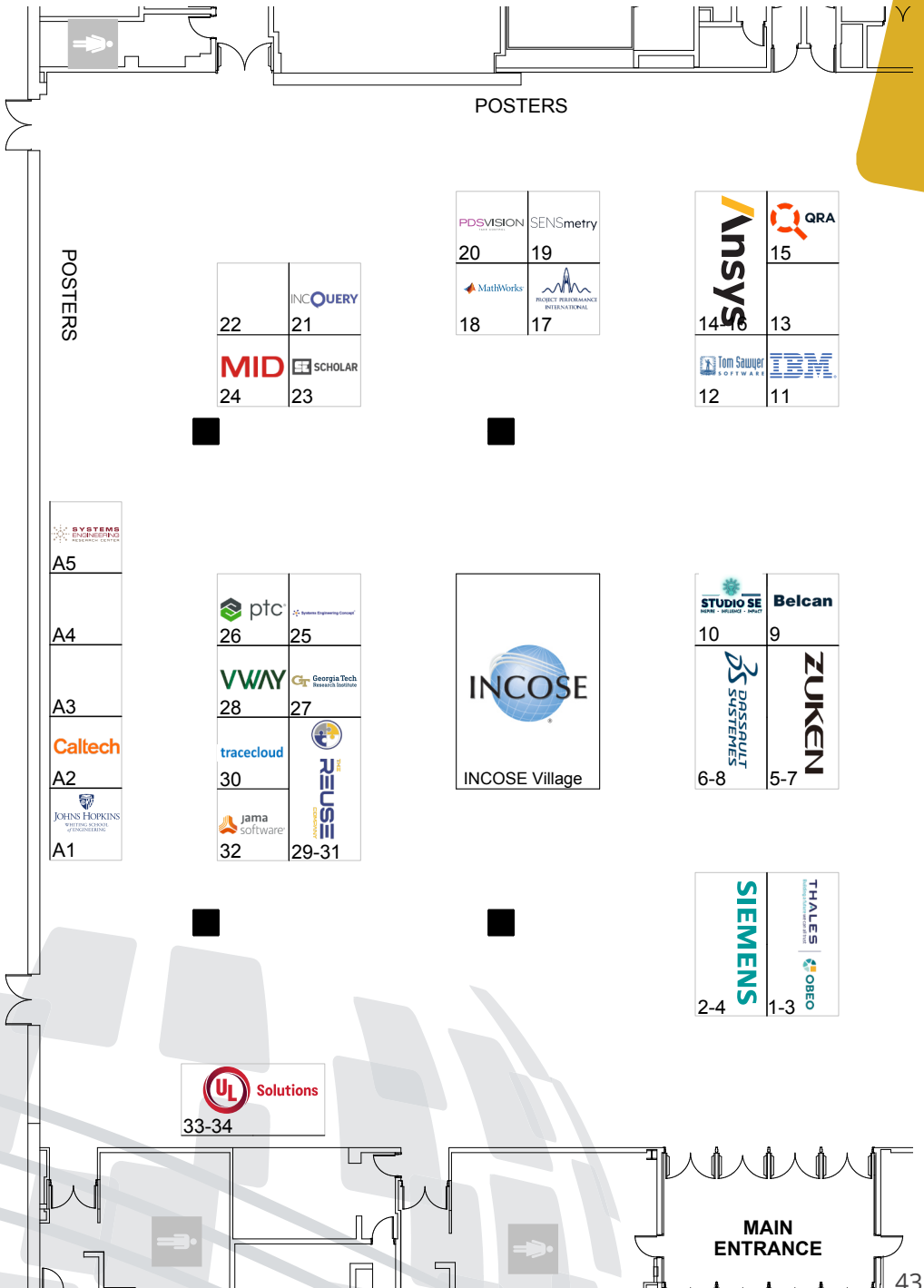
Caltech (A2).....	10:00-10:20
Siemens Digital Industry Software (2-4).....	10:30-10:50
Dassault Systèmes (6-8)	11:00-11:20
The REUSE Company (29-31).....	11:30-11:50
Sensmetry (19)	13:30-13:50
ptc (26).....	14:00-14:20
IntercaX, LLC.....	15:30-15:50
Boeing	16:00-16:20

Thursday, July 4

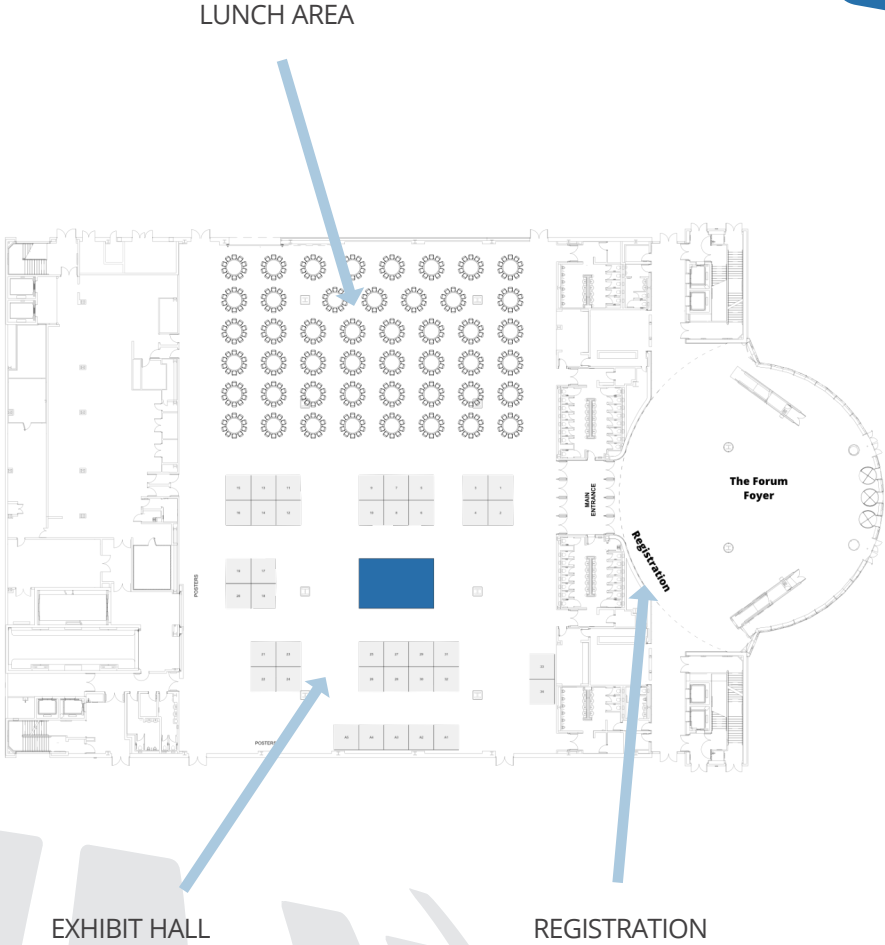
Siemens Digital Industry Software (2-4).....	10:00-10:20
Project Performance International (17).....	11:00-11:20

Exhibit Hall Map

The Forum - Ground Level

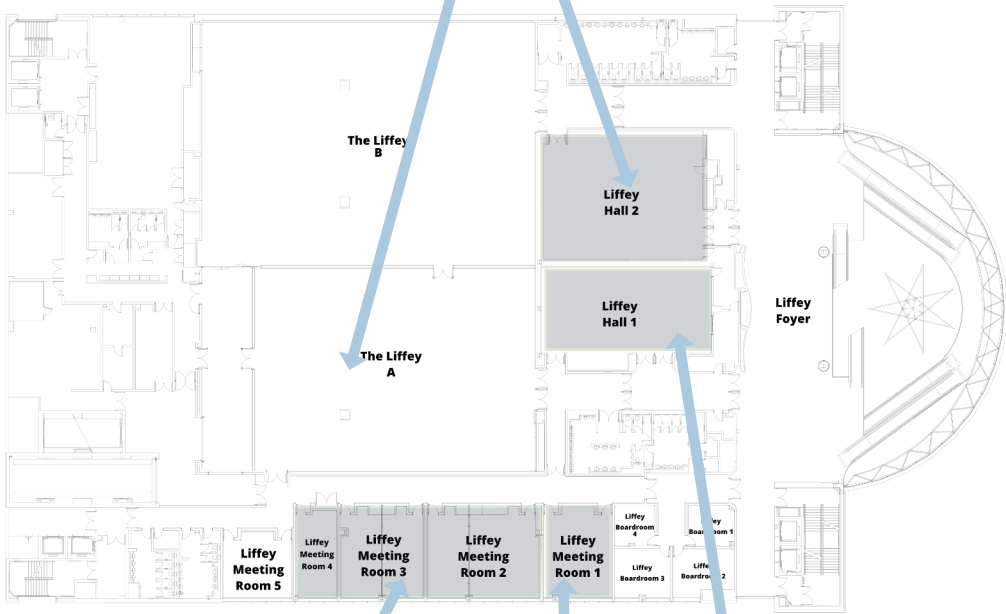


Maps - Ground Level



Maps - Level 1

TECHNICAL TRACKS



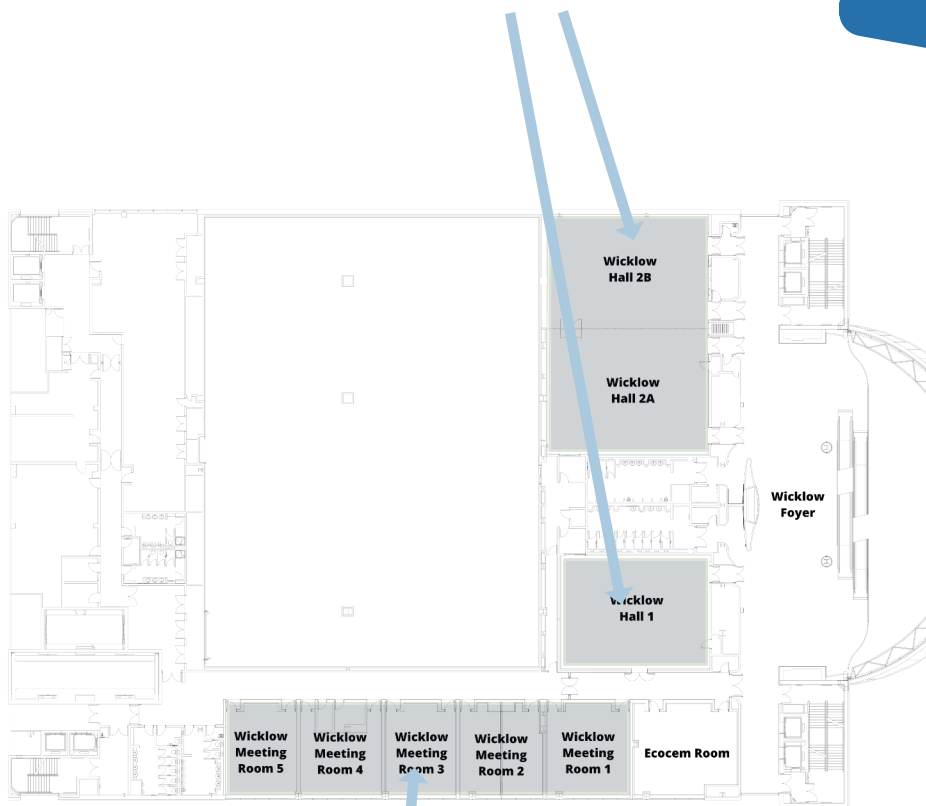
MEETING ROOMS

SPEAKER READY ROOM
SPEAKER AND SESSION
CHAIR BREAKFAST

SPONSOR TRACK

Maps - Level 2

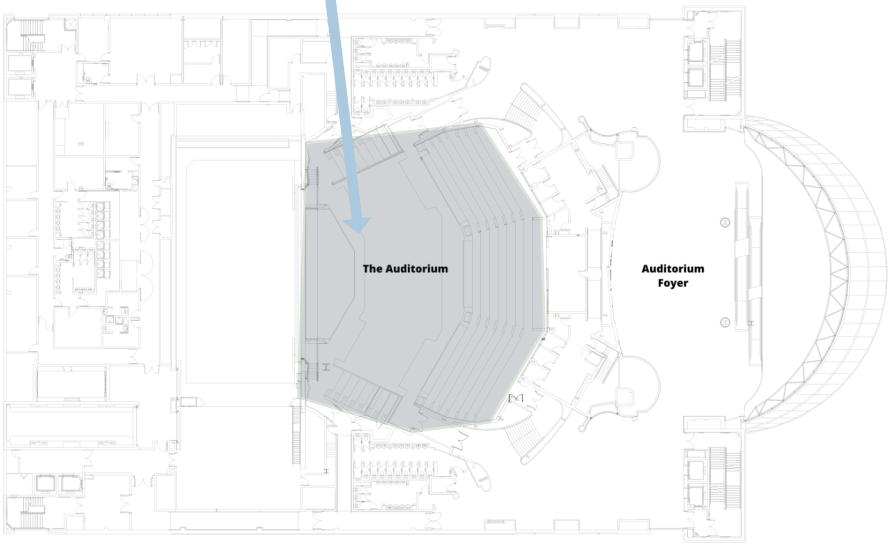
TECHNICAL TRACKS



MEETING ROOMS

Maps - Level 3

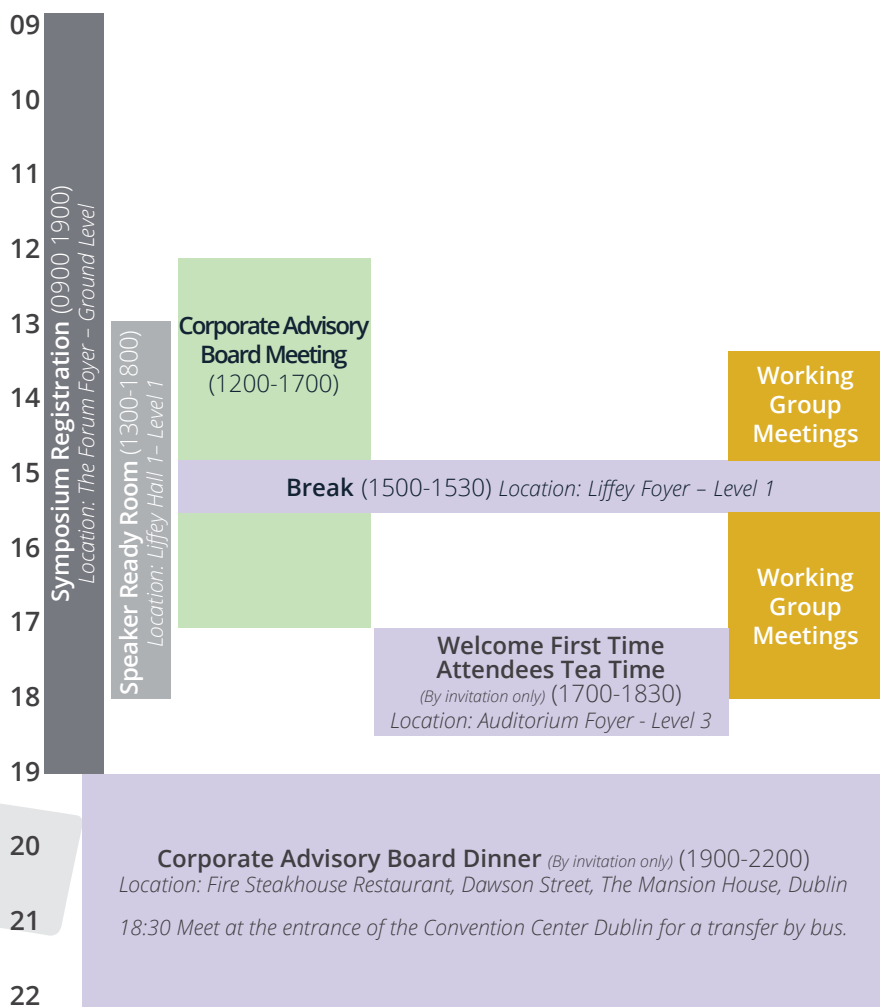
PLENARY ROOM



Monday

Please see detailed program for all sessions and Working Group meetings.

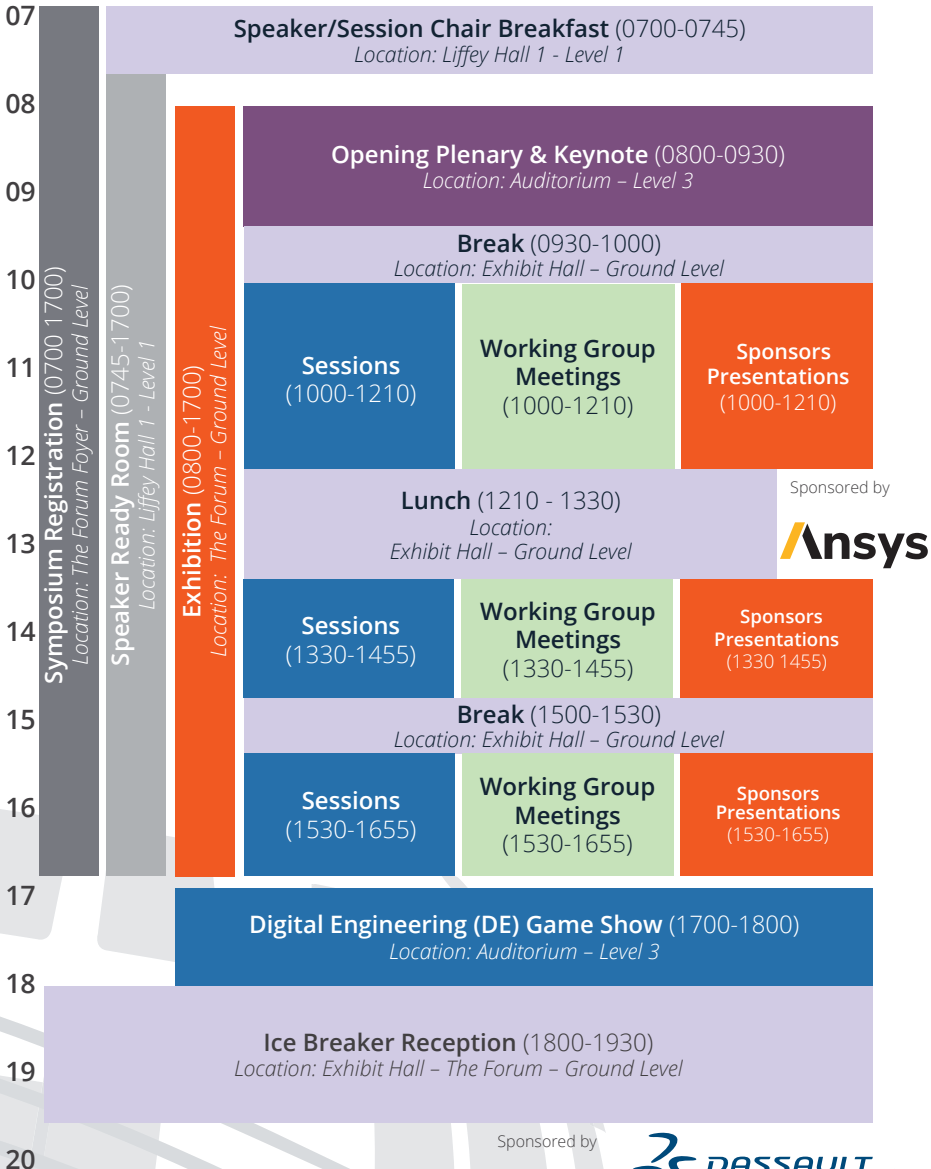
Overall Schedule



Tuesday

Please see detailed program for all sessions and Working Group meetings.

Overall Schedule



Keynote Speaker



Professor Brian Collins

University College London

Emeritus Professor of Engineering Policy - Department of Civil, Environmental and Geomatic Engineering
Vice Chair, National Preparedness Commission

Keynote Title:

Systemic leadership in a TUNA world

Biography. Professor Brian Collins took up the role of Professor of Engineering Policy at UCL on 1st August 2011 retiring as emeritus in 2020. He led the creation of a £278M capital investment programme in 14 Universities in the UK, UKCRIC, which he launched in 2017 which enables the UK to have a robust and innovative research and analysis base for informing the £700B estimated spend in Infrastructure in the UK in the next few decades.

He is also currently vice chair of the National Preparedness Commission, whose mission is to help the UK be better prepared for an uncertain future. <https://nationalpreparednesscommission.uk/>

Prior to joining UCL he was the Department for Transport's (DfT) Chief Scientific Adviser (DCSA) from October 2006 and DCSA for the Department for Business Innovation and Skills (BIS) from March 2009 after being DCSA in Department for Business, Enterprise and Regulatory Reform (BERR) from May 2008, during which time Energy policy was in his remit. During that time with GCSA, he led the creation of the network of CSAs, and was involved in the studies that created the DCSA for national security. He left both DCSA positions at the end of June 2011.

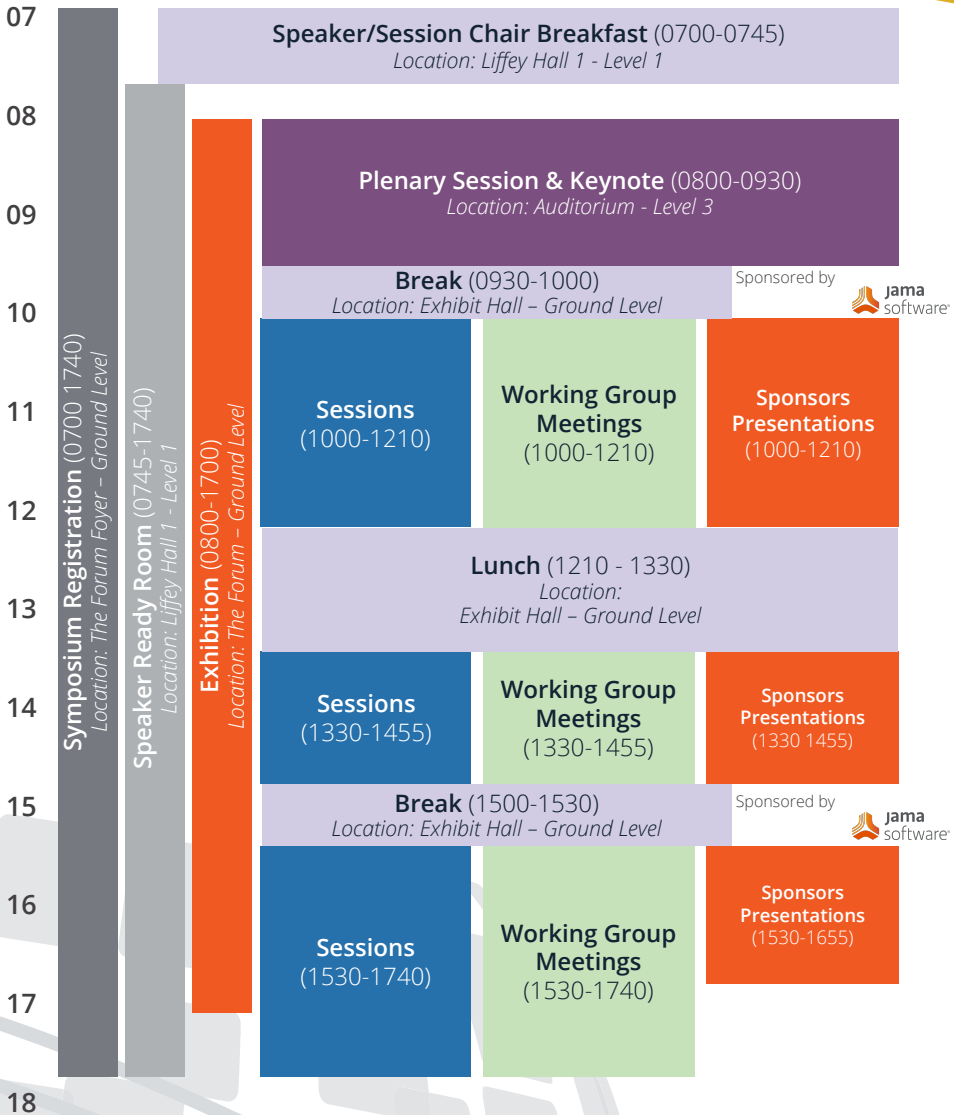
He has contributed to many committees and boards; Safer Complex Systems as part of Engineering X at RAEng, Science as an Open Enterprise at Royal Society, Cybertrust and Crime Prevention Foresight study, CST report 'A National Infrastructure fit for 21st Century, RAEng Trustee Board, EPSRC Council, Vice President on the Trustee Board of IET.

He was Professor of Information Systems at Cranfield University from August 2003 to 2011.

Wednesday

Please see detailed program for all sessions and Working Group meetings.

Overall Schedule



Keynote Speaker



Dave Snowden

The Cynefin Center
Director and Founder

Keynote Title:

Risk, uncertainty and complexity

Biography. Dave is the creator of the Cynefin Framework and originated the design of SenseMaker®, the world's first distributed ethnography tool. He is the lead author of *Managing complexity (and chaos) in times of crisis: A field guide for decision-makers*, a shared effort between the Joint Research Centre (JRC), the European Commission's science and knowledge service, and the Cynefin Centre.

He divides his time between two roles: founder and Chief Scientific Officer of The Cynefin Company and the founder and Director of the Cynefin Centre. His work is international in nature and covers government and industry looking at complex issues relating to strategy and organisational decision-making. He has pioneered a science-based approach to organisations drawing on anthropology, neuroscience, and complex adaptive systems theory. Using natural science as a constraint on the understanding of social systems avoids many of the issues associated with inductive or case-based approaches to research. He is a popular and passionate keynote speaker on a range of subjects and is well known for his pragmatic cynicism and iconoclastic style.

Dave holds positions as an extraordinary Professor at the Universities of Pretoria and Stellenbosch as well as visiting Professor at the University of Hull. He has held similar positions at Bangor University, Hong Kong Polytechnic University, Canberra University, the University of Warwick and The University of Surrey. He held the position of senior fellow at the Institute of Defence and Strategic Studies at Nanyang University and the Civil Service College in Singapore during a sabbatical period in Nanyang.

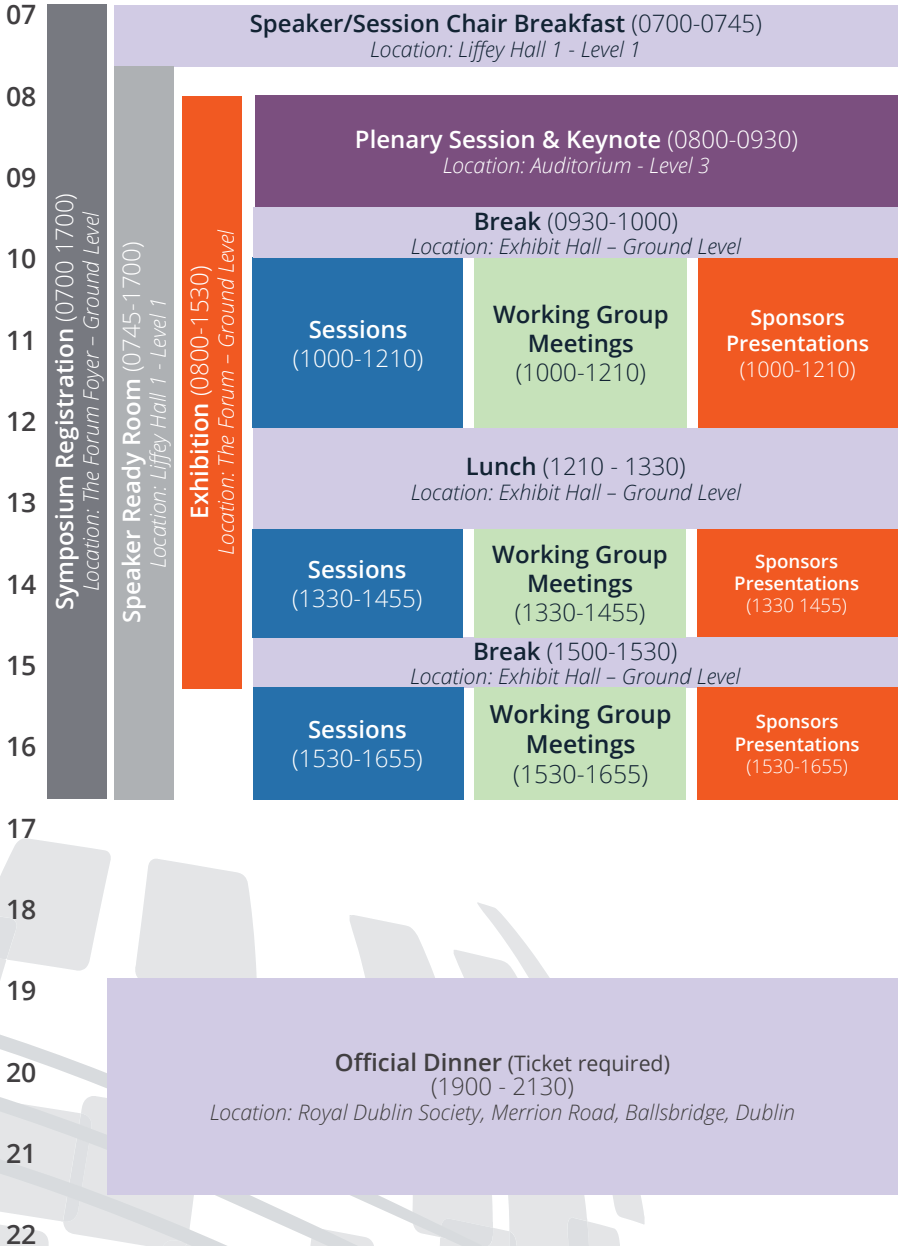
His paper with Boone on Leadership was the cover article for the Harvard Business Review in November 2007 and won the Academy of Management award for the best practitioner paper in the same year. He has previously won a special award from the Academy for originality in his work on knowledge management. He is an editorial board member of several academic and practitioner journals in the field of knowledge management and is an Editor in Chief of E:CO. In 2006 he was Director of the EPSRC (UK) research programme on emergence and in 2007 was appointed to an NSF (US) review panel on complexity science research.

He previously worked for IBM where he was a Director of the Institution for Knowledge Management and founded the Cynefin Centre for Organisational Complexity; during that period, he was selected by IBM as one of six on-demand thinkers for a worldwide advertising campaign. Prior to that, he worked in a range of strategic and management roles in the service sector.

Thursday

Please see detailed program for all sessions and Working Group meetings.

Overall Schedule



Keynote Speaker



Mark Kelly

AI Ireland

Global AI Transformation Leader
President of AI Ireland

Keynote Title:

AI in Action: Current Applications Transforming the World and Their Unintended Consequences

Biography. Mark Kelly, author of "AI Unleashed" and "AI Essentials," is a leading AI authority known for his engaging TEDx talks. As the founder of AI Ireland and a key figure in AI staffing, Mark has driven global AI adoption strategies.

His approach combines deep industry insights from over 500 AI applications and 600 leader interviews with practical, solution-focused methodologies.

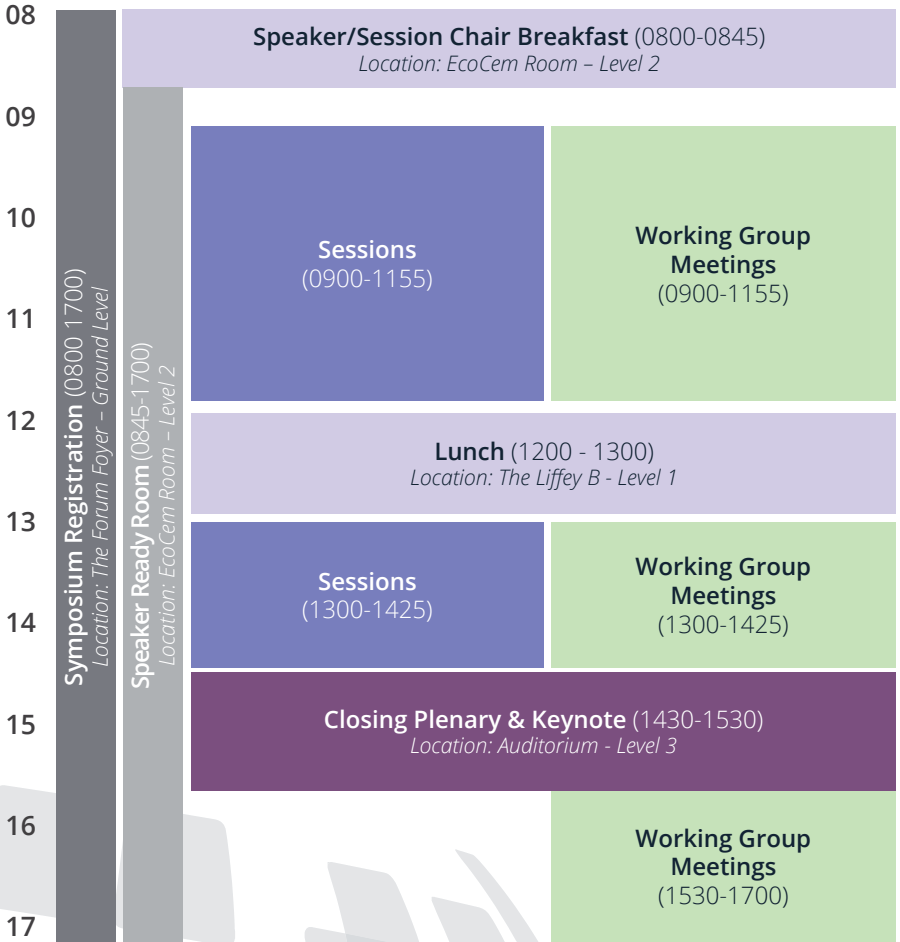
Regularly featured in international media and as a television correspondent, Mark advises top organisations on AI integration.

His extensive social media following and popular newsletter further amplify his influence. Connect with Mark on LinkedIn, Twitter, or YouTube, and visit his website for more on his work and publications.

Friday

Please see detailed program for all sessions and Working Group meetings.

Overall Schedule



Keynote Speaker



Kathryn Cormican

University of Galway
Professor of Systems Engineering
and Director of the Enterprise Research
Centre in the School of Engineering

Keynote Title:

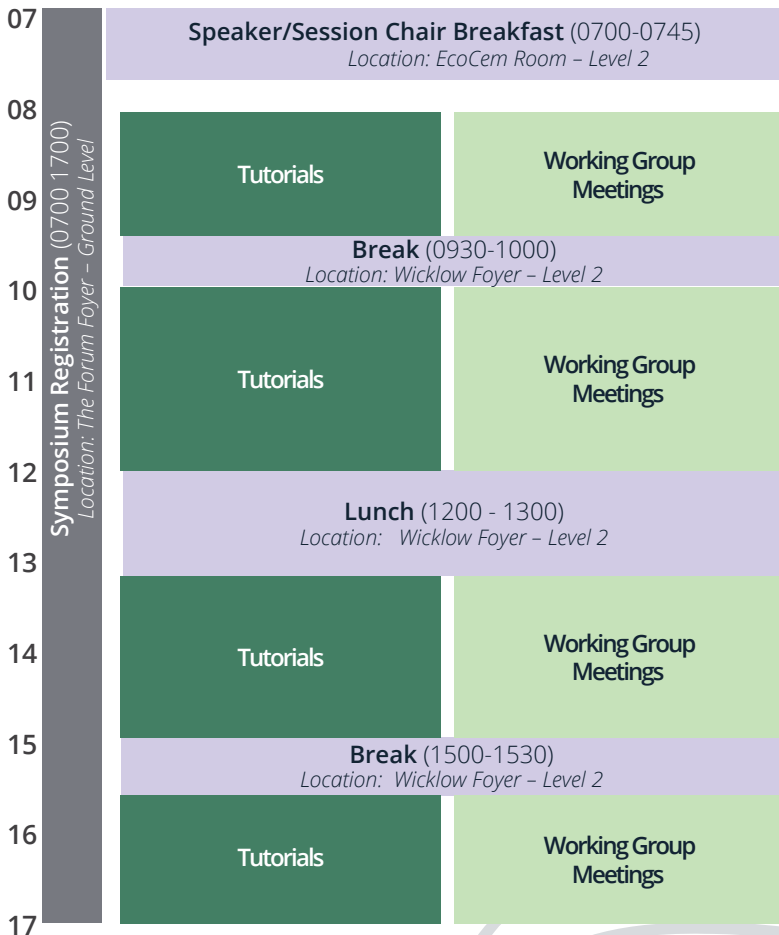
Engineering Tomorrow: Navigating Pathways to Industry 5.0

Biography. Kathryn Cormican is a Professor of Systems Engineering and Director of the Enterprise Research Centre in the School of Engineering at the University of Galway in Ireland and a funded investigator in Lero – The Irish Software Research Centre. She leads a large multidisciplinary research team. Her work focuses on the design, development, and validation of novel processes and information systems to enable smarter user-centred solutions. She is currently leading three EU-funded projects comprising researchers and practitioners. She is internationally recognised for her contribution to research and has won many prestigious best-paper awards including the European Academy of Management best paper award in 2023. She has delivered several keynote addresses at international conferences and has published extensively in high-impact journals in her field. Kathryn directs an award-winning MSc programme specifically designed to equip graduates with the requisite skills needed for employment in the high-tech industry. She received the President's Award for teaching excellence in 2018 and was awarded Female Entrepreneurial Leader of the Year in 2022 by the Accreditation Council for Entrepreneurial and Engaged Universities.

Saturday

Please see detailed program for all sessions and Working Group meetings.

Overall Schedule



Tutorials

A.1 - Hands-on Journey on Variant Modelling with SysML: Features Models, Methods, SysML v2, and AI Insights.....0800-1200

Marco Forlingieri (IBM Engineering), Tim Weilkens (Oose)

Wicklow Hall 1 - Level 2 (Ticket required)

A.2 - Security as a Foundational Perspective in Systems Engineering: Engineering Trustworthy Secure Systems.....0800-1700

Mark Winstead (The MITRE Corporation)

Wicklow Hall 2A - Level 2 (Ticket required)

A.3 - Dimensional Analysis. A helpful practice for identifying constraints on a system model developed using ISE&PPOOA MBSE methodology.....0800-1700

Jose Luis Fernandez (Independent MBSE trainer), Juan Antonio Martinez (Department of Signal Theory and Communications, Escuela Politécnica. Universidad de Alcalá de Henares.)

Wicklow Hall 2B - Level 2 (Ticket required)

A.4 - Embracing the Social Dimension of Systems Engineering.....0800-1700

David Long (Blue Holon), Suja Joseph-Malherbe (Letter27)

Liffey Hall 1 - Level 1 (Ticket required)

A.5 - Open Source System Modeling with Python0800-1700

Ryan Longshore, Raymond Madachy (Naval Postgraduate School)

Liffey Hall 2 - Level 1 (Ticket required)

A.6 - Systems Engineering for a Sustainable Future: Leveraging Emerging Technologies and Systems Modernization.....0800-1700

Randall Anway (New Tapestry, LLC)

Liffey Meeting Room 3 - Level 1 (Ticket required)

C.1 - Use a Framework for SE in Early-Stage R&D to Build Your Bridge that Spans the Chasm Between Research and Engineering1300-1700

Ann Hodges (Sandia National Labs (ret); SE in Early-Stage R&D Working Group Co-Chair; Enchantment Chapter Secretary, Past President), Michael DiMario (CEO, Astrum Systems; Lucent Bell Labs, retired; Lockheed Martin, retired; SE in Early-Stage R&D Working Group Co-Chair), Arno Granados (Strategic Technology Consulting; SE in Early-Stage R&D Working Group core member; Enchantment Chapter Past President)

Wicklow Hall 1 - Level 2 (Ticket required)



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27-29

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www.incose.org/hsi2024



SEP
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www.incose.org/wsrc



SEP
22-25

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www.sesa.org.au/event/sete24/



FEB
1-4

**2025 Annual INCOSE
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www.incose.org/IW2025



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