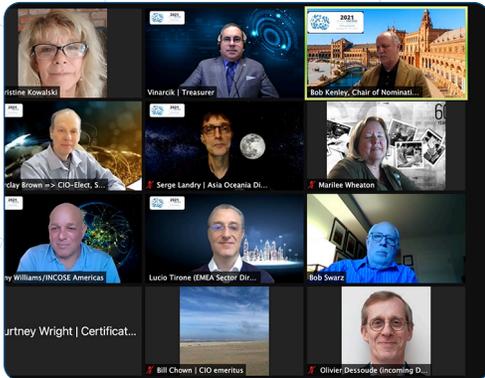
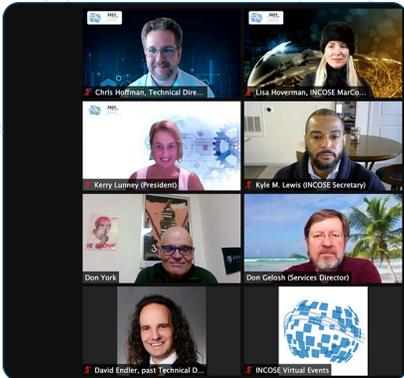


# MEMBERS NEWSLETTER

March 2021 – Q1



President's Corner • Notes from the Board • Updates from the Board • Sector Updates—Americas  
Sector Updates—Asia-Oceania • Sector Updates—EMEA • Working Group • Updates System Exchange Cafés  
EWLSE Updates • Diversity, Equity, and Inclusion • INCOSE Member Newsletter • Note from the Editor

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# President's Corner

Kerry Lunney

[kerry.lunney@thalesgroup.com.au](mailto:kerry.lunney@thalesgroup.com.au)



Welcome to 2021! We have had an incredible start with successfully running our first virtual International Workshop

(IW) 2021. The program was jam-packed with many interactive workshops, discussion sessions, and general remote networking opportunities. We celebrated our community volunteer achievements and installed the 2021 board of directors. I trust participants gained knowledge, questioned norms, and simply enjoyed the experience. I know I did.

The Leadership Strategy Sessions, again executed in full virtual mode, closely followed the IW2021. The output from each session will provide much data to the team leaders and the board of directors to aid in setting direction and investing in our future, as an organisation, and in our systems engineering discipline.

Following a very disruptive year, I believe 2021 will be a more challenging year, albeit different. Like others, I never imagined conducting my first presidency year remotely from Sydney, Australia. I certainly cannot complain about the valuable experience I have gained. However, my feeling is this year will be a tough one as we start to feel the global decisions, made in 2020, impact our employment stability, our talent pipeline, our finances, world economics, and global health regulations. When you consider that a diverse and growing membership makes up our INCOSE community, I think of 2021 as our "Year of Solidarity." This represents *togetherness: teamwork while recognizing our differences*.

We will do this through:

- Strengthening our diverse membership,
- Providing equitable opportunities to all,
- Forging alliances,
- Sharing our knowledge and experiences,
- Building our learning,
- Setting our path for tomorrow,
- Influencing positive outcomes at local and global levels, and
- Continuing evolving our discipline.

We illustrate how we will achieve this in numerous 2021 focus topics, such as introducing an online exam format for certification, implementing a global strategy for attracting youth to systems engineering, and expanding our outreach across other industries and domains. Yet, to really exemplify the "Year of Solidarity," we need your support to create a cohesive structure with mutual support for all our members.

As systems engineers we pride ourselves in undertaking a "systems approach" when formulating a solution to a request. Thus, when starting an activity, have you considered your team make-up from a diversity, equity, and inclusion perspective? Do you exhibit an open and welcoming culture to other systems thinkers with the necessary expertise? Or have you unknowingly fallen back on what and who you know, introducing unintended bias, which in turn hampers a systems approach?

The main point is we, as part of INCOSE, are a community of global interests in all things systems related. As such, we must endeavour to reach our potential through engaging our diverse membership, providing fairness to share knowledge and experiences from our various perspectives, and working towards a common achievement. After all, we cannot achieve "a better world through a systems approach" without involving members from around the world.



If you need support to embrace this “Year of Solidarity,” please reach out to your INCOSE leader or board member and we will work with you to find a suitable solution. For example, we may connect you to other contributors you are not aware of, or provide you with the tools to facilitate your needs for increased global reach and collaboration. Lastly, we are always looking for volunteers and the more diverse volunteers we have, the more diverse ideas we generate

and investigate through fresh eyes—a “win-win situation” for all.

On this note, welcome to our “Year of Solidarity.”

Cheers,



Kerry Lunney  
INCOSE President 2020–2021

## ***SAVE THE DATE*** **Western States Regional Conference**

### ***Sailing the Digital Wave - Navigating Innovative Trends from the Digital Transformation***

**17-19 September 2021, San Diego, California**

International in scope with a local flavor • Out here in the west, close to home • Prominent speakers from within the profession • Panels, Presentations, and Tutorials covering leading systems engineering issues and applications:

- Healthcare and Medical Devices
- Artificial Intelligence and Machine Learning
- Telecommunications
- Energy and Transportation Systems
- Model-Based Systems Engineering
- Aerospace Systems
- Education and Workforce Development
- Cybersecurity

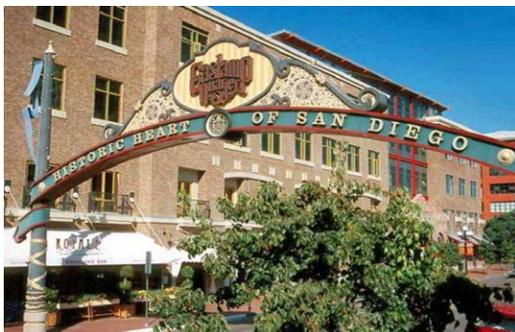


Held in beautiful San Diego  
**Courtyard by Marriott San Diego Airport/Liberty Station**

For the latest information and details as they come on line, go to:

<https://www.incose.org/ws/src2020/home/when-where>

Hosted by the San Diego Chapter, in collaboration with Cascade (Oregon), Central Arizona, Colorado Front Range, Los Angeles (CA), San Francisco (CA), Seattle Metropolitan (WA), Snake River (Idaho), Wasatch (Utah), and INCOSE Americas Sector.



**Call for sponsors and authors coming soon!**

# Message from the INCOSE President #1

Kerry Lunney, [Kerry.Lunney@thalesgroup.com.au](mailto:Kerry.Lunney@thalesgroup.com.au)

## *2021 has Kicked-off at a Great Speed*

**W**e held a very successful International Workshop (IW2021), fully virtual, exceeding all expectations with the level of collaboration achieved. Likewise, leaders of INCOSE participated in four different strategy sessions earlier this month. And to think it is only mid-February 2021!

As you may be aware, at IW2021 we stated we would announce the format of our International Symposium (IS2021), planned for 19-22 July 2021 in Honolulu, Hawaii. Firstly, I would like to state the health and safety of our members, contractors and alliances remain our highest priority. As such, based on the current global impact of the pandemic and subsequent government restrictions and regulations in the foreseeable future, we will be bringing IS2021 to you as a virtual event.

This is the second year our event will be held in this format. It will be conducted on the same dates, 19-22 July 2021, and will be a four day event offering multiple parallel tracks. Participants will be able to interact and network with extraordinary people, connect with friends, and choose the sessions they wish to attend from an informative packed program. We will continue to build and expand on the excellent INCOSE virtual event platform built in collaboration with our Events Organiser, KMD.

The benefits you will receive when you register to participate in our virtual IS 2021 event include:

- Real-time participation in any of the sessions on the days you have registered.
- Access to recorded sessions should the time of the session not be suitable for you.
- The means to interact with the presenters and other symposium participants through chat rooms, breakout groups, and on-line collaboration tools.
- Hearing first-hand our keynote speakers.
- Celebrating the honours and awards bestowed on fellow members, colleagues and champions of Systems Engineering.
- Networking across virtual social function(s).
- Interacting with exhibitors and sponsors through virtual exhibit halls and chat rooms.
- Receiving a copy of the proceedings.

Registration will open in the coming weeks. You will have the option to register for a single day or for the entire event, i.e., 4 days' participation.



# 31<sup>st</sup> Annual **INCOSE** international symposium

virtual event

## July 17 - 22, 2021

The program schedule will be based on Hawaii's time zone. Key sessions will be scheduled at a time where we have the greatest opportunity to support the majority of participants to join remotely.

Further information will be made available over the coming weeks on the symposium website at <https://www.incose.org/symp2021>, and via social media and other communication means. If you have any general questions relating to this message, please do not hesitate to contact us at [helpdesk@incose.org](mailto:helpdesk@incose.org).

The theme of IS2021, "Accelerating through Adversity", could not be more suitable in these

challenging times. I am personally looking forward to learning and sharing knowledge in support of this theme. I hope you can join us at IS2021.

Lastly, I would like to thank, yet again our volunteers and members for their outstanding efforts in making IS2021 the international premier Systems Engineering virtual event.

Keep well, keep safe.



Kerry Lunney, INCOSE President

# FYI

Information and Tools for Now

## INCOSE Service is a Family Tradition for the Vinarciks

As 2020 ended, a rare event occurred, the election of a current board member's child as a chapter officer. Nathan J. Vinarcik, a junior at the University of Detroit Mercy, became the Michigan Chapter secretary. His father, Michael Vinarcik, is the current INCOSE treasurer (and is a former Michigan Chapter treasurer and president).

"Professional societies have been a part of my life throughout my career. I have been active in ASM International; the Minerals, Metals, and Materials Society (TMS); the National Society of Professional Engineers (NSPE); and INCOSE. As my career evolved, my memberships and involvement changed, but every step of the way, I took advantage of the opportunities provided by relevant organizations. I am happy to see my son expressing an interest in systems engineering and am proud he is willing to take an active role in INCOSE at a relatively young age" (Michael Vinarcik).

Father and son also collaborated on the Model-Based Systems Engineering chapter of Kossiakoff and Sweet's Systems Engineering: Principles and Practice (Third Edition). The elder Vinarcik revised the text and the younger Vinarcik's Apollo spacecraft system model provided illustrations. They are also co-authoring two papers at the upcoming INCOSE Great Lakes Regional Conference: "A Model of Firsts: A Student Rendering of NASA's Cassini-Huygens Spacecraft" and "Avoiding Engineering Gaffes: Automated Criticality Assessment and Error Detection."

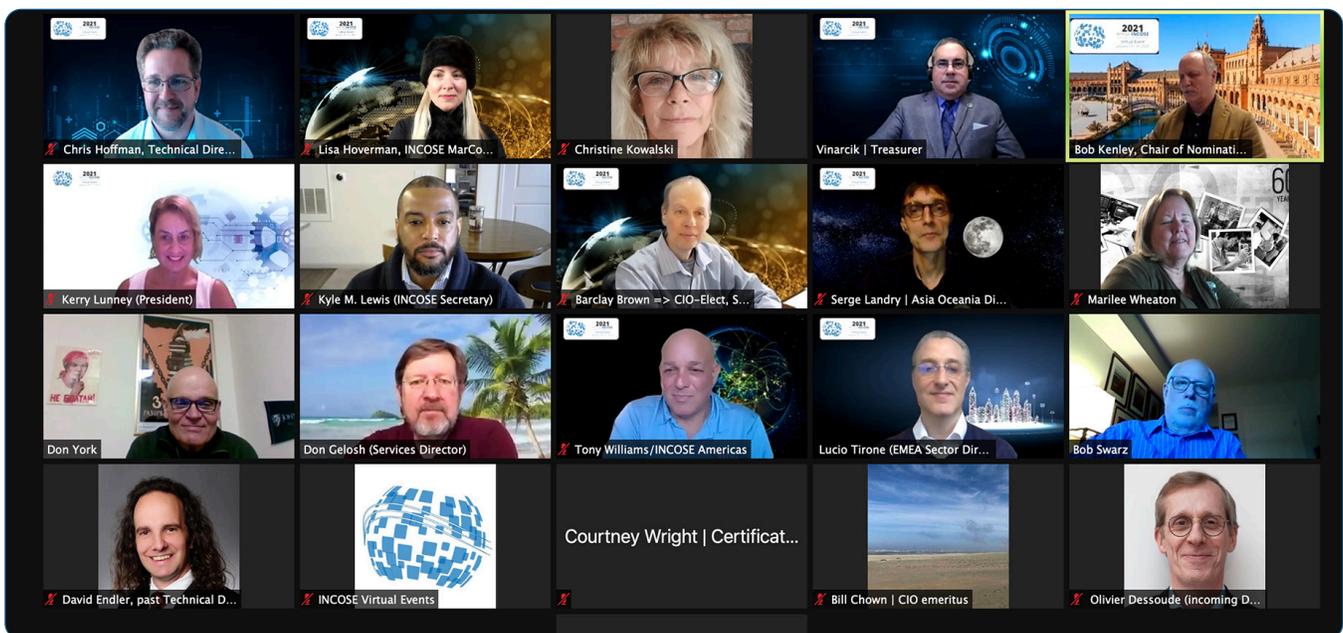


# Notes from the Board

Lisa Hoverman, [marcom@incose.net](mailto:marcom@incose.net)

The INCOSE Board of Directors (BoD) held their first quarter meeting remotely via Zoom as part of the on-going global quarantine status. As we approach a year of quarantine, where we all very much miss being together in person—the camaraderie of this Board, among old and new members is strong. The focus of this BoD meeting was:

- Welcoming newly elected BoD members joining for their first meeting, and going over transitioning of positions
- Reviewing INCOSE Support Contracts
- Reviewing the Board Priorities and Challenges for 2021
- Reviewing Chapter Circle Awards for 2020 (given at the IS 2021)
- Discussing a Standards Committee Succession Plan
- PMC Policy Review
- Sector Updates
- Updates from the following committees, cross-cutting services, groups, and task teams:
  - Community Offerings (Systems Exchange Cafés success, work on Webinar Showcases)
  - Diversity, Equity, and Inclusion
  - Executive Leadership
  - Finance
  - IT Evolution and Initiatives; Policy Updates
  - MarCom
  - Nominations and Elections
  - Outreach/Alliances
  - Special Projects
  - STEM Task Team
  - Strategy Initiatives
  - The Board shared 2020 progress and upcoming work on from our Value Streams:
    - Certification Updates (Online Testing Coming!)
    - Education and Training (including the Professional Development Portal Progress and INCOSE’s STEM strategy)
    - Events (specifically the first ever virtual IW2021, and planning for IS2021)
    - Membership (Member Focus vs. Membership; Personalized interaction for CAB)
    - Products (SE Handbook V.5 and Vision 2035 in progress; Product Licensing and Recorded Offerings)



Members of the INCOSE BoD busy at work on a Zoom Call during the INCOSE Q4 Board Meetings

## 2021 New INCOSE Officers and Directors



**Director of Outreach**  
**Dr. Julia Taylor**

Julia holds degrees in chemistry and electronics, an MBA, and a doctorate in strategic management. Her interests lie in team building and applying systems thinking to business process and strategy. She authored three business books and numerous technical papers. Julia is currently a management consultant.



**Secretary**  
**Kyle Lewis**

Kyle is a Systems Engineer on Lockheed Martin's Sikorsky-Boeing Future Long-Range Assault Aircraft program, supporting development of the next generation rotorcraft for the US Army, using an MBSE approach. He won the 2020 Black Engineer of the Year Award and is a Modern Day Technology Leader.



**Deputy Technical Director**  
**Dr. Olivier Dessoude**

Olivier is the Systems Engineering manager for the Australian Future Submarine Program at Naval Group. He began his career in the French MoD and earned the rank Ingenieur-en-Chef, Armament Corps. At AREVA, he promoted systems engineering as a path to improved performance and risk reduction in the design and build of nuclear power plants.



**Director, Asia Oceania Sector**  
**Serge Landry**

Serge is a principal at Equibrant Force, offering services in System Engineering. His focus areas are innovation, problem solving, system architecture and process automation. Serge's projects include building system-critical software systems for defense, civil, rail, and maritime domains.



**Chief Information Officer**  
**Dr. Barclay Brown**

Barclay is an Engineering Fellow at Raytheon Technologies, focusing on model based systems engineering and artificial intelligence. Before joining Raytheon in 2018, he was with IBM for 14 years, serving in the public sector practice of IBM Global Business Services. Dr. Brown received a bachelor's degree in Electrical Engineering followed by master's degrees in Psychology and Business and a Ph.D. in Industrial and Systems Engineering, and a Certified Systems Engineering Quality Manager. He is an ESEP, and former Director for the Americas, and served as an adjunct professor.



**Joyful Spring**



**Happy Autumn**

# Updates from the Board

Contributions from the Board

## Bringing the Tech

Barclay Brown, [Barclay.brown@incose.net](mailto:Barclay.brown@incose.net)

*Causing Collaboration  
None of us is as smart as all of us.  
- Kenneth Blanchard*

Professional associations like INCOSE are naturally collaborative. A technical “lone ranger” might make some impact, but the profession only significantly moves forward by collaborative efforts that develop lasting work products. Work products have weight and strength *because* they developed collaboratively. When a team feels “we” wrote that document, there is a greater sense of trust than if it was the product of a single person’s thoughts, experiences, and biases.

Collaboration can come easily or hard. Even in the same room, a team can struggle to communicate and collaborate effectively. Facilitation techniques can help, but fundamentally, a collaborative spirit must eventually descend on the group, inhabiting them, empowering them, and informing their every interaction. This spirit brings respect, openness, and collegiality, but also directness, candor, and intellectual honesty. But wait, this is the CIO’s column not an article on management psychology. Can technology help? First, a quick quiz:

Who was the main driving force in the digital transformation of your company?

- a. CEO
- b. CIO
- c. CFO
- d. COVID

Circulated widely on social media last year, this little bit of dark humor reveals, as if it needed revealing again, human beings are nothing if not adaptable and flexible. We now, of necessity, live in an online-first world, and the effects of this digital shift will likely linger long after we conquer COVID. How did INCOSE respond?

## Transformation—More Than Meets the Eye

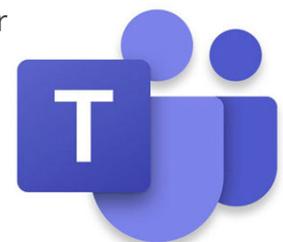
In early 2020, we began a large-scale effort to bring digital transformation to INCOSE. Sure, we had computer systems and online tools before, but we aimed at something more significant. We began quietly, implementing new systems in the background, and inviting widening groups of INCOSE members to participate. Overall, we are still early in this transformation, but the first major capability wave is here now and available use in your collaborative efforts.

Microsoft Teams, a key Microsoft 365 platform part (formerly known as Office 365), is available to all collaborative groups in INCOSE. Microsoft developed Teams to enable real-time, convenient collaboration among active teams, working together on projects. Who can use Teams? Well, teams—of all kinds. Some INCOSE team examples are:

- A group of people within an INCOSE International Working Group creating a technical subject primer
- An INCOSE chapter board of directors planning programs and activities for the chapter together
- An INCOSE committee with a mission addressing some important area
- A multi-chapter events committee planning a regional conference for next year

## A Shared Space

Microsoft Teams gives a team a shared workplace where team members can have ongoing conversations through persistent chat dialogues and store, share, edit, review, and comment on all documents. Teams can even hold live, online audio, and video meetings. Microsoft Teams also integrates with many other applications, allowing a team to share access to project planning tools and custom applications. So how do you start collaborating with Teams?



All INCOSE leaders including directors, assistant and associate directors, committee chairs, working group chairs and co-chairs, and chapter officers, have now (or can simply request) an INCOSE leader account on the Teams systems—you can spot them by their @incose.net login address. Altogether, INCOSE has about 500 leaders. Any leader can create new teams, or sub-teams called “channels,” for any legitimate INCOSE purpose, and add INCOSE members as participants on those teams.

Teams are not static collections of people waiting for something to happen. Think of a team as an opportunity to work—to collaborate with like-minded people and accomplish something great. Do not make the team too fragmented. Start with just one channel within the team, the default “General” channel, and see how the work progresses. Each channel has its own ongoing conversations file repository, organized in familiar folders, sub-folders, sub-sub-folders, and more so there is plenty of flexibility to structure the team’s varied work.

### Simultaneous Editing

One of my favorite Teams features is the ability for multiple people to edit the same document, spreadsheet, or presentation at the same time. Collaborating on something new? Multiple team members can simultaneously draft their assigned sections, review and comment on others’ work, and revise and respond based on comments received. Each document has a running conversation attached to it letting everyone know who has done what. Forget the endless emailing of versions and waiting for your turn to edit, or worse, facing the need to merge multiple versions or missing important edits. Need the paragraph back that you deleted last month? No problem. Teams stores files in Microsoft Sharepoint behind the scenes, which keeps an automatic version history of every document.

### Getting Started

With over 100 million daily active users, Microsoft Teams has a wealth of online information online. To start, see the links and videos at <https://www.incose.org/collaboration>.

***Happy and productive collaborating!***

### Treasurer’s Update

Michael J. Vinarcik  
[michael.vinarcik@incose.net](mailto:michael.vinarcik@incose.net)

2021 marks the start of my second year as INCOSE treasurer. Before my election, I was active in INCOSE for over a decade (as Michigan chapter treasurer and president, Great Lakes regional conference chairman, and as a certification advisory board member).

As the chief financial officer for INCOSE, I steward the organization’s funds and manage the annual budget process. My predecessor, René Oosthuizen, led reorganizing our financial system to align with our value streams. I have continued shepherding that conversion and, with the board’s support, transitioned from Excel-based budgeting to a dedicated budgeting and forecasting tool (BudgetPak). This has reduced administrative drag on monthly reporting/forecasting and annual budget preparation and aligns with our ongoing IT and process modernizations.

The 2020 COVID-19 pandemic impacted INCOSE (especially our traditional, in-person events); however, we remain strong financially because revenues and expenses shrank in tandem.

During 2021, I intend to leverage more advanced BudgetPak features, allowing us better visibility and estimating for budget changes and to explore other financial system and process improvements, such as online expense reporting. We will continue to make appropriate strategic investments and provide tactical funding as opportunities arise to better serve our membership.

INCOSE thrives because of volunteers’ commitment (at all organization levels). I encourage you to take advantage of the wide-ranging virtual events and hope you will consider becoming active in your chapter, region, or engage with our working groups.





## Preliminary Technical Program

### The Premier International Systems Engineering Conference Accelerating through Adversity

6 Days, 5 Tracks, 4 Keynotes, 95+ Presentations, Panels, Tutorials and More!



**95 +** Papers, Presentations on Systems Engineering  
Monday - Thursday



**4** Inspiring Keynote Speakers



**19** Countries Represented

Australia, Austria, Canada, Colombia, France, Germany, India, Israel, Italy, Japan, Lithuania, Netherlands, New Zealand, Norway, Saudi Arabia, South Africa, Sweden, Turkey, United Kingdom, United States



**24** Application Domains

Top Domains  
Defense, Enterprise SE, Aerospace, Academia, Automotive, Social/Sociotechnical and Economic Systems, Industry 4.0 & Society 5.0, Biomed/Healthcare/Social Services, Infrastructure, Oil and Gas



**39** Topics Represented

Top Topics  
System Architecture/Design Definition, MBSE, Systems Thinking, Needs and Requirements Definition, Modeling/Simulation/Analysis, Processes, Systems of Systems, Resilience, decision Analysis and/or Decision Management, Complexity, Product Line Engineering, Project Planning, Project Assessment, and/or Project Control, Technical Leadership, Verification/Validation, System Security, Measurement and Metrics, Artificial Intelligence, Machine Learning



**11** Panels

Including Topics Like These Discussed With Global Leaders in Systems Engineering, Academia, Defense, Industry 4.0 & Society 5.0, Enterprise SE, Aerospace



**12** Tutorials

Including Topics Like These Discussed With Global Leaders in Systems Engineering, Enterprise SE, Defense, Aerospace, Automotive, Biomed/Healthcare/Social Services, Industry 4.0 & Society 5.0

## SPONSOR INCOSE IS 2021!

**1**

### VISIBILITY

Unique brand of recognition and visibility for your organization

**2**

### PRACTICE

Access to the latest thinking relevant to the practice of Systems Engineering

**3**

### SPOTLIGHT

Put a spotlight on your organization's competency in Systems Engineering

**4**

### ASSOCIATION

Be associated with the highest culture of professionalism and innovation

**5**

### SUPPORT

Demonstrate organizational support to INCOSE's mission

**6**

### RELATIONSHIPS

Develop sustainable business relationships

Lots of possibilities to interact with systems engineering communities

more information at [www.incose.org/symp2021](http://www.incose.org/symp2021)

## IW2021 Strategy Sessions, INCOSE Director of Strategic Integration

Tom McDermott

[thomas.mcdermott@incose.org](mailto:thomas.mcdermott@incose.org)



**Strategy Sessions**

### Strategy Session

As I write this, we have just completed the second virtual INCOSE strategy session event, this one associated with the INCOSE International Workshop (IW) 2021. Over 80 people in total participated in Zoom meetings across six interactive sessions over 8 February through 10 February. Thank you to all participants for donating your valuable time.

The goal of these strategy sessions is to capture your ideas and needs into a strategic framework to drive real change in an open and transparent fashion. Each session produces a data and recommendation set presented to the board of directors to inform our priorities and initiatives. Board meetings track recommendations and generate board actions. The strategic integration director maintains a strategy session recommendations and disposition list. The list will be reviewed at board meeting until they are implemented or closed. In this way, the event lives on and we consider your inputs in ways that drive real improvements to our member value.

This session covered four topics. Two split into two sessions each to allow better participation from our Asia-Oceania members. For the first time in these sessions, we took advantage of our INCOSE Microsoft Teams collaboration environment to develop and capture session artifacts in real-time. As the strategy session event has just completed, I cannot report any outcomes at this time.

The sessions and leads were:

- Session 1: INCOSE Member Support for Digital Engineering (Troy Peterson)
- Session 2a & 2b: Help us Imagine a New “Digital INCOSE” (Barclay Brown)
- Session 3: Making/Keeping INCOSE the Premier Source of Evolving Systems Engineering Knowledge (Marilyn Pineda)
- Session 4a and 4b: INCOSE’s STEM Investment Strategy (Rob Vingerhoeds and Stueti Gupta)

Stay tuned for an update on the outcomes in a future newsletter.

# FYI

Information and Tools for Now

## AI4SE Conference Report Released

Systems engineering is digitally transforming, leading to further advances in artificial intelligence and machine learning technology. To address this, the US Army Combat Capabilities Development Command Armaments Center and Systems Engineering Directorate jointly sponsored the first Artificial Intelligence for Systems Engineering/Systems Engineering for Artificial Intelligence workshop on 28-29 October 2020. Government, academic, and industry community members gathered to learn from leaders already using artificial intelligence in this space and share ideas addressing how to define relevant systems engineering and artificial intelligence challenges, exploration areas, methodologies, and more. Read the workshop report and learn more [here](#).



**SYSTEMS  
ENGINEERING**  
RESEARCH CENTER

## Academic Matters Update

### INCOSE and ABET: Influencing the Education of Future Systems Engineers

Steve Sutton, [sjsutton.243@comcast.net](mailto:sjsutton.243@comcast.net)

What is ABET ([www.abet.org](http://www.abet.org)) and why is it important to INCOSE, the only professional society solely devoted to the systems engineering discipline and profession? Here is the answer.

ABET (formerly known as the Accreditation Board for Engineering and Technology) is an independent, non-profit accrediting body for college and university science, engineering, and technology programs founded in 1932. Its member societies provide experts to peer-evaluate two-year bachelor's and master's programs worldwide. The ABET peer evaluation process uses outcome-based criteria to accredit each program. To obtain accreditation, an engineering program (electrical engineering, mechanical engineering, and systems engineering) requests accreditation and then satisfies a general criteria set and a program-specific criteria set. The accreditation process is rigorous, disciplined, professional, and unbiased. Each program has the responsibility to provide complete, current, and accurate information, and the ABET evaluators adhere to strict ethical and professional guidelines. This approach makes ABET accreditation necessary to achieve confidence that a program will graduate students who can meet employers' and graduate schools' expectations.

INCOSE applied to become an ABET member society to influence the engineering education future—especially systems engineering education. INCOSE and six other member societies oversee systems engineering programs and co-sponsor the systems engineering program-specific (evaluation) criteria. INCOSE and its co-sponsor societies recruit program evaluators from their memberships who evaluate the more than 20 systems engineering programs in the United States and the growing number of systems engineering programs in the world. ABET reviews the evaluations and makes the accreditation decision. This process takes a year for each program. Programs request renewal every four to six years.

While INCOSE is small compared to the Institute of Electrical and Electronics Engineers (IEEE)

or the American Society of Mechanical Engineers (ASME), in the last few years, it had a significant influence on the update to the general criteria for all engineering programs. This update (see Criterion 5 at <https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2021-2022/>) requires all engineering programs to demonstrate students are taught and have capabilities to perform what we systems engineers would call systems engineering functions (an ability to apply engineering design to produce solutions meeting specified needs while considering public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors). The criteria do not use the term systems engineering, but you will recognize the terminology as relating to the systems engineering process and discipline.

While other disciplines like electrical engineering or mechanical engineering have had program-specific criteria for many years, systems engineering has no specific criteria. That is changing. Led by INCOSE, over the last three years, the seven co-sponsors developed draft program-specific criteria (IV. Proposed Changes to the Criteria at the same URL above, bottom of the webpage) which are out for initial review by ABET member societies, systems engineering programs, and the public. If we see no significant changes, in two years all programs with systems engineering in their title must satisfy these specific criteria to obtain accreditation.

Past-President John Thomas preached systems engineers need to be influencers. Through its ABET membership, INCOSE has influenced and will continue to influence engineering and systems engineering education worldwide.

If you have an interest in becoming a program evaluator for INCOSE, please contact Steve Sutton at [sjsutton.243@comcast.net](mailto:sjsutton.243@comcast.net).

Thanks to Brian Mar, Dennis Buede, Wolt Fabrycky, Phil Brown, and others during 14 years (since 2009), that INCOSE has been an ABET a member society.



## Updates from INCOSE Marketing and Communications

Lisa Hoverman, [marcom@incose.net](mailto:marcom@incose.net)

Hello from INCOSE Marketing and Communications! As the Director of Marketing and Communications (MarCom), I sit on the Board of Directors serving a 3-year elected term. I am supported by two brilliant Assistant Directors (AstDir):



- Alan Harding as the AstDir for Social Media
- Rachel LeBlanc, as the MarCom-Events Liaison

Alan is supported by two great member volunteers, one for Facebook—Celestino Garcia and one for LinkedIn—Daniel Lee. I am grateful to this all-volunteer team for all they do on a daily basis to keep INCOSE looking sharp and me sane!

MarCom is also supported by a terrific group of contractors—including UMS, our Administration Team, who has been with INCOSE since the beginning, Proposals2Go, and Lynnelle Bishop. This team helps us stay engaged in the social scene daily, and enhance our branding significantly as we expand our offerings.

MarCom exists to ensure effective internal and external communications for INCOSE, such as information on our strategic objectives and value streams. We promote INCOSE, its products, and services to current and potential corporate and individual members as well as the larger community and general public. In addition, we develop high quality materials to support INCOSE's communications needs;



support targeted INCOSE initiatives; create and facilitate of a “culture of communication” throughout INCOSE; and market INCOSE and its position as the world’s authority on Systems Engineering. We took on more work than we ever imagined in 2020 as INCOSE pivoted fast and hard to make the curve that was the Coronavirus Pandemic.

In 2020 we did some amazing things, while continuing business as usual:

- Released both a [brand video](#) and a [30th Anniversary Video](#)
- Kept our global membership informed, supported, communicating, networking, and working together remotely during the pandemic—introducing our Virtual Community in Q2 of 2020.



- Increased sponsorship and advertising with INCOSE to increase INCOSE revenues to offer more to our members, with our first ever offerings and takers(!) to advertise with us in our Newsletter and on our social media!



- Marketed and promoted our first virtual [International Symposium \(IS\)](#), and [International Workshops \(IW\)](#)
- Promoted INCOSE as the global leader in Systems Engineering, through new online offerings like [Systems Exchange Cafés](#), the ability to attend a Chapter Meeting anywhere in the world, the opportunity to attend INCOSE Mini-Events for free, and much more.

We serve our membership in many ways, from keeping them informed through emails, eNotes, the Newsletter, and timely social media posts to developing marketing materials for

the International Organization, local chapters, specific events we attend, and more.

Some of our highlights from 2020 and plans for 2021 thus far include:

- Worked with the Membership Team to produce a beautiful new membership brochure (see page 13) If you are interested in obtaining full-size membership brochures, please email me at [marcom@incose.net](mailto:marcom@incose.net) so that we can share with you
- Produced two videos for INCOSE, one with the Institute for Technical Leadership celebrating INCOSE's 30<sup>th</sup> Anniversary, both of which you can watch on our YouTube Channel—links above
- Working with our President on communications around the Pandemic and the virtual IS
- Making INCOSE Zoom Backgrounds available and refreshed as we all transitioned to remote meetings
- Highlighted 30 of our Working Groups in 2020 Newsletters as part of our 30<sup>th</sup> Celebration
- Worked and continue working closely with Events as we produced our first ever Virtual INCOSE IS and IW and are looking to do our 2<sup>nd</sup> Virtual INCOSE IS!
- Work with Technical Operations (TechOps) to improve INCOSE Products on the Impactful Products Committee

- Work with Publications to ensure our communications try to be sensitive to a global audience and new systems engineers
- Supporting our new Virtual Community Offerings on Social Media and more—if you have not checked these offerings out, please do—the link is in the logo below—and the Systems Exchange Cafés deliver terrific content to the Public Systems Engineering Community [www.incose.org/community](http://www.incose.org/community)
- Increased Advertising Opportunities with INCOSE
- Centralized, Stronger INCOSE Branding across the organization
- We are striking out in 2021 with the following marketing campaigns:
  - Membership
  - Standards Volunteer Participation
  - INCOSE Awareness
  - INCOSE as a strong Engineering Organization that promotes Diversity, Equity, and Inclusion

We look forward to serving INCOSE's marketing and communication needs in 2021 as we continue to grow and expand our reach as the leader in Systems Engineering globally. We hope to see you all online at the [second-ever Virtual INCOSE IS!](#)

July 17 - 22, 2021  
[www.incose.org/symp2021](http://www.incose.org/symp2021)

Save the date



**31<sup>st</sup>**  
Annual **INCOSE**  
international symposium  
Virtual event



Guiding the Future of Systems Engineering

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#### Why Systems Engineering?



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- Holistic approaches driven by systems engineering principles, concepts and scientific methods
- Issues identified earlier, reducing risk and decreasing error correction expense by up to 250%
- Delivery on time, within budget, meeting customer needs
- Competitive, high quality, advanced technology solutions



- Help build a better world with the leading global systems engineering organization
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**35** Countries on 6 continents



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- Meet systems engineering professionals and other system thinkers in your community at a local chapter
- Develop state-of-the-art products and standards by collaborating in INCOSE Working Groups
- Learn from dynamic, innovators and experts by networking across global industries, governments, and academia
- Gain systems engineering experience through work on real-world problems
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- Discover potential career opportunities



We are committed to shaping a future where systems approaches are preferred and valued in solving problems.

#### *INCOSE Products included in Membership*

Online access to: every INSIGHT and SE Journal issue ▪ SE Handbook ▪ SE Vision 2025 ▪ SE Definitions ▪ SE Competency Framework ▪ Requirements Working Guide ▪ Product Line Engineering Primer ▪ State of the Discipline Report ▪ and more.

#### *Professional Certifications*

Our Professional Certification Program provides a formal method for recognizing the knowledge and experience of systems engineers. There are three levels: Associate, Certified, and Expert System Engineering Professional.



# Sector Updates—Americas

## Introduction on Obtaining INCOSE Systems Engineering Professional Certification

San Diego Chapter, [info@sdincose.org](mailto:info@sdincose.org)

The Systems Engineering Professional Program



This virtual presentation hosted by Dave Mason, ESEP and INCOSE San Diego chapter officer, will detail the INCOSE Systems Engineering Professional (SEP) certification process, application procedure, collaborative support, and the multiple testing opportunities (online or free paper testing).

**Date:** 24 March 2021, 6:00-7:15pm Pacific Time

**Where:** Virtual/Online **Cost:** Free!

**RSVP:** <https://sdincose.org/rsvpmaker/introduction-to-obtaining-your-incose-systems-engineering-professional-sep-certification-2021-03-24/>

INCOSE Members! Approximately 3,500 INCOSE members have obtained professional INCOSE systems engineering certification—what about you? Now is the time!

This presentation will cover the certification avenues, application process, collaborative support (San Diego chapter and beyond), and the multiple testing opportunities available, either online via Prometrics or free paper test.

INCOSE SEP certification is similar to Professional Engineering (PE) licenses. However, instead of states issuing them, INCOSE certifies members. There are three levels of INCOSE systems engineering certification, based on demonstrated systems engineering experience and passing a knowledge exam:

- **Associative Systems Engineering Professional (ASEP)**—For members beginning their systems engineer career.

- **Certified Systems Engineering Professional (CSEP)**—For practicing systems engineers with more than five years of systems engineering professional work experience.
- **Expert Systems Engineering Professional (ESEP)**—For systems engineering leaders with recognized systems accomplishments and many years of systems engineering professional work experience. There are only just over 300 ESEPs!

The second presentation part will address several training options. The San Diego chapter is strongly considering leading an online group study via weekly 'Cohort' sessions (free, for serious students), and/or a multi-day online tutorial with reduced prices for INCOSE San Diego chapter members.

*Please RSVP ahead of time. Thank you!*

## INCOSE-LA Report, Feb 14, 2021

INCOSE-LA is looking forward to their:

- March 9 evening speaker meeting, "MBSE Three Ways—A Trio of Case Studies to Satisfy Any Appetite," by Casey Medina a Caltech instructor and the Studio SE, Ltd. president.
- March 13 we will host an interactive Cameo Systems Modeler™ tutorial by Casey Medina as the first educational event of the year.

See the chapter webpage [to register](#).

## INCOSE-LA held their February Speaker Meeting 9 February 2021.

Approximately 30 members and guests attended the meeting, held over Zoom. Five chapter members summarized sessions they attended during the INCOSE International Workshop on 21-29 January 2021.

- Phyllis Marbach, technical operations assistant director transformational enablers, presented the two-day MBSE Workshop summary.
- Rick Hefner, INCOSE-LA director of systems engineering education, presented a Requirements Working Group report, including their current published products available in the INCOSE store and projects underway this year.



Information and Tools for Now

## INCOSE Member Wins BEYA Award

Krystal Porter a Leading engineer with INCOSE CAB Company Leidos, and a Washington Metro Area Chapter Member, received the BEYA Dr. Wanda M. Austin Legacy award. You can read more about Krystal and the award [here](#).

You can also watch Krystal and other engineers receive their awards at the HBCU Engineering Dean’s Recognition Event [here](#). Robert Cloutier [rcloutier@southalabama.edu](mailto:rcloutier@southalabama.edu)

- Eric Belle, INCOSE technical operations liaison International Symposium 2021, presented the CubeSat System Reference Model (CSRM), a Space Systems Working Group (SSWG) project.
- Karen Grothe, INCOSE-LA director of membership, presented the Artificial Intelligence (AI) Systems Working Group and systems engineering in Early Stage Research and Development Working Group (ESR&D WG).
- Dorothy Benveniste, INCOSE-LA director of programs, summarized the Systems Thinking Workshop.

Discussions included what systems thinking is and how we can apply it to real-world problems. Charts are available on the [chapter’s library](#). On Saturday, 6 February 2021, the board and others met for the first Strategic Planning Meeting of the year to discuss our 2021 plans, when new officer training would occur, and the overall chapter operation.

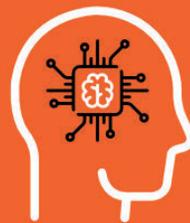
The chapter kicked off the year with our annual Town Hall, held over zoom, on Tuesday 12 January 2021. We were fortunate to have Dr. Azad Madni, INCOSE Fellow and Lifetime member, perform the induction. Following officer induction, 2021 President Mark TenEyck opened the discussions about how the chapter could more effectively meet the INCOSE-LA member and guest needs and interests in the Los Angeles region.

**4 December 2020.** INCOSE-LA members and guests met over Zoom to celebrate the year end and have some fun. Nazanin Sharifi, INCOSE-LA director of programs welcomed everyone and facilitated a networking session where those attending could meet each other and learn about job opportunities in the area. Following the networking, attendees split into two breakout rooms:

- Stephen Guine, INCOSE-LA president emeritus led one breakout room, playing a Jeopardy game based on the Systems Engineering Professional Exam.
- Phyllis Marbach, INCOSE-LA secretary and president emeritus led another breakout room playing a Jeopardy game based on general Science, Technology, Engineering, and Mathematics questions.

Top winners received gift cards.

INCOSE-LA is actively working on the Western States Regional Conference (WSRC) committee for 2021. WSRC 2021 will be in San Diego on 17-19 September. We will soon accept proposals about “Sailing the Digital Wave— Navigating Innovative Trends from the Digital Transformation.” Check out our website where you can find information on sponsoring the conference or submitting your proposal: [www.incose.org/WSRC2021](http://www.incose.org/WSRC2021)



**HSI2021**

Human Systems Integration Conference

**San Diego ,CA ,USA**

November 17-19, 2021

# Sector Updates—Asia-Oceania

## Korea Chapter

Joongyoon Lee  
leejy@se2u.com

The 2020 Korea Autumn Symposium, held on 26-27 November 2020, was a hybrid event (virtual on zoom and in the NIA Global Center, Jeju Island, Korea). The conference theme was "Systems Engineering for the Korean New Deal." The symposium had two keynote speakers, two tutorials, 46 papers, and 17 poster presentations



Symposium Poster Session

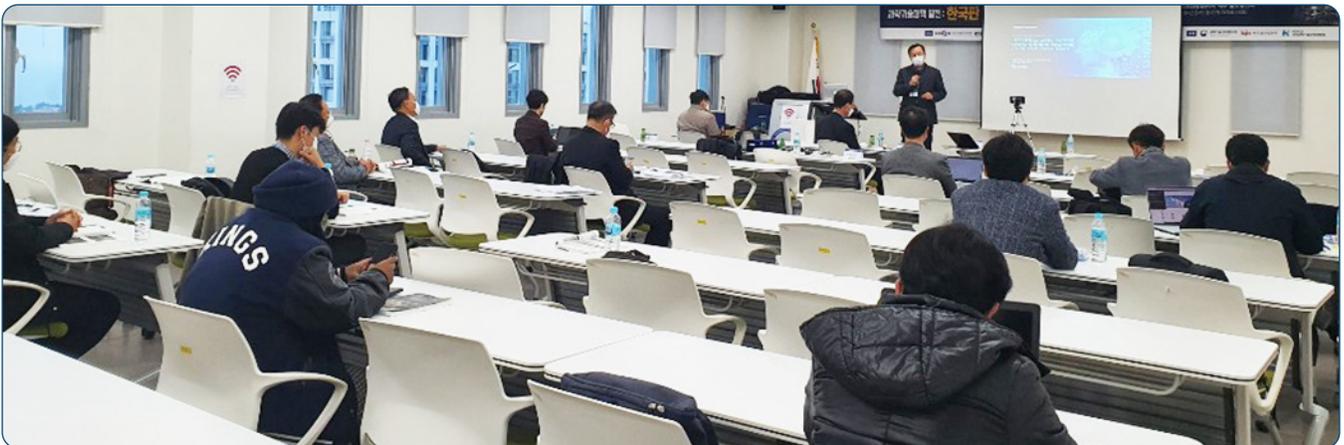
## Japan Chapter

Masaatsu Kusunoki, [m.kusunoki@jcose.org](mailto:m.kusunoki@jcose.org)

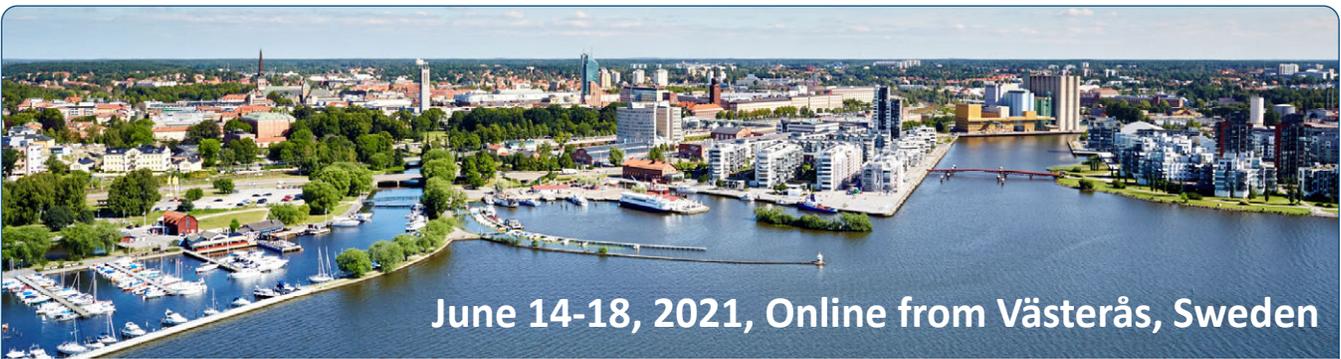
We received many positive comments for the virtual symposium JS2020, including many requests for further events within the community. After closing the event, we formed a new chapter committee to prepare events for the coming year. We will hold the first event in February, the first of a workshop series. The aim of the first workshop is sharing information on IW2021 to those who were unable to attend, and to spark collaborative discussion within the Japanese community.



Symposium Board of Directors and Delegates



Symposium Proceedings



June 14-18, 2021, Online from Västerås, Sweden



## 16<sup>th</sup> Annual System of Systems Engineering Conference

Conference theme: Autonomous Cyber-Physical Systems of Systems

<http://sosengineering.org/>

### Highlights

IEEE System, Man, and Cybernetics Society (SMC), in cooperation with the International Council on Systems Engineering (INCOSE), is organizing the 16<sup>th</sup> International Conference on System of Systems Engineering (SoSE) to be held online, June 14-18 2021.

Systems of systems have vast ramifications in numerous engineering fields such as control, computing, communication, information technology and in applications such as manufacturing, defense, national security, aerospace, aeronautics, energy, environment, healthcare, and transportation. Papers on theories, methodologies, and applications of System of Systems Engineering in science, technology, industry, and education are welcome.

Papers should be five to six pages in length, in standard two-column IEEE Conference Proceedings format. Detailed instructions for paper submission and format can be found on the conference web site.

Invitations will be made to the authors of the best papers to submit an extended version of papers to IEEE Systems Journal and Journal of Enterprise Transformation.

### Key dates for submissions

Special session proposals: **Nov. 29, 2020**  
Notification of special session: **Dec. 13, 2020**  
Technical papers & panels: **Feb. 14, 2021**  
Notification, papers & panels: **March 21, 2021**  
Final manuscript: **April 18, 2021**

### Organizers

#### General Chair

Jakob Axelsson, Mälardalen University and RISE

#### Founding Chair

Mo Jamshidi, University of Texas San Antonio

#### Program Chairs

Martin Törngren, KTH, Sweden

Gerrit Muller, University of South-East Norway

#### Local Chair

Malin Rosqvist, RISE and Mälardalen University

#### Industry Liaison

Erik Herzog, Saab and INCOSE Sweden

#### Publication Chair

Patrick Benavidez, Univ. of Texas San Antonio

#### INCOSE and US industry liaison

Garry Roedler, INCOSE

### Contact

For general and technical program inquiries about the conference, please contact the conference General Chair, Jakob Axelsson ([jakob.axelsson@mdh.se](mailto:jakob.axelsson@mdh.se)).

### Academic sponsors



### Technical co-sponsors



# Sector Updates—EMEA

## Belgium Chapter

Stephan Adriaenssens  
stephan.adriaenssens@telenet.be

### New INCOSE Belgium Chapter Chartered

We have successfully closed the process of chartering the new INCOSE Belgium Chapter.

Last October we submitted the chapter bylaws for the New Chapter Coordinator Cecilia Haskins to review. The INCOSE board of directors subsequently approved the request to establish the Belgium Chapter as well as the chapter bylaws as recently as early November, after which the only action left was final ratification by the Belgium Chapter membership.

The organizational meeting, held with Lucio Tirone (INCOSE EMEA sector director) on 11 December 2020, aimed to build the foundation upon which the chapter will exist, putting a close to the chartering process.



Let's go back in time to pre-Covid-19. EMEA Sector Director Paul Schreinemaker inspired and motivated the still to become core team leader Christophe Laverge to explore the idea and feasibility of establishing a new local chapter in Belgium.

After several preliminary meetings held during 2019, in November 2019 we consolidated the chapter leadership team. During 2020, the leadership team has managed to reach the minimum membership base.

The leadership team found and met the preliminary conditions to become successful, thereby establishing the need for a Belgium Chapter:

- **Presence of a systems engineers population:** Numerous businesses and government organizations in Belgium practice systems engineering and employ systems engineers to meet the minimum requirements for membership.

- **Presence of supportive employers and academic activity:** Based on proximity to INCOSE meeting locations and shared interests a considerable group of potential INCOSE members will derive benefit from creating a new Belgium Chapter.
- **Presence of a potential leader core group of potential leaders:** At least five people have agreed on the need for a new Belgium Chapter and to work together to establish and maintain the chapter. This small team forms the "core team" of individuals willing to invest the time, energy, and conviction to create a successful Belgium Chapter. This "core team" and first set of interim officers includes the following (in alphabetical order):
  - Stephan Adriaenssens (Treasurer)
  - Christof De Backere (Vice President)
  - Christophe Laverge (President)
  - Ilka Mans (Secretary)
  - Dirk van der Linden (Communications Chair)
  - David Verleyen (Programs Chair)



Why is there a need and what will be the benefits of having a local chapter in Belgium?

- The European Union institution presences, in Belgium's and Europe's capital Brussels, will allow the international INCOSE organization to establish and strengthen, through its local chapter, its ties with the European decision making process.
- There is a systems engineer shortage in the Belgian labor market. The new Belgium Chapter will generate interest and awareness for systems engineering, and thus evangelize the systems engineering scene in Belgium with a view to extend the available systems engineers pool.
- The new Belgium Chapter will not only train systems engineers but will also bring them together to exchange views and ideas.

The Belgium Chapter leadership team is working on a post-Covid-19 session interacting with other EMEA chapters. We envisage a first physical post-Covid Belgium Chapter event in 2021.

## INCOSE-NL as Partner for the Recent System Architecting Conference

Ger Schoeber

[ger.schoeber@incose.nl](mailto:ger.schoeber@incose.nl)

For the 3rd year in a row, INCOSE-NL partnered in the System Architecting Conference. An English spoken conference in the Netherlands with an interesting presenter line-up (<https://sysarch.nl/program/>) giving insight into their daily challenges of applying systems architecting or systems engineering practices in real-life systems, products, or services realization projects. This year we were able to organize it as a physical event with about 60 participants on 24 September, combined with live streaming to several dozen virtually connected participants.

A strong keynote from seasoned systems architect Ben Pronk, active in medical robotics,

started the conference; followed by interesting insight into JongINCOSE (YoungINCOSE) activities by Bas Leijser, a board member of a young systems engineer group in the Netherlands.

Dries van Heusden talked about the systems engineering for the Cuyperstrap, a simple stairway inside the Amsterdam Central Station, with various complicated stakeholder involvements. Kees Verbaan continued with supplier/customer co-development opportunities in high-tech optics qualification tools, and Ferdinand Cornelissen made a bridge for an infrastructure project: applying digital twinning and MBSE for a complex bridge system in the south of Amsterdam.

After lunch was a great practical ingredients of good software discussion. Robert Deckers taught us the 3-C's: 'Correctness' and 'consistency' are key, but if you cannot



'communicate' about it, there is no value. Without communication, no collaboration exists; explained in the presentation by André Nijholt and Remco Jager as they experienced projects ranging from electron-microscopes to tunnel automation.

Louis Michielsen told us about applying systems engineering for the rolling stock of the Dutch railroad, immediately followed by another mobility opportunity. Roberto Reyes García gave insight into the electrical charging infrastructure in realizing a mobility-as-a-service.

The day concluded with another strong keynote from Jon Holt—technical director INCOSE-UK, who introduced the maturity stairway for MBSE.

We look forward to continuing this new tradition next year!

## INCOSE UK Update

INCOSE UK Secretariat,  
[publications@incoseuk.org](mailto:publications@incoseuk.org)

## Endorsed Training Provider Event

We are pleased to announce that the first INCOSE UK Endorsed Training Provider event will take place 16–18 March 2021.



This online event will be run for our newly registered Endorsed Training Providers—Burge Hughes Walsh Ltd and Scarecrow Consultants Ltd.

Burge Hughes Walsh will be running an online course entitled “3 Day Systems Engineering Fundamentals Course” which is designed to focus on the concepts, principles and practices of Systems Engineering to give attendees both understanding and specific knowledge to apply Systems Engineering to the design of complex systems.

Scarecrow Consultants course, “A Model-Based Approach to Systems Engineering” aims to improve Systems Engineering through the use of MBSE, achieve improved communication,

enhanced understanding and how to minimize complexity through use of modelling, how to implement MBSE into a business and above all improve confidence for the delegates, their teams, business and clients.

Each course will run for 3 days with 8 - 15 delegates. The cost of the course, for each delegate, is £2,000 + VAT for non-members and £1,800 + VAT for members. The booking system with full course details will be opened shortly.

For more information, and to register your interest please email [techserv@incoseuk.org](mailto:techserv@incoseuk.org).

## The Endorsed Training Provider Scheme

If you are a training provider you may wish to consider the Endorsed Training Provider Scheme. The scheme is designed to allow organisations who provide professional Systems Engineering related training courses to apply and be assessed in order to obtain the status of “INCOSE UK Endorsed Training Provider”. More information regarding this can be found on the [INCOSE UK website](#).

## Annual Systems Engineering Conference 2021



This year ASEC will take place at Heythrop Park Resort, Enstone, Oxfordshire on 16 and 17 November 2021. The theme for ASEC 2021 is “Creating Stability in Uncertain Times”.

Within this, we intend to explore the following subthemes:

- Embracing Change and Transformation
- Building Resilient Organisations
- Developing Technical Skills for the Future
- Reflection on Best Practice in Unusual Circumstances

To keep up to date with the latest ASEC news visit the [conference website](#).

## ASEC2021 Call For Content

The ASEC call for content guide is now available on the [ASEC 2021 website](#).

The guide covers the ASEC 2021 Structure as well as the call for Papers, Tutorials and Posters. It also discusses the submission review process, the anatomy of how to write a good paper, deadlines and other information.

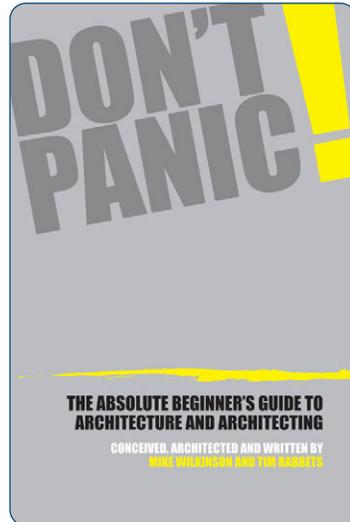
### Don't Panic! The Absolute Beginner's Guide to Architecture and Architecting.

INCOSE UK are delighted to announce the release of another addition to the Don't Panic! book series - Don't Panic!- The Absolute Beginner's Guide To Architecture and Architecting by Mike Wilkinson and Tim Rabbets.

The book focuses on Architecture in Systems Engineering.

It aims to dispel the perception held by many that Architecture in Systems Engineering is elusive, abstract, complex and difficult to understand.

Architecture is all about fundamental structure and properties and is one of the most powerful system concepts. It lies at the heart of Systems Engineering. System architecting brings disciplined thinking to articulating and addressing the essentials of a system in terms of scope and order of architectural considerations.



Although this is an introductory book, it encourages rigour and draws on extensive and varied practical experience.

You can pre-order a copy of Don't Panic! - The Absolute Beginner's Guide To Architecture and Architecting by visiting the [INCOSE UK online store](#).

### Meet the Author

On the 5 February 2021, Prof Jon Holt and Simon Perry, authors of the new "Advanced Applications in System Engineering—Implementing MBSE Into Your Business, The Trinity Approach" sat and spoke to attendees in the first of a series of Meet The Author sessions designed to further discuss and explore the topics presented in publications

The event, held online via Zoom, was well attended and informative.

The authors began by discussing the germs of the idea for The Trinity Approach and how the years of experience helping introduce Model Based Systems Engineering (MBSE) into organisations stood them in good stead to write the book.

During the discussion, and fielding questions from the attendees, Prof Jon Holt reiterated how the publication was not specifically about MBSE itself but focusing on how you could bring MBSE, and what level of MBSE if needed, into your company.

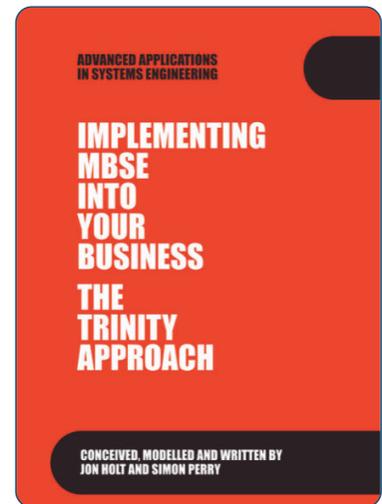
The next Meet the Author event is on 9 April 2021 where Paul Davies will chat about his book Don't Panic! The Absolute Beginner's Guide Managing Interfaces. To book a place, please email [events@incoseuk.org](mailto:events@incoseuk.org).



Simon Perry



Jon Holt



## Professional Development Online Sessions



In order to provide information and guidance, we have set up a series of interactive Professional Development Zoom sessions.

These sessions are open to all and there is no requirement to

be a member in order to attend. The following sessions are available to book by emailing [profdev@incoseuk.org](mailto:profdev@incoseuk.org).

**10 March 2021—CPD Clinic.** In this session we will be offering guidance to members on how to approach CPD and what to include. This session is an open forum for discussion and includes information relating to CPD for both professional registration and SEP Certification.

**14 April 2021—UK Spec v4 Webinar (changes to competences).** A session outlining the changes in the UKSPEC 4th edition and how this will affect applications for professional registration. The session will include an over view of the changes and will answer any questions relating to these in a Q&A.

**12 May 2021—A/B Competences Clinic.** In this session we will be focussing on the UKSPEC A&B competences and how systems engineers should look to map their work experience to these when applying for professional registration. The session will be an open forum for discussion and will include input from the INCOSE UK assessment team.

**14 July 2021—SEP Certification Clinic.** Attend this session to gain a better understanding of INCOSE UK SEP Certification. The session will be an open forum for discussion and will cover an overview of the requirements to apply for each level and details of the application process. Input from a recent candidate and a Certification Application Reviewer will be included along with a Q&A.

**15 September 2021 - Interview Preparation Clinic.** A session exploring the professional registration interview. Find out what is involved and the best way to prepare for this. An open forum session with input from a recent candidate and the INCOSE UK assessment team.

**10 November 2021— C/D/E Competences Clinic.** In this session we will be focussing on the UKSPEC C,D & E competences and how systems engineers should look to map their experience to these when applying for professional registration. The session will be an open forum which includes input from the INCOSE UK assessment team.

## Professional Registration Webinar (UK Spec v4)

**16 June 2021, 18 August 2021, 13 October 2021, 15 December 2021.** Our regular INCOSE UK overview of professional registration covering how to apply and answering your questions on the process. Includes input from our assessor team and a recent INCOSE UK applicant.

# Working Group Updates

## Requirements Working Group

Tami Katz

[familykatz@earthlink.net](mailto:familykatz@earthlink.net)

The Requirements Working Group (RWG) held amazing discussions during the INCOSE International Workshop (IW) 2021! All content, including IW meeting recordings, is available at our [RWG site](#) on the "RWG Sessions at IW2021" tab. Please log in to your INCOSE profile first to ensure link access.

Our three new products, currently in the review phase, include the:

- Needs and Requirements Lifecycle Manual
- Guide to Needs and Requirements
- Guide to Verification and Validation

Along with these new products, there will be an update to the "Guide for Writing Requirements" to better align it with the new RWG products. The entire product structure, including how the manual and guides align with the INCOSE Systems Engineering Handbook and SEBoK, is shown on our RWG site along with the new

material drafts. We are pleased these new products can support specific Corporate Advisory Board (CAB) needs as we aim to provide value to the industry and academic community.

Lou Wheatcraft, shown below, presented his approach to developing the new manual at the IW2021, and shares how this material addresses early needs identification for a system of interest to elicit requirements which the customer does not always specify.

Coming up in 2021, we will continue our speaker and System Exchange Café series. The first guest speaker, addressing "Requirements Modeling for early Validation and Verification," was 25 February at 1pm MST. We have Zoom links and post-event recordings on our RWG Connect site under the "General Meetings" tab. After the February meeting, we will continue holding monthly discussions through our Exchange Cafés or guest speaker presentations. Please join the Requirements Working Group to be on our mailing list and stay current on the topics, product reviews, and release efforts.

## Underlying Concepts - Overview



The manual has tight traceability of concepts, activities, and artifacts to the characteristics in the GfWR.

*"This activity helps establish the integrated set of system needs is complete."*

### 4.4.1 Feasibility

As stated in the GfWR well-formed need statements and resulting requirements have the characteristic *C6 – Feasible*, and integrated sets of system needs and resulting requirements have the characteristic, *C12 – Feasible*. A set of feasible lifecycle concepts are key to having an integrated set of system needs that are feasible.

### 4.5.2.2 Appropriate to Level

One of the characteristics of well-formed needs and sets of needs stated in the GfWR is the characteristic *C2 – Appropriate*. As stated in the INCOSE GfWR, the specific intent and amount of detail of the need or requirement statement is appropriate to the level (the level of abstraction) of the entity to which it refers.

### 4.5.2.7 Completeness of the Integrated Set of System Needs

As stated in the GfWR, well-formed sets of system needs have the characteristic *C10 – Complete*. Sections 4.4.5, 4.4.6, and 4.5.2.4 discussed approaches to ensuring the set of lifecycle concepts are complete. A complete set of lifecycle concepts are key to having a complete integrated set of system needs.



Lou Wheatcraft

# System Exchange Cafés

## System Exchange Cafés

Do you like to talk, listen to, and discuss systems topics? What about meeting and discussing issues with diverse systems people from around the world? Then the Systems Exchange Cafés are an INCOSE community offering for you!

In 2020, INCOSE created the INCOSE Systems Exchange Cafés. These are informal and ad-hoc virtual meetings (hosted on Zoom) accessible to anyone (INCOSE members or non-members).

The format for the café is as follows:

- A café host opens meetings, lets people in, and moderates the conversation (try to help all who want to get a word in edgeways)
- The conversation covers selections made at the previous meeting
- If appropriate, pre-reading material will be on the website to allow preparation—and the meeting may start with summarizing these points
- Meeting may diverge onto other topics as the conversation needs.

There are no recordings or formal notes produced. Attendees should note any key points and add any key references to the chat,

which any attendee can capture to follow points of interest. Sometimes there are informal records of some key points discussed (including any annotated diagrams produced in the meetings) shared on social media

## Access

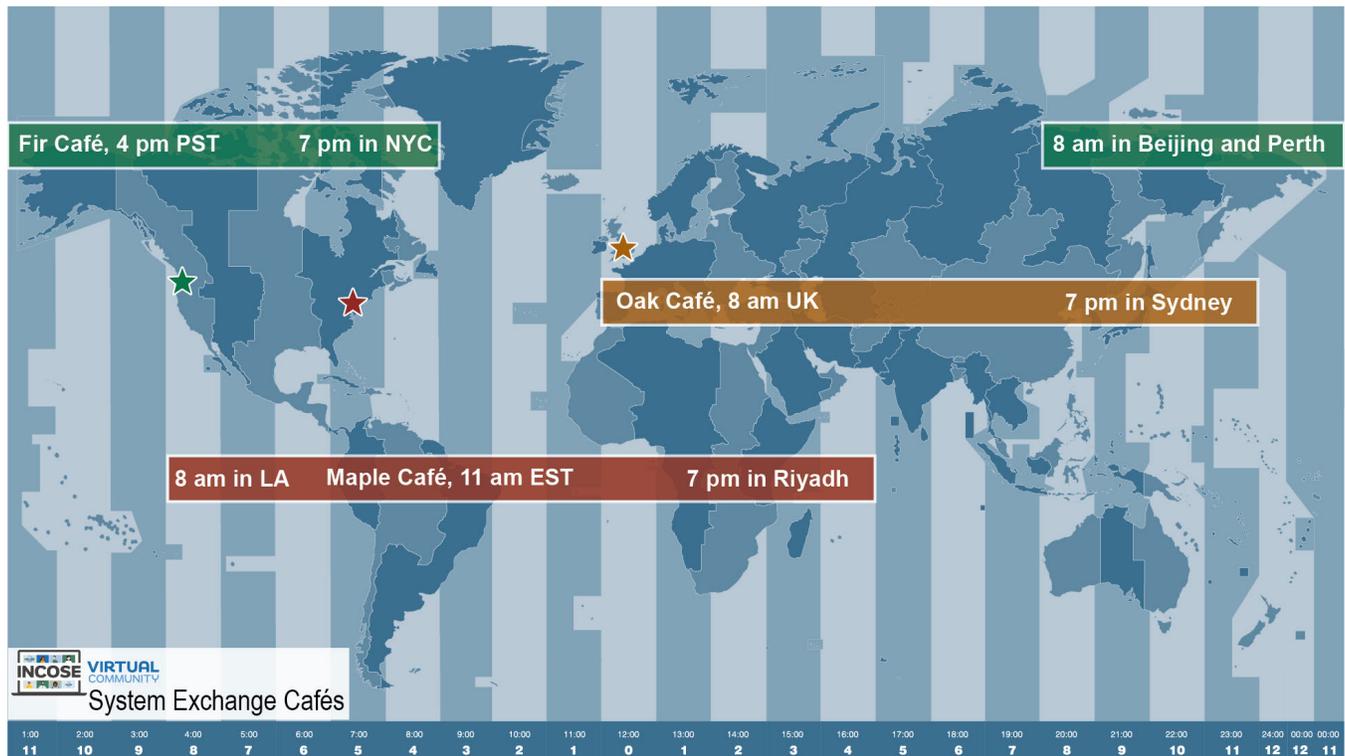
The cafés currently run every fortnight on different days of the week, at different times so anyone in the world can hopefully find a convenient time slot. The meetings last 90 minutes, but (like a café) you can drop in and out as convenient.

The three cafes run as follows:

- Fir—Tuesday 4pm US Pacific time
- Oak—Wednesday 8am UK time
- Maple—Friday 11 US Eastern time

See the [Systems Exchange Cafe](#) website for details of each café website, the next session date, and updates on the discussion topics.

To attend, register to whichever café you want to attend. Once registered you will receive a Zoom invitation to join the selected Café on the next scheduled date, and for every two weeks thereafter. [Note, INCOSE uses your registration information only for these Café events and will



*Café Times are exact, other times are general references, please check for your location*

not share or use it for any other purposes, in accordance with the INCOSE Privacy Policy]. Then at the appropriate time you go to the Zoom meeting. Registration does not commit you to attending any meeting—you can go to whichever sessions you want when mood, diary, and interesting topic align.

New faces, new ideas, and new viewpoints are always welcome—so why not register and we will see you at the next café?

If you want more involvement (hosting/moderating the session) please let the host of the café you attend know. They will be glad to share the role!

---

## EWLSE Updates

Alice Squires, [ewlse@incose.org](mailto:ewlse@incose.org)

### ***Empowering Women: Looking After Our Digital Twin***

Alice Squires  
[ewlse@incose.org](mailto:ewlse@incose.org)

As many of us remain isolated and homebound, “who we are” has become analogous with how we come across in the virtual world. Now is a good time to review our digital twin, the part of us we show others “virtually.” In this process, there is much we can do to not only communicate our unique selves but also to serve others by sharing our insights and lessons learned in systems engineering and beyond—our thought leadership. Just as every person is a leader, at the very least, of their own destiny, so too do we each have insights to share that can be valuable to others in their life journey. To this end, Empowering Women Leaders in Systems Engineering (EWLSE) offered a “Level Up your LinkedIn and Grow Your Network” interactive workshop at INCOSE’s International Workshop (IW) 2021, reported on in a separate article, and will continue to offer this workshop throughout the coming year.

For those who missed visiting the INCOSE EWLSE booth at the INCOSE IW 2021, please find two videos—one on EWLSE and one on diversity, equity, and inclusion—an EWLSE report on activities; and an “About EWLSE January 2021” presentation in this Dropbox folder: <https://www.dropbox.com/sh/62fejv85yjok21i/AAAFyO9TUOQmMv5B8wVOB7cJa?dl=0>.

For the most recent EWLSE related presentation slides for your events, please email [ewlse@incose.org](mailto:ewlse@incose.org).

Additional news: Lisa Hoverman, Alice Squires, and David Long with support from Federica Robinson-Bryant, Bill Parkins, Virginia Aguilar, and Roger McCowan, have completed the first three round review pass-through of the *Letters to My Younger Self (LTMYS): How Systems Engineering Has Changed my Life* volume one. Work remains for the authors and editors to finalize the product; the team is still hopeful for a 2021 release. And last, but not least, Springer’s Women in Engineering and Science book series has officially accepted our *Emerging Trends in Systems Engineering Leadership* book. For those interested in volunteering to review chapters currently in development for the book, noting the published book will acknowledge all reviewers and we need you, please send an email of interest to [SELBook@incose.org](mailto:SELBook@incose.org).

For those new to systems engineering or those who have practiced for decades. If you are looking for a systems engineering mentor, ready to be a systems engineering mentee, or both stay tuned for a refresh of this initiative to support your mentorship journey. In the meantime, if you want to say “hello,” volunteer for an EWLSE initiative, share your empowering women leaders in systems engineering related stories, or you are looking for guidance on a path forward, please send your greetings, queries, comments, or stories to [ewlse@incose.org](mailto:ewlse@incose.org).

### ***Stueti Gupta Receives WE Local Engaged Advocate Award***

Alice Squires  
[ewlse@incose.org](mailto:ewlse@incose.org)

Please join me in congratulating Stueti Gupta, Asia Oceania EWLSE lead and INCOSE India Chapter president, for being awarded the WE

Local Engaged Advocate Award from the Society of Women Engineers. The Engaged Advocate Award honors individuals who have contributed to the advancement or acceptance of women in engineering. Stueti is very actively involved in professional community groups and became one of the first Society of Women Engineer's International Ambassadors in India in 2015 when the program launched. She also helped launch SWE Pune Affiliate, making it the first affiliate in India. During her tenure as the SWE Pune Affiliate founder, Stueti was instrumental in launching several programs, some of which have become flagship events and are still creating an impact in the STEM community. She also was the first from India to receive the SWE Distinguished New Engineer Award in 2016.

The last two times India hosted the INCOSE Asia Oceania region's most sought-after systems engineering conference, AOSEC, Stueti was instrumental in the EWLSE workshop design that benefitted over 50 female professionals. Stueti often makes intentional efforts with her peers and colleagues to keep aspirations alive so one can push their boundaries and explore facets that seem overwhelming at first, but one can manage with a little help and a little push.

Stueti has provided one-to-one mentoring to young people from socio-economic disadvantaged backgrounds via a virtual mentoring program by a non-profit organization, MentorToGo. For example, Stueti partnered with a young engineer from Bengaluru and worked with her 6 hours per month for almost a year, and completed an 18-session work-readiness curriculum. Stueti is also a trained #IamRemarkable facilitator. This is a Google initiative to empower women and underrepresented groups to celebrate their achievements in the workplace and beyond. Since July 2020, after Stueti officially became the facilitator, she has organized eight workshops for SWE Global Women Engineers Affiliate members and INCOSE EWLSE in India, Japan, and Mongolia.

To view the award page and congratulate Stueti, please see: <https://welocal.swe.org/award-recipient/stueti-gupta/>.

## *Level Up your LinkedIn and Grow Your Network*

Stueti Gupta  
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At the INCOSE IW 2021, EWLSE offered the "Level Up your LinkedIn and Grow Your Network" interactive workshop on Friday, 29 January 13:00-15:00 GMT+01 with about 40 'live' attendees during the workshop and many others who listened to the workshop recording. This was a unique workshop for systems engineers, engineers, technical leaders, managers, and anyone who wanted to learn about using LinkedIn beyond just the typical "searching for a job" which EWLSE also covered. LinkedIn is also for establishing one's online professional image and for giving back to the community by sharing your knowledge and experience and demonstrating your thought leadership in your domain.

Stueti Gupta, Alice Squires, and Erika Palmer, the workshop facilitators, shared how they came to realize the importance of their online professional LinkedIn image. The workshop also covered how LinkedIn is a great place to create new connections, provide encouragement and support others, show your colleagues gratitude, and maintain connections with those you do not want to lose touch with. In the workshop, we reviewed many areas of the LinkedIn profile with examples, the art and science of writing a post on LinkedIn, and hacks to keep in mind. Using breakout rooms and interactive exercises, attendees completed and shared information about a post writing exercise as part of the workshop. Attendees walked away with a LinkedIn handbook, provided by the workshop organizers, as well as a topic and further ideas list of how they could level up their LinkedIn profile and share their thought leadership around the world!

If you missed this workshop, keep an eye out for future "Level Up your LinkedIn and Grow Your Network" workshops we will offer throughout the year.

July 17 - 22, 2021  
[www.incose.org/symp2021](http://www.incose.org/symp2021)

Save the date



**31<sup>st</sup>**  
Annual **INCOSE**  
international symposium  
Virtual event

## Future events

- MAR**  
16-17 ● **11th Israeli International Conference on Systems Engineering**  
*Virtual Event*  
[incoseil.org/incose\\_il2021/eng-home](http://incoseil.org/incose_il2021/eng-home)
- APR**  
9-17 ● **14th Annual INCOSE Great Lakes Regional Conference (GLRC14)**  
*Virtual Event*  
[www.incose.org/glrc/](http://www.incose.org/glrc/)
- APR**  
12-13 ● **International Conference on Complex Systems Design & Management (CSD&M) in Asia**  
*Beijing, China*  
[csdm-asia.cn](http://csdm-asia.cn)
- MAY**  
26-28 ● **AOSEC 2021 - SETE 2021 - IPEC**  
*Brisbane, Australia*  
*This year, the sector's Asia Oceania Systems Engineering Conference 2021 is being held as Australia SETE 2021 conference (which is being co-located with Integrated Project Engineering Congress - IPEC this year).*  
[www.ipecongress.com.au](http://www.ipecongress.com.au)
- JUL**  
17-22 ● **INCOSE 31st Annual International Council on Systems Engineering 2021**  
*Virtual Event*  
[www.incose.org/symp2021](http://www.incose.org/symp2021)
- SEP**  
20-24 ● **9th Nordic Systems Engineering Tour 2021**  
*20th (Helsinki), 21st (Stockholm), 22nd (Oslo), 23rd (Copenhagen), 24th (Hamburg)*  
[www.nordic-systems-engineering-tour.com](http://www.nordic-systems-engineering-tour.com)
- OCT**  
28-29 ● **EMEA Workshop 2021**  
*Sevilla, Spain*
- NOV**  
17-19 ● **INCOSE Human System Integration Conference 2021**  
*San Diego, CA, USA*  
[www.incose.org/HSI2021](http://www.incose.org/HSI2021)



**HSI2021**  
Human Systems  
Integration  
Conference

**San Diego, CA, USA**  
November 17-19, 2021

Save the date



Call for submission INCOSE Newsletter 2021 Q1 29  
Deadline 12 april 2021  
[www.incose.org/hsi2021](http://www.incose.org/hsi2021)

# Diversity, Equity, and Inclusion

Alan Harding, [alan.harding@incose.org](mailto:alan.harding@incose.org)

Our INCOSE vision is “a better world through a systems approach,” and it is at the heart of everything we do. The United Nations [sustainable development goals](#) frame what “a better world” means, providing a shared blueprint for peace and prosperity for people and the planet, now and into the future. It is a vision for all people, regardless of gender, nationality, ability, and social status, and two goals in particular highlight this:



- **SDG 5**—Achieve gender equality and empower all women and girls.
- **SDG 10**—Reduce inequality within and among countries.

In supporting “a better world” for all, the INCOSE Board of Directors (BoD) has approved a [new policy](#) intended to ensure INCOSE is an organization where everyone can comfortably be their authentic self, recognize themselves in other members, and has an equal voice and opportunity in their organization interactions. In setting this policy, INCOSE adopted the Diversity, Equity, and Inclusion (DEI) definitions framed by one of our key partners in the academic accreditation space, ABET. These [definitions](#) will help ensure we are all talking about the same thing as we move forward.

ABET defines the terms as follows:

- **Diversity** is the range of human differences, encompassing the characteristics making one individual or group different from another.
- **Equity** is the fair treatment, access, opportunity, and advancement for all people, achieved by an intentional focus on their disparate needs, conditions, and abilities.
- **Inclusion** is the intentional, proactive, and continuing efforts and practices in which all members respect, support, and value others.

We are now starting the search for an associate director for DEI, an appointed three-year position that reports to the INCOSE president and attends INCOSE board meetings. The role

details are available on the [INCOSE Volunteer Opportunities Board](#), and we welcome all who have the skills and passion for the position and want to make a strategic contribution in this area to apply for the position.

A DEI advisory committee will support the associate director for DEI, comprising INCOSE members from around the world that will bring together a wide range of views and experiences helping inform the BoD and connect them with opportunities and challenges throughout our worldwide membership and the systems engineering world. With support from the associate director for DEI, we will soon publish the DEI advisory committee roles, and we will recruit members on the INCOSE Volunteer Opportunities Board.



## FYI

Information and Tools for Now

### INCOSE Fellow wins Three Distinguished Awards

INCOSE congratulates Azad Madni, an INCOSE Fellow, on his hard work and accomplishments. Azad received:

- 2021 IEEE Aerospace and Electronic Systems Judith Resnik Award for his contributions to space (Shuttle navigation system state estimation algorithm), air (AI-based tactical decision aiding of fighter aircraft), ocean (AI-based troubleshooting aid for shipboard systems), and ground systems (AI-based tactical planning and decision aids for ground vehicles).
- IEEE SMC Norbert Wiener Award
- Elected to the National Academy of Engineering

# Note From the Editor

Lisa Hoverman, [marcom@incose.net](mailto:marcom@incose.net)



We made it to 2021! What. A. Year. The Q1 2020 Newsletter published as the World was headed into lockdowns, quarantines, and learning about COVID-19. It was INCOSE's 30th Anniversary Year and we were looking to celebrate big with an International Symposium (IS) in South Africa, release of two INCOSE brand videos ([INCOSE](#) and our [30th Anniversary Video](#)—both worth another watch, especially as you consider all we did this year!) and highlights of the amazing work INCOSE continues to deliver in the discipline of Systems Engineering. With the world in a pandemic, our celebration turned into what INCOSE does best in year 30—celebrating by serving, and serving our members, and the larger Systems Engineering Community in a grand way.

INCOSE went truly virtual, serving our membership as wholly as we could, with chapter meetings, symposia, conferences, cafés and more to make sure that systems engineers kept connecting, networking, and working together. INCOSE had its greatest and toughest year in many ways—bringing more systems engineers together for more events globally than we ever have before, culminated by our *first ever virtual International Workshop (IW)* just past, at the start of 2021, to a year where we didn't gather globally for the first time in 30

years, where systems we work on and love were grounded for much of the year, where global tensions ran high, and where Systems Engineering Professional certifications were extremely low as testing centers were closed and INCOSE events all virtual. Our 30<sup>th</sup> year will always be memorable!

Having just celebrated International Women's Day, I would be incredibly remiss if I didn't call out the talent that led INCOSE in our challenging, 30<sup>th</sup> year—we were led by two strong systems engineers and valiant humans, President Kerry Lunney, and President-Elect Marilee Wheaton, who ensured we responded to our members needs in diverse, equitable and inclusive ways for our 30<sup>th</sup> year, in the midst of a once in a century pandemic. Our Associate Director for Events, Dr. Nicole Hutchison, who has served in this role tirelessly, while becoming a mom twice, living around the world, and during deployment serving as a single mom, rose to the occasion to oversee our first ever virtual IS and IW as resounding and morale building successes—*thank you, President Lunney, President-Elect Wheaton, and Dr. Hutchison!* Your contributions to INCOSE in our 30<sup>th</sup> year were so powerful!

## Celebrating our 30<sup>th</sup> Year Leaders



We hope you fully enjoy this first issue of the Newsletter in the new year, of the new forever normal, with a lot of highlights of INCOSE from 2021, our recent *first ever virtual IW* and the impactful work we did in 2020, are doing today, and will continue doing together. As a reminder, we are many—more than 18000 systems people strong, spanning more than 70 chapters, 68 countries, with more than 120 Corporate Advisory Board Members and working in over 50 working groups on the state-of-the-art products, standards, and research that will continue to improve and keep systems engineering relevant and of increasing relevance and value to our world.

The Newsletter continues to grow to inform our readership on all things INCOSE, both current, upcoming, and historical. There are some interesting previews on the many upcoming and exciting 2021 happenings, including the way we continue to monitor the COVID-19 situation closely, while continuing our work virtually to ensure we keep this great systems engineering community safe. We have

upcoming powerful virtual chapter meetings, working group sessions, and other initiatives of INCOSE reported on in this Newsletter. Important to this Newsletter are some great articles from practitioners—practitioners tackling both the real and grand challenges of our times that apply to the Future of Systems Engineering.

Please keep sharing your publications with us as we continuously work to improve. I hope that you see some of your suggestions and contributions in this issue. As always, we welcome feedback and contributions at [newsletter@incose.org](mailto:newsletter@incose.org).

We look forward to seeing you participating virtually as we network at, and present at, and gather at one of the many terrific upcoming virtual INCOSE events. I end with a sincere note of appreciation to all who contributed to this Newsletter. Have a wonderful March, stay healthy, and I really hope to see you at an upcoming online chapter meeting, Systems Exchange Café, or an INCOSE conference!

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## INCOSE Member Newsletter

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Publication of the International Council on Systems Engineering

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**Publication Schedule.** The INCOSE Member e-Newsletter is published four times per year. Issue and article/advertisement submission deadlines are as follows:

- Q1 Newsletter, General Content (GC): 15 Feb, Late Breaking News (LBN): 25 Feb
- Q2 Newsletter, GC: 15 May, LBN: 25 May
- Q3 Newsletter, GC: 15 Aug, LBN: 25 Aug
- Q4 Newsletter, GC: 15 Nov, LBN: 25 Nov

For further information on submissions and issue themes, visit the INCOSE website as listed above.

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**Who are we?** INCOSE is a 18,000+ member organization of systems engineers and others interested in systems engineering. Its mission is to share, promote, and advance the best of systems engineering from across the globe for the benefit of humanity and the planet. INCOSE charters chapters worldwide, includes a corporate advisory board, and is led by elected officers and directors.

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