



Q4 2023

MEMBERS NEWSLETTER

The International Council on Systems Engineering

In this issue:

- **Meet the new INCOSE Leaders**
- **Member Survey Results**
- **Global Chapter Updates**
- **Working Group Updates**
- **Latest Products and Publications**
- **The Launch of the INCOSE Library**

A Better World Through a Systems Approach

Contents

Editor's Letter	3
A Message from the INCOSE President	5
Feature on Michael Vinarcik	7
International Workshop 2024	8
Feature on Barclay Brown	11
Feature on Kirk Michealson	13
Membership Fee Increases	15
Membership Survey Results	16
Corporate Advisory Board	21
Calling All Systems	22
Empowering Women Leaders	23
Chapter Updates	25
EWLSE at Society of Women Engineers Conference	37
Not for Women Only	39
Partner Update: CRWS-BoK	41
Future of Systems Engineering (FuSE)	42
Mentoring Service Launch	43
Quality Management Working Group	45
Requirements Working Group	47
System Engineering Laboratory (SE Lab)	48
Professional Development Portal (PDP)	49
Technical Leadership Institute (TLI)	50
Latest Product Releases	52
INCOSE Library Launch	54
INCOSE International Events	55

Editor's Letter



Dear INCOSE Members,

As we approach the end of the year, I'm thrilled to present our final newsletter for 2023, brimming with highlights and achievements. It's been a remarkable year, and we have much to celebrate, particularly the accomplishments of our leaders, many of whom grace the pages of this issue.

In the spirit of our INCOSE catchphrase, "Connect, Learn, Lead, Prosper," here's a snapshot of what this edition has in store:

1. **Connect:** Meet the new INCOSE leaders, forging connections and charting a dynamic course for our association in 2024.
2. **Learn:** Delve into the insights from our Member Survey, a learning experience that has shaped our future direction.

3. **Lead:** Explore the strides made by our working groups and initiatives in 2023, demonstrating how INCOSE continues to lead in the field of systems engineering.
4. **Prosper:** Discover our latest products and publications designed to help you prosper in your professional journey

Looking ahead to 2024, we're excited about the opportunities that await. Together, we'll continue to connect, learn, lead, and prosper as we navigate the ever-evolving landscape of systems engineering.

Thank you for being a part of our vibrant community. Wishing you a joyous holiday season and a prosperous new year!

Honor Allison Lind, Director of Marketing and Communication
Editor-in-Chief, INCOSE Members Newsletter
honor.lind@incose.net



"The path to success is to take massive, determined action. Along the way, you will learn, grow, and collaborate with others who share your passion. Together, you'll achieve greatness."

Tony Robbins



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Medical Devices & Diagnostics • Precision Manufacturing • Scientific Research



A Message from INCOSE President, Marilee Wheaton



Dear Colleagues,

As I write this piece for the Members Newsletter, it is with the knowledge that this is the last time I will write an article in the Newsletter as the President of INCOSE, two years have flown by and so much has happened in that time.

The last 12 months has been a time of significant change for INCOSE, as we begin the transformation with the introduction of our first Executive Director, changes to the board structure and administration teams. Change can be difficult, but it is essential if we wish to meet our objective of becoming the global voice of Systems Engineering and expand our services to members and the wider community.

Looking back over my presidency, there are so many INCOSE achievements that as a team we accomplished, below are a some of my personal highlights:

- Leading the way in terms of Diversity, Equity and Inclusion (DEI) initiatives with
 - DEI invited panels and sessions at our events
 - Focus articles in INCOSE publications
 - The release of Letters to My Younger Self
- Increased engagement through our events
 - The most successful International Symposium in our history (IS2023)
 - The launch of Calling All Systems
 - New Member Welcome Cafés

- Growth of regional and chapter conferences
- The continued enhancement of INCOSE in person and hybrid events
- Implementing SE Vision 2035 and the FuSE Initiative
- The roll out of the Professional Development Portal
- Improved IT infrastructure and collaboration tools
- Increased INCOSE visibility and outreach through marketing and communication
- Continued growth in Individual and Corporate memberships
- The growing recognition of our global certification program
- The emergence of new chapters

The list could go on including a multitude of technical products produced through our working groups!

You will find more information about the evolving board strategy in this newsletter, with analysis of the membership survey 1,807 of you took the time to complete.

As always, the Members Newsletter is full of updates from the directors, working groups and Chapters so please do take some time to enjoy the newsletter.

Lastly, I would like to thank my board, especially those of coming to the end of their term, for their hard work and passion to see INCOSE and the Systems Engineering Community thrive. Thank you to the administration teams who work tirelessly

behind the scenes to help deliver our vision and of course to you, the members, without whom there would be no INCOSE.

I may be coming to the end of my terms as President, but I intend to still be an active member

of INCOSE and I look forward to meeting and engaging with my fellow INCOSE Members in the coming years.

Wishing you all Holiday Blessings,
Marilee Wheaton, INCOSE President



New Year, New Challenge

**Become an INCOSE
Volunteer in 2024**

**See all the opportunities at
www.incose.org/volunteer**

Board of Directors Spotlight and Thank You to Treasurer, Michael Vinarcik, P.E., FESD

INCOSE is grateful to the Board of Directors and the time spent serving the organization. The Board's work for INCOSE is in addition to the many other aspects of their lives, including their careers, their families, and even other volunteer opportunities.



Michael (Mike) Vinarcik, has been no exception to this during his time as INCOSE's Treasurer and he has been a flagship example of how INCOSE can impact an engineer's growth and career path.

When Mike became an INCOSE member in 2003 he was already well-established as an engineer at Ford Motor Company and by the time he received his ESEP certification, he was working as a Lead Senior Systems Engineer at Booz Allen Hamilton. While he was working towards his current position as Director of Digital Architecture and Requirements Engineering at SAIC's Engineering Innovation Factory, he was also getting further integrated with INCOSE, including acting in various positions such as the Model-based Conceptual Design Working Group lead, the Great Lakes Regional Conference Chairman, the Michigan Chapter Treasurer and President, and a Certification Advisory Board member. His involvement with the industry extends beyond his current position and role at INCOSE, including winning the 2023 1st Annual World Championships of Systems Architecture, Individual Modeler of the Year award.

It should be no surprise what Mike's answer was when asked what advice he would give new

INCOSE members: *"Don't just be a spectator – get involved."* Getting certified allowed him to learn the common language, processes, and concepts of systems engineering. This helped him to participate in the SE community and serve customers more efficiently and with higher-quality outcomes. Mike is right when he says that you ultimately still have to be a good systems engineer and INCOSE certification can help get you there.

"It's an exciting time to be a systems engineer. We are writing the playbook for the future to drive this discipline forward."

While the skillset is important, it was participating in the community and engaging with the working groups that allowed Mike to connect with notable people around the world in the industry from different domains. Connect with your [local chapter](#) and go to an event, join a [working group](#), or consider a [volunteer opportunity](#). As Mike says, *"You never know when getting involved with something or attending an event will give you a networking connection or opportunity in the future."* When Mike hands off the role of INCOSE Treasurer to Alice Squires in January 2024, he plans to continue to stay active in his local chapter and be involved with INCOSE where he can.

From all of INCOSE, thank you, Mike, for your time on the Board and thank you for all that you have done for the organization.

By Kelly Henseler



2024
Annual **INCOSE**
international workshop
HYBRID EVENT
Torrance, CA, USA
January 27 - 30, 2024

WHAT IS #INCOSEIW?

The INCOSE International Workshop is the premier international event for engaging in working sessions, contributing your knowledge and experience to move the state of the discipline forward. Attendees build networks, perform activities, and produce outcomes beyond their typical network and focus area.

Whether you are already involved in a working group or simply curious to discover what is happening in INCOSE, it's an opportunity not to be missed for sharing and networking with friends and colleagues!

Dates

Saturday 27 January –
Tuesday 30 January, 2024

The Venue

Torrance Marriott Redondo Beach
3635 Fashion Way
Torrance, California 90503 - USA



PROGRAM HIGHLIGHTS

As well as the numerous regular working group meetings, this year's cross-cutting themes are:

Safer Complex Systems

Join industry leaders and experts to explore strategies for cultivating systems engineers capable of exerting influence over the safety of increasingly intricate systems. Delve into stakeholder engagement, narrative building, and consensus-building as essential tools to navigate the challenges posed by modern complex systems.

FuSE: Shaping the Future of Systems Engineering

Dive into sessions with a specific focus on developing the 2024 product and services portfolio. Your participation is crucial to collectively shape the foundations, vision, methodologies and applications of SE, and propel it into the future. Join to forge connections and contribute your expertise to this dynamic journey.

MBSE (Model-Based Systems Engineering) workshop

Join us on the cutting-edge of systems engineering for a riveting workshop! MBSE is the formalized application of modeling to support system requirements, design, analysis, verification and validation activities - beginning in the conceptual design phase and continuing throughout product development to retirement.



21,000+
Members



70+
Chapters



80+
Countries



130+
Corporate Advisory
board Members



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Stay tuned for more! www.incose.org/IW2024

#INCOSEIW - Join the conversation

Registration is Open for IW2024

A promotional banner for the 2024 Annual INCOSE International Workshop. On the left, there is a logo featuring a globe made of squares, with the text '2024 Annual INCOSE international workshop HYBRID EVENT Torrance, CA, USA Jan 27 - 30, 2024'. The main text in the center reads 'REGISTRATION IS OPEN FOR #INCOSEIW 2024' and 'Get an overview and book your hotel!'. On the right, there is a photograph of a group of people, some with their hands raised, suggesting an interactive or celebratory atmosphere.

It's time to register for the Annual INCOSE International Workshop taking place Saturday 27 January to Tuesday 30 January at the Torrance Marriott Redondo Beach - Torrance, CA!

INCOSE's International Workshop is the event of the year for systems engineers to contribute to the state of the art. Unlike INCOSE's annual International Symposium and other conferences, there are no paper, panel or tutorial presentations. Instead, attendees spend 4 days working alongside fellow systems engineers who are there to make a difference. IW2024 will focus on:

- Safer Complex Systems
- Future of Systems Engineering (FuSE)
- Model Based Systems Engineering (MBSE)

Systems Engineers at all levels and from all backgrounds are encouraged to engage in working sessions, and contribute their knowledge and experience to take the discipline forward. IW2024 facilitates a moment and a place where attendees shall build networks, perform activities, and produce outcomes beyond their typical network and focus area.

Reserve your space now for the event that brings together Systems Engineers of all levels and backgrounds to enjoy ample opportunities for collective work. As well as the numerous regular working group meetings, this year's cross-cutting themes include: Safer Complex Systems, the FuSE streams and MBSE workshops. As a hybrid event, a selection of sessions will also strive to include virtual attendees as much as possible.

For an optimal experience, couple your in-person participation with accommodation at the venue, where a limited number of rooms are available for attendees at a special group or government rate. Seize this chance to contribute to the state of the art in your field, in an ideal working environment!

Attend the International Workshop to engage and collaborate with leaders in the systems engineering profession.

Collaborate on technical topics with fellow thought leaders and build the future of INCOSE and the systems engineering profession.

Register Now

Unlock the Future of Systems Modeling with SysML v2 at IW2024

Join us at the SysML v2 Transition Information Session during the INCOSE IW 2024 on Sunday, January 28, 2024, from 09:00 – 5:00 PM PT. This exclusive full-day event is your gateway to learn about transitioning from SysML v1 to SysML v2, the next generation systems modeling language.

Invaluable Insights: Gain exclusive access to results from the SysML v1 to SysML v2 Transition Guide Project, sponsored by the Director of Digital Engineering, Modeling and Simulation within the DoD Office under Secretary of Defense for Research and Engineering (OUSD(R&E)). Learn about Frequently Asked Questions, the SysML v1 to v2 model conversion approach and the critical planning required for a successful transition.

Comprehensive Topics: Delve into the essentials of SysML v2, including an overview, a side-by-side comparison with SysML v1, and a hands-on walkthrough of a SysML v2 starter model.

Expert Perspectives: Hear from industry experts on organization transition planning, with presentations and panels from the DoD Services, Industry, and insightful vendor approaches to

SysML v2. Our dynamic lineup of speakers will provide practical guidance to empower your organization for a smooth transition.

Why SysML v2?

Embrace the future of model-based systems engineering with SysML v2 approved as a beta specifications on June 30, 2023, and final specifications anticipated in 2024. SysML v2 empowers you to model increasingly complex systems, offering complementary textual and graphical representations for enhanced system understanding. A standard API and associated set of services enable seamless interoperability with other tools and software applications throughout the system development life cycle.

Don't miss this opportunity to kick-start your transition journey and elevate your MBSE approach. Seize the future with SysML v2 and revolutionize the quality of your system models!

By Frank Salvatore

[Register Now](#)



INCOSE CIO Barclay Brown, Ph.D. Reflects on Years of Service

A Chief Information Officer's job exists behind the scenes – making the organization run more smoothly through effective information technology strategy and implementation. INCOSE's CIO Barclay Brown has done just that at the helm since 2013.



"It may sound strange, but one of the main accomplishments in my first board position as Director of the Americas actually was the identification of the needs and opportunities for information systems that would better support collaboration across chapters, groups, and members," he said.

New systems in place during Brown's term as CIO include Rhythm, Microsoft 365, Vimeo, and PropFuel, as well as new in-house systems including PDP and the INCOSE Library.

"We've developed many thousands of lines of in-house software to integrate these systems in operation, report on key information, and enable new capabilities," he said.

It's not exactly what he thought he'd be doing when he joined INCOSE. *"I was tricked into a leadership role,"* he joked. *"When I first joined INCOSE I attended a Washington Metro Area chapter meeting and they announced that their chapter secretary had just left the area and they needed a new chapter secretary volunteer to finish out the term—about six months. I went for it."*

Brown's path to Systems Engineering is similarly unusual. He earned a B.S. in Electrical Engineering

at Virginia Tech, an M.A. in Psychology at University of West Georgia, an M.B.A. at Kennesaw State University, and then a Ph.D. in Systems Engineering at the University of Central Florida. He joined INCOSE in 2003.

"I've always felt that anyone who is a professional of any kind should join and support their professional association," he said. *"At the time I worked for IBM, in a group that made software products for systems engineers, so IBM supported my participation."*

His first board position was Director for the Americas.

"After a Ph.D. and an ESEP [certification], the next best thing I've done for my career is to volunteer for challenging things," he said.

INCOSE's new Director of Technology Jay McGraw will continue the good work Brown started with platforms such as Rhythm.

"Rhythm includes a comprehensive registration system for all kinds of events and meetings," Brown said. *"My successor will be making that available to all parts of INCOSE as a service to unify and coordinate event registration."*

Brown said he has more to do in INCOSE, though. He will continue to lead two working groups: AI Systems and Quality Management.

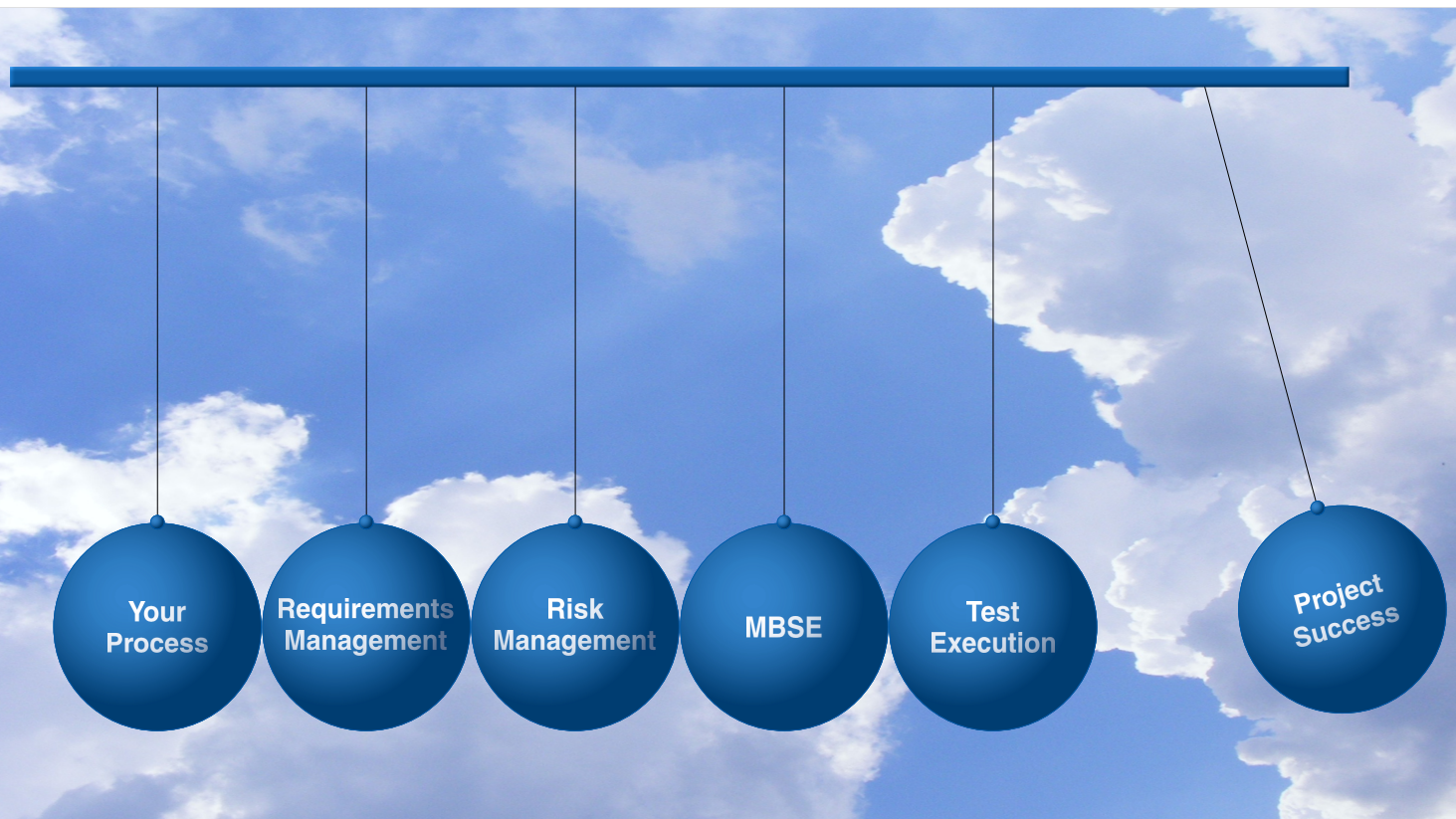
"It will be nice to focus on technical aspects again," he said.

By Beth E. Concepción

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To our customers of many years, 3SL would like to say a warm **“Thank you!”**

Kirk Michealson Hangs Up His Many Hats for Retirement



Kirk Michealson is the first to tell you that he is not a systems engineer, but he's wrong. The retired Navy man forged an impressive career in operations research analysis for the likes of Capital One, Lockheed Martin and the Pentagon.

But it's his eclectic resume at INCOSE that showcased just how versatile his background could be. The soon-to-be-former Director for Outreach concludes his career this year as he settles into retirement.

"When I say that I'm not a systems engineer, [others] say 'Kirk, you're more of a systems engineer than other system engineers I know,'" Michealson jokes.

Michealson's start in the military primed him for a lifetime of tackling full plates and fearlessly jumping into new roles. In 2014, he started his own consulting firm. This fortuitous venture would lead to a partnership with former INCOSE President Garry Roedler.

Roedler welcomed Michealson into the INCOSE family in 2018 as a member of policy

management. Before long, he became Policy Management Chair. In 2019, he began working with outreach for INCOSE, which would lead to his role as Director for that program.

Michealson looks back fondly on several key accomplishments during his time on the board. As Policy Management Chair, he oversaw the improvement and implementation of 95% of the program's 80 policies. Sixty of those have been converted into in-depth manuals.

But Michealson's pride and joy is the Professional Development Portal (PDP). The ever-evolving educational tool is moving toward its second phase and Michealson is proud to see the portal continue to grow past his tenure.

For now, Michealson is excited to spend more time with his family and working on his wife's "Honey-Do" list.

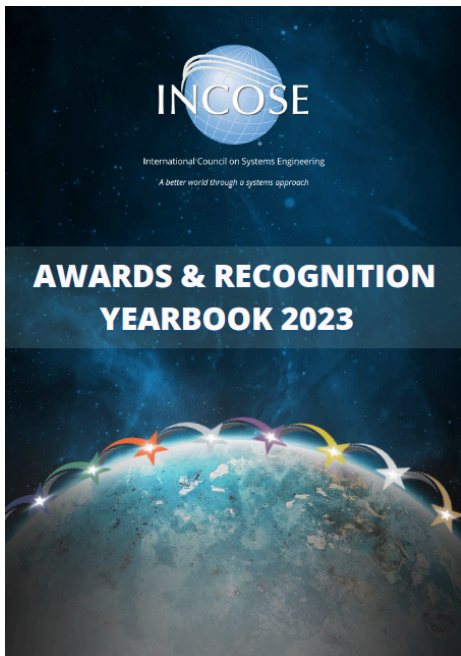
Bernardo Delicado will succeed Michealson as Director for Outreach.

By Chase S. Wilkinson



The Professional Development Portal (PDP)
Now Available at incose.org/pdp

Your source for systems engineering professional development



INCOSE Awards and Recognition Yearbook 2023

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Important Reminder About Fee Increase for Members

Over the past several years, INCOSE has continuously increased the value to our members through additional products, webinars, events, training, influence of standards, and collaboration with strategic alliances. At the same time, we have tried to keep membership fees at a minimum, avoiding any increase in fees since 2019.

In order to continue to meet the organization's financial needs and continue to focus on influencing the future of Systems Engineering, our mission and our vision, we need to now increase our membership fees. This notice is to remind you of about the upcoming change.

Effective 1 January 2024, INCOSE membership fees will increase in all individual membership categories as shown below so that we may maintain the quality of our programs, initiatives, investments, working groups, seminars, training, and influence.

The Board of Directors is aware that any increase in dues may cause some hardship for our members, but the Board of Directors also has a fiduciary responsibility to our members to structure a sustainable financial model as INCOSE grows and matures. In the past year, we have established the foundation of new value streams

Member Type	2023 Member Fees	2024 Member Fees
Regular PPP Band 1	\$160.00	\$175.00
Regular PPP Band 2	\$120.00	\$130.00
Regular PPP Band 3	\$80.00	\$85.00
Senior	\$90.00	\$100.00
Student	\$50.00	\$50.00
Transition to Regular PPP Band 1	\$105.00	\$115.00
Transition to Regular PPP Band 2	\$80.00	\$85.00
3 Year Regular	\$445.00	\$475.00
5 Year Regular	\$690.00	\$745.00
3 Year Senior	\$250.00	\$275.00
5 Year Senior	\$395.00	\$440.00

Note: Memorandum of Understanding (MoU) countries do charge membership fees in local currencies and may also charge an additional fee on top of the published fees.

that will provide additional sources of revenue for the organization and help reduce the dependency on membership fees as the primary income source. At the same time, these value streams will concurrently provide more products and services for our members, building the value provided by INCOSE.

Note: The Corporate Advisory Board membership fees are not impacted by this change. They are maintained on a different cycle.

The INCOSE Board of Directors is dedicated to moving forward with our mission and vision,

influencing the evolution of Systems Engineering and helping provide resources for professional development and performance. We sincerely appreciate the dedication, commitment, and continued membership of all of our global INCOSE members.

Yours sincerely,

Marilee Wheaton
INCOSE President

MEMBERSHIP SURVEY

Surveys and Strategy: Plotting a New Path forward for INCOSE

INCOSE published Systems Engineering Vision 2035: Engineering Solutions for a Better World (Vision 2035) in 2021, framing our vision for the discipline of systems engineering and the role it must play in addressing challenges at the product, enterprise, and societal levels.

Vision 2035 is a guiding document for INCOSE, helping to align our members and our efforts going forward including the Future of Systems Engineering (FuSE) initiative. But a vision for the discipline and a vision for our organization are different.

In 2023, INCOSE began developing a new INCOSE strategic plan – one aligned with Vision 2035. The plan builds upon the foundation established by the hard work of members over more than thirty years while furthering our vision, mission, and values. It honors our past while embracing our

future and the steps necessary to advance the needs of our members, organizations, practice, and discipline.

In July, INCOSE launched a survey to inform our new strategic plan with the voice of the members. This survey is part of a 3-pronged approach to establish a data-driven underpinning for the strategy. The other prongs are a SWOT survey (strengths, weaknesses, opportunities, and threats) conducted in early 2023 eliciting insights from international, sector, and chapter leaders and a series of structured interviews complementing our internal perspectives with those of industry leaders outside of INCOSE.

We received 1807 responses from INCOSE members and CAB associates representing a 9% response rate which is good for a professional association engagement survey.

Executive Summary

Member Engagement



72% of members are engaged, with 85% planning to renew their membership and 82% referring INCOSE to others

Membership is 12pts higher in Regular Members versus CAB Associates

Engagement is highest in your most senior members (Executives, 55+ years of age, and those who joined 10+ years ago) and those more closely connected to INCOSE (leadership role, section role, membership)

Membership Experience



The majority (63%) of members feel that the value of membership is inline with the cost of dues, with another 14% feeling that the value - to-cost ratio is high

Members widely agree that publications, technical products, and online resources are the services that add the most value

Less than 1/3 of members have attended IS or IW in person, and 50%+ would attend in person if conference, lodging, and/or travel costs were lower

Impact on Engagement



There is a strong connection between perceptions of membership value and engagement...engagement is 2x higher when members feel they get more value than the cost of membership

Engagement is consistently higher in members who attend INCOSE services and conferences in person, followed by virtual, and lowest in those who do not attend

We were pleased to see balanced participation rates and results across the three sectors (Americas, EMEA, and Asia Oceania). Rather than seeing notable differences based upon sector, the greatest differences emerged across different age groups as well as differences in engagement and value perception between members and CAB associates.

Nearly 3/4 of respondents are 'engaged' according to the engagement index calculated from the first eight questions by Kincentric, the third-party firm engaged to conduct the survey. For a membership organization such as INCOSE, higher engagement reflects greater mission alignment with INCOSE, advocacy/promotion of INCOSE, and volunteer effort on behalf of INCOSE – all things that advance our mission and vision. The engagement score increased by age and by the amount of time an individual has been associated with INCOSE. Based upon this data from the member survey, INCOSE structured its Q3 strategy session with international and chapter

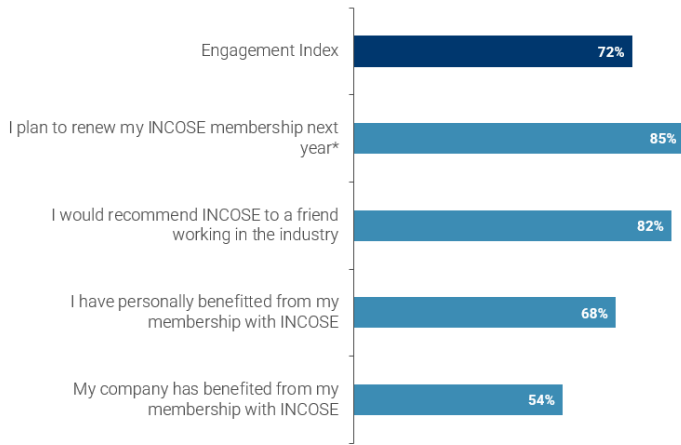
leaders around two challenge areas:

- How to engage and retain early career members
- How to provide more value to our member organizations (including better communicating the value currently provided)

Digging deeper into the INCOSE member experience, the majority of respondents felt the value-to-cost ratio of membership is 'about right', again with the positive assessment increasing with age. The greatest value is derived from technical products (e.g., the SE Handbook, primers), publications, and online resources. Respondents were most favorable about having learned something that benefitted their organization, built their technical skills, and feeling connected to the industry. They were least favorable about INCOSE helping to progress their career, achieve a promotion, or find a new job – all opportunities for INCOSE to address in the future.

As we look to how respondents like to consume

Member Engagement Overview



*Only asked to Members (non-Associates)

technical materials, we see a difference based upon the age of respondents. Early career individuals favor short videos whereas senior individuals favor books and guides. Regardless of age, there is no single format that addresses all needs. This reflects another opportunity for INCOSE as we move forward and try to better package technical content for consumption and use.

As we look to the critical role our chapters play in fulfilling our mission, networking and tutorials were identified as the most important services by respondents. Meetings were close behind with local working groups being the lowest priority but still valued by respondents.

The final observation is that member engagement was highest in those respondents that attend INCOSE events and chapter meetings. In-person participation is stronger than virtual participation, but the greatest separation is between those who participate and those who do not. Put another way, those who attend local, regional, and international events build stronger networks across INCOSE and derive more value from their membership.

Those interested can access the full executive

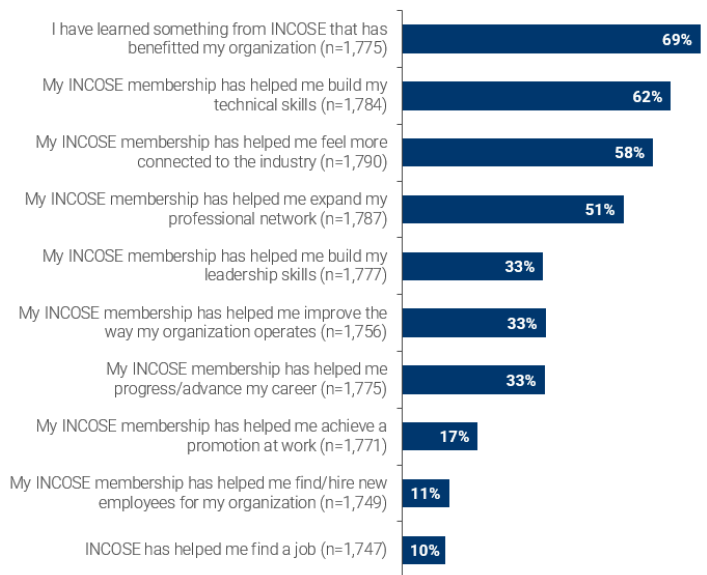
briefing of the survey results from INCOSE iNet.

Where do we go from here?

Conducting the member survey to gather the insights is important, but it is only the first step. The more important question is how we choose to act upon them. As previously noted, INCOSE is leveraging these insights alongside those from the leadership SWOT survey and structured interviews of external leaders to gain a more complete picture of strengths and opportunities. INCOSE's Strategic Planning Committee comprised of select Board members, chapter leaders, and other representatives has been digesting this information, asking additional questions, and beginning to formulate a new INCOSE strategic plan to guide us into the future.

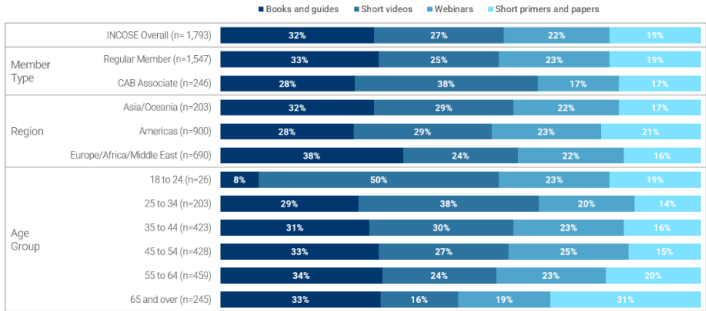
The new strategic plan will be a living document to communicate our shared priorities, strategies, and supporting tactics. It will guide us as we decide in which initiatives we should invest time and energy. It will help us direct strategic investments made at the international level, and more importantly, provide insights that enable chapters and working groups to naturally align their organic initiatives.

Membership Outcomes



MEMBERSHIP SURVEY

Version 0.75 of INCOSE's new strategic plan will be complete by the 2024 INCOSE International Workshop. We are specifically targeting a 0.75 draft reflecting objectives, key results, and strategies so that we can communicate a sufficiently mature plan to elicit feedback. We want this strategic plan to reflect insights, aspirations, and priorities representative of chapters and leaders across INCOSE.



A special Town Hall to share the draft plan and path forward will be held Sunday, 28 January from 0800-0900 PST and open to all IW participants, in-person and virtual. This Town Hall will launch our communication campaign as we share the current version, elicit insights, and ultimately finalize a strategic plan reflecting our path forward advancing INCOSE and advancing the discipline of systems engineering.

By David Long, Director for Strategy,
david.long@incose.net



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The School of Systems and Enterprises (SSE) at Stevens Institute of Technology invites applications for full-time (9-month), tenured or tenure-track faculty and teaching-track faculty positions, starting in Fall 2024 or on a mutually agreed upon date.

In particular, SSE seeks candidates who will contribute to dynamic and growing research and educational programs in: **systems engineering** and/or space systems engineering (including complex engineering systems, operations research, AI/ML, cyber-physical systems and their underlying enabling and embedded technologies) and **software engineering** and design (including cybersecurity, emergency behavior, machine learning, artificial intelligence and data engineering).

For more information and to apply, visit the Stevens Job Portal at:

<https://stevens.wd5.myworkdayjobs.com/External?q=sse>



For more
information



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Bringing environmentally compliant products to market requires a sustainability framework that can provide full transparency across the product or asset lifecycle. Most A&D companies have been making great progress in their journeys toward digital transformation maturity, establishing systems for configuring and connecting data. When companies complete those steps, what comes next? As you focus on digital transformation maturity, it's important to leverage the Siemens Xcelerator portfolio to achieve these goals. Tune into the **Talking Aerospace Today** podcasts to learn more about how you can adopt an open, scalable and flexible solution to drive digital transformation and increase digital maturity.

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Welcome to the New and Renewing Corporate Advisory Board (CAB) Members

INCOSE is proud to welcome all the new and renewing Corporate Advisory Board Members since the Q3 2023 issue of this newsletter. Thank you for being a part of the CAB and helping to shape the future of systems engineering and global standards.



Corporate Advisory Board membership allows organizations to guide the direction of the SE discipline

- Members and Associates gain access to state-of-the-art products.
- Align with peers and fellow industry leaders, grow your global footprint, and learn about how other industry leaders are applying systems engineering to solve business problems.
- Gain better access to talent - find and hire competent, certified Systems Engineers through your INCOSE connection

JOIN THE CAB TODAY

Calling All Systems: A Global Triumph in Systems Engineering Collaboration



In March 2023, INCOSE launched "Calling All Systems," a series of online panel discussions that brought together 22 industry leaders and experts from the global systems engineering community.

With an impressive turnout of over 1,300 attendees representing 45 countries, Calling All Systems has made an indelible mark on the landscape of systems engineering. This success is a testament to the collaborative efforts of professionals worldwide coming together to advance knowledge and awareness in the field.

We extend our heartfelt thanks to the series sponsor Dassault Systèmes, as well as our session sponsors Siemens, BigLever Software, IBM, and SPEC Innovations. Their invaluable support played a pivotal role in making this event a resounding success.

All sessions from Calling All Systems are now available on the [INCOSE YouTube channel](#). We invite you to explore these sessions, share them with your network, and join us in the ongoing conversation about the future of systems engineering.

As we celebrate the success of Calling All Systems, we also look forward to future events and initiatives by INCOSE that will continue to drive excellence and innovation in the field.

Thank you to everyone who contributed to the success of Calling All Systems and for being a part of this global movement in advancing systems engineering!

The sessions which took place in 2023 are:

The Future of MBSE, sponsored by Siemens

SIEMENS [Watch the replay](#)

Product Line Engineering: Are You Missing a Piece in Your Digital Engineering Puzzle?, sponsored by BigLever Software

BigLever [Watch the replay](#)

Sustainability, sponsored by IBM

IBM [Watch the replay](#)

Models in Space: From Theory to Practise: Applying Modeling to Space Venture, sponsored by Dassault Systèmes

DASSAULT SYSTEMES [Watch the replay](#)

The Future of Systems Engineering: Navigating Tomorrow's Challenges: Building the Future of Systems Engineering, sponsored by SPEC Innovations.

SPEC INNOVATIONS [Watch the replay](#)

Thank you to the Series Sponsor Dassault Systèmes



[Calling All Systems Webpage](#)

Women Leaders Empowering Systems Engineering



Welcome to the EWLSE leadership team Newsletter

All INCOSE members are welcome to join the Empowering Women Initiative (you can join by going to your incose.org Profile > Join A Working Group > Empowering Women), and the Empowering Women Yammer community (web.yammer.com) to share your positive news and examples of empowered leaders in systems engineering. We would love to hear from you! Please feel free to follow up with the EWLSE leadership team with greetings, queries, comments or stories at ewlse-leaders@incose.net.

EWLSE at Asia Oceania Systems Engineering Conference (AOSEC) 2023



EWLSE organized a panel discussion and post conference workshop at the recent AOSEC Conference 2023 held in Bengaluru, India. This was the 14th Asia Oceania Systems Engineering Conference - a premier international conference on Systems Engineering in the Asia Oceania region. AOSEC has become a well-established platform for knowledge sharing and collaboration among experts in the field of systems engineering.

The conference theme for AOSEC 2023 was "Digitalization for Engineering Complex Systems." Model-Based tools and techniques enabled by interoperability leverage Systems Engineering to manage complex product and service development.

The panel discussion was held on Day 2 of the conference. The topic of the panel was Advancing Engineering Excellence: Skills for Navigating the Digital Frontier. The panel focused on discussion of advancing engineering excellence in the digital age requires a combination of traditional engineering skills and a proficiency in emerging technologies. Engineers need to navigate the digital frontier by acquiring a diverse set of skills that enable them to thrive in an increasingly complex and dynamic environment. The panelists included

- Erika Palmer, Systems Engineering Program faculty at Cornell University, New York and INCOSE Deputy Technical Director and Deputy Lead of the FuSE Initiative
- Spring Beasley, Senior Director, Airplane Level Engineering Integration Boeing Commercial Airplanes
- Priyamvada Santhanam, Vice President - IT for EE&SW development, Mercedes-Benz India
- Lakshmi Ravishankar, Technology Director (Advanced Technologies Development), ADA

The panel was moderated by Arpita Srivastava, Senior Systems Engineer, John Deere India and INCOSE India Committee Member.

A leadership workshop on the theme of Resilience Leadership was organized post conference on

DIVERSITY, EQUITY & INCLUSION

14th October 2023. The workshop was facilitated by professional leadership coaches, Aparna Devagiri and Monica Pillai. "I Rise - A Toolkit for Contemporary Professionals" was the title of the workshop. There were 14 participants in this 8-hour workshop.

A key trait for successful women professionals is resilience. Whether it is adapting quickly to tech changes, or managing work and life; returning to work after a long break or dealing with the ups and downs of life, resilience matters!



The facilitators were challenged to create this as a zero ppt session, an activity filled day and focused on experiential learning. While the concepts shared were general, the takeaways were intensely personal learnings applicable to their individual context.

The facilitators weaved with storytelling, personal experience sharing, two self-assessments leading to self-reflection. One of the self-assessments provided an insight into resilience and transactional analysis drivers which presented five characteristic working styles. The other self-assessment helped participants to assess their seven traits of change-readiness.

"The EWLSE Workshop on Resilience Leadership, called "I Rise: A Toolkit for Contemporary

Professionals", was a tremendously touching and thought provoking journey. Aparna and Monica took us through a whirlwind of our own life's journey and really got us to think about our thoughts and feelings in intense situations. Through various such exercises we came to realize how we grew to become increasingly resilient through our life experiences. It was so motivating to listen to some amazing, and several relatable, experiences of others in the group, their learnings through life, along with thinking of, and sharing, our own. The feeling that we are not alone is what stood out; that it is these difficult times that make us better leaders, capable of handling tough situations with ease." – Aparna Kansal, INCOSE India Technical Officer

"The conference ended with a post conference workshop on Empowering Women Leadership in Systems Engineering (EWLSE). It was an inspiring and empowering experience, with insightful discussions and a network of amazing women in the field. Highlight of this workshop was the discussion that triggered after the story narration of the Frog and the Nightingale!" – a workshop participant.

EWLSE Leadership team,
ewlse-leaders@incose.net

EWLSE thanks Caltech for their support as EWLSE Sponsor

Caltech



CHAPTER UPDATES

 Click on the chapter logo to go straight to their update



Asia Oceania Systems Engineering Conference 2023



From October 11 to October 14, I had the privilege of participating in the Asia Oceania Systems Engineering Conference 2023, held in the vibrant city of Bangalore. It was an incredible experience filled with knowledge sharing, networking, and unforgettable moments.



Throughout these four days, I had the opportunity to engage in intense brainstorming sessions and workshops alongside some of the world's most brilliant systems thinkers. It was truly an intellectually stimulating environment.

One of the highlights was getting to know more about Serge Landry extraordinary extracurricular activities and his acute sense of humour. I also discovered Ralf Hartmann's passion for food and his remarkable efficiency in managing and leading a large organization like INCOSE.



Meeting Steve Records, CAE and hearing his insights on the future of INCOSE was enlightening, and learning about Erika Palmer's work in FuSE and Sustainability was inspiring.

I'd like to extend my heartfelt thanks to the INCOSE India Chapter for providing me with the opportunity to represent three INCOSE working groups. Their meticulous planning and flawless execution made this event a massive success. I would also like to express my gratitude to HAL for generously offering their Management Academy's auditoriums.



It was an intellectually enriching and enjoyable experience, and I look forward to future opportunities to connect with this remarkable community.

By Aryes Lahiry, Co-Chair Asia-Oceania Sector, Configuration Management Working Group





Valkand Jhaveri, reports from the Asia Oceania Conference 2023

This was my first time attending our sector 3 conference. The conference was also supported by local NDIA and SAE organizations. The conference had excellent presenters and keynote speakers with multiple tracks and a few workshops. It also had also a workshop on the diversity and women leadership. We had over 300 attendees and multiple panels lead by the local industries. This conference was held at one of India's top Aerospace and Defense establishments. INCOSE's President Elect Mr. Ralph Hartman, the INCOSE Chief Executive Director Mr. Steve Records and the INCOSE Asia Oceania Director Mr. Serge Landrey all attended the conference. Ms. Stueti Gupta (Past India Chapter President) was one of the main organizers of the conference. The Grand opening ceremonies were performed as per local Indian traditions.



The attendees were from many diverse areas of Asia. I had numerous conversations with young engineers for my experience of Systems engineering and especially in the USA experience. The technical program is available on the website. I was very happy to see young professionals engaged in systems engineering.

The attendees were from many diverse areas of Asia. I had numerous conversations with young engineers for my experience of Systems engineering and especially in the USA experience.



The diversity / women in leadership session was in my opinion one of the best sessions with lots of discussions.

We did have an INCOSE booth with QR codes for the INCOSE website, membership and certifications area which were well received. Alongside this there were booths from local IT and Aerospace companies. They were well received.

By Valkand Jhaveri



(China) Beijing Chapter



The 2023 International Conference on Complex Systems Design and Management (CSD&M2023) and INCOSE Beijing Summit 2023 were successfully held in Beijing October 30-31, 2023.

It is co-organized by the Chinese Society of Aeronautics and Astronautics (CSAA) and the French non-profit organization CESAMES; being hosted jointly by CSAA, Department of Engineering of Tsinghua University and AVIC Digital. It's co-operated by the AVIC Xi'an Flight Automatic Control Research Institute and a few national societies in related fields, including the Chinese Mechanical Engineering Society, China Electrotechnical Society, Chinese Society of Naval Architects and Marine Engineers, Chinese Institute of Electronics, China Instrument and Control Society, China Ordnance Society and Chinese Society of Astronautics. The China Aeronautical Radio Electronics Research Institute is engaged as a supporter. Being held in China for the second time, it hosted over 260 registered delegates.



In the morning of October 30th, the conference officially kicked off. ZHANG Xinguo, Co-Chair of CSD&M2023, Distinguished Professor at Tsinghua University, Director of the Complex Systems Engineering Research Center, Chief Scientist of Chinese Aeronautical Establishment (CAE), President of International Council on Systems Engineering (INCOSE) Beijing Chapter, INCOSE ESEP, AIAA Fellow, RAeS Fellow, delivered the opening address.



Daniel KROB, Co-Chair of CSD&M2023, President of CESAMES, Institute Professor, Ecole Polytechnique France, Distinguished Visiting Professor, Tsinghua University, INCOSE Fellow, delivered the opening address.

YAO Junchen, Chair of Organizing Committee and VP & Secretary General of CSAA, delivered the welcome address. After the opening ceremony, Prof. ZHANG Xinguo chaired the keynote lectures.

During the morning session, Prof. Daniel KROB gave a presentation entitled "Systemic Digital Twins: The Example of the Transformation of Dunkirk's Port". QIAN Zhongyan, Director of COMAC Beijing Aircraft Technology Research Institute (BATRI), delivered a lecture on "Application of MBSE in Commercial Aircraft Development". Guy André BOY, Fellow of INCOSE and the International Academy of Astronautics (IAA), Professor of Paris Saclay University and Bordeaux University, lectured on "Human Systems Integration (HSI)". In addition, the co-host AVIC Digital, the gold sponsors of Dassault Systèmes and pure-systems shared their successful stories. Dassault Systèmes held a workshop in the afternoon of October 30th with more than 100 delegates.

CHAPTER UPDATES: ASIA & OCEANIA SECTOR

This conference received nearly 60 paper submissions, out of which 36 were accepted after peer review. The papers were presented in two tracks on the afternoon of October 30th and the morning of October 31st. The topics covered systems, fundamental principles of systems, system architect and engineering, MBSE, industrial applications of big data, manufacturing systems, system modeling and simulation, system optimization, project management, system security, service systems, system technology and policies, system verification and validation as well as their applications in aerospace, automotive, rail transportation, logistics and supply chain management.



There were several exhibitors in attendance, including CSAA, CESAMES, Industrial Engineering Department at Tsinghua University, AVIC Digital, AVIC Xi'an Flight Automatic Control Research Institute, China Aeronautical Radio Electronics Research Institute, and gold sponsors of Dassault Systèmes and Pure Systems, silver sponsor of Shanghai PGM Technology Co., Ltd.

Finally, Prof. Daniel KROB promoted CSD&M2024 which will be held in Paris during December 12-13, 2024.

Please stay tuned to www.csdmconference.com for call for papers and other information on past and ongoing events.



The keynote lectures continued during the afternoon of October 31st as the rich program of INCOSE Beijing Summit, chaired by Prof. Daniel KROB. WANG Feiyue, IEEE Fellow, researcher of Institute of Automation, CAS, gave a presentation entitled "Foundation/Infrastructure Systems and Foundation/Infrastructure Intelligence: A New Frontier for Systems Engineering and Systems Intelligence". Antoine RAUZY, Professor of Norwegian University of Science and Technology, gave an online presentation entitled "Towards Simulated System Architecture with Sigma". ZENG Wen, President of AVIC Digital gave a presentation on "Research and Practice on System Virtual Integration Framework for Aircraft Overall Design". ZHANG Wenfeng, Deputy Chief Engineer, Aerospace System Engineering Institute gave a presentation entitled "MBSE Exploration in Launch Vehicles". Pierre VIALETES, CIO, Airbus China, gave a presentation entitled "Airbus China Digital Manufacturing Optimization: Achievements and Challenge".



The conference proceedings have been published with Springer on its LNEE (EI-indexed). One may purchase online: <https://link.springer.com/book/10.1007/978-981-99-6511-3>.



(Korea) KOSSE



In celebration of its 12th anniversary, the Korean Society of Systems Engineering held the 2023 Fall Academic Conference at Seoul National University of Science and Technology from November 10th to 11th, 2023.

The conference was held under the theme of 'Acceleration of System Engineering Using AI'.

The opening remarks and congratulatory remarks by Lee Joo-yeon, president of the Korean Society of Systems Engineering, were delivered by Seoul National University of Science and Technology President Dong-won Lee, Vice Minister of Trade, Industry and Energy Jang Young-jin, and INCOSE SERGE LANDRY Asia-Oceania Sector Director.

At the KSEA Awards ceremony, Professor Kim Young-min of Ajou University won the Minister of Trade, Industry and Energy's commendation in the individual category, and Core DIT won the group category.

In the keynote lecture, SERGE LANDDY (Asia-Oceania Sector Director of INCOSE) INCOSE's present and future, Kang Eun-ho, former head of the Defense Acquisition Program Administration, plans to sustain the K-defense industry, Hong Soon-man, former head of the Korea Railroad Corporation, SE, technology that creates charm, and Baek Seon-jae, head of the Korea Environment Corporation. The presentation was made on the topic of establishing a watershed management system through sewerage digitalization.

In special lectures, Dong-Hyeon Cho, team leader of the Korea Aerospace Research Institute, opened the era of aerospace on the Nuriho, Kyung-Bae Lee, CEO of AWIZ (former CEO of CJ Olive Young Networks) talked about business digital revolution, and Dr. Joo-Ok Kim of the Korea Railroad Research Institute talked about the upcoming future of logistics-underground. Jong-gi Jeong, CEO of Logistics and Alliance Korea, gave a



presentation on the topics of generative AI, ChatGPT work, and business utilization strategies.

On the second day, a special session and paper presentation was held on the topic of acceleration of system engineering using AI.

The paper session was divided into eight sessions (System Engineering, AI & Metaverse, Defense, Aviation & Space, and Science Technology Police), and about 60 papers were presented.

By JoongYoon Lee



(Thailand) INCOSE Thailand



INCOSE Thailand Takes to the Skies and Beyond

Space and Defense (AD) are highly active industries in Thailand, with organizations and agencies playing crucial roles in advancing these sectors. Among these, Geo-Informatics and Space Technology Development Agency (GISTDA) and the Defense Technology Institute (DTI) stand out as prominent examples. GISTDA is a government agency responsible for developing and implementing Thailand's geospatial and space technology infrastructure. DTI is a research and development organization under the Ministry of Defence. DTI focuses on developing advanced technologies for the Thai military.

INCOSE Thailand recently hosted a two-day webinar in collaboration with INCOSE India and the Engineering Institute of Thailand (EIT). The event, titled "SE Meets Space Agency and Defense Professionals" brought together experts from various fields to discuss the latest developments in SE. GISTDA and DTI delivered keynote speeches and participated in panel discussions, highlighting the complexities of their key operations and outlining their agenda to enhance existing SE processes through MBSE implementation. Experts from BlueKei Solutions Pvt Ltd, the INCOSE Configuration Management Working Group, Kasetsart University (Aerospace Engineering), EIT, Infowave Thailand, and the INCOSE Thailand Defense Working Group delivered technical presentations and participated in a panel discussion. The complete list of webinar committees, host, keynote speakers, technical presenters, and list of Thai universities in INCOSE



Thailand network is published on www.events.incose-thailand.org.

SE-intensive Seminar at EIT's National Engineering 2023

National Engineering 2023, hosted by EIT at QSNCC between November 1-3, concluded with an SE-intensive seminar that brought together experts from industry, academia, and government to discuss the overview, need, and importance of SE and INCOSE Thailand.

Council of Engineers Approves 17 New Engineering Branches in Thailand

In a significant move to expand the scope of engineering expertise in Thailand, the Council of Engineers has approved the recognition of 17 new engineering branches. This decision reflects the growing demand for specialized

engineering skills in various industries and aims to enhance the country's engineering capabilities to meet the challenges of global megatrends. Notably, in 2023, the Engineering Institute of Thailand (EIT), particularly its department of computer engineering, took the lead in promoting SE education and establishing new facilities to equip engineers with the necessary skills and knowledge.

By Vorachet Jaroensawas, INCOSE Thailand Development Working Group

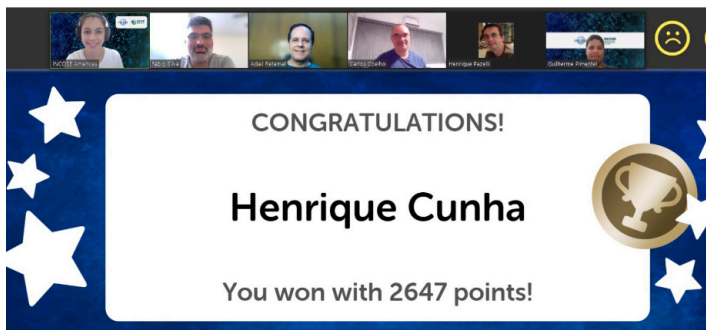


(Brazil) INCOSE Brasil



INCOSE Brasil SEPteMBER Trivia Night

On September 19th INCOSE Brasil, with the support of the INCOSE Certification team, hosted a zoom session for Brazilian SEPs to celebrate SEPteMBER, the month dedicated to promoting and recognizing certified systems engineering professionals across the world.



Raquel Hoffman and Guilherme Pimentel prepared a fun trivia session asking general knowledge questions to members from different

states in Brazil. The winner of the night was Henrique Cunha Pazelli, from São Paulo state, who was awarded with 100% discount on his next certification renewal fee.

INCOSE Brasil would like to thank all SEPs who joined the session and made it even more fun than planned. A big thanks also to Raquel and Guilherme, who organized the session with perfection, as well as Courtney Wright, INCOSE Certification Program Manager, who proposed the event and sponsored the award.

By Fabio Guimarães da Silva, INCOSE Brasil Vice President



BUILD YOUR CAREER IN SYSTEMS ENGINEERING STEP BY CERTIFIED STEP



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WWW.INCOSE.ORG/CERTIFICATION

(USA) INCOSE Emerald Coast



The INCOSE Emerald Coast Chapter is Being Resurrected!

Against the odds, and with local members dealing with the aftermath of hurricanes, insurance issues, and the long-term impacts of Covid and related health concerns, the Emerald Coast Chapter of INCOSE is in the process of rebooting and engaging the membership along the Florida Gulf Coast area. The restart initiatives are being assisted by Renee Steinwand, the INCOSE Americas Sector Director, and Executive Director Steve Records. The focal point for the restart is Dr. Terry Kuykendall, who has served to keep the chapter alive as the de facto chapter president for the past few years.

Dr. Kuykendall stated that "Our chapter is most likely to function, at least initially, as a virtual organization rather than in-person and face-to-face as with most other chapters. We have some inherent logistical issues that make it difficult for our chapter to coalesce around a single population center. Our membership is spread along the coast from Pensacola to Tallahassee, a distance of approximately 200 miles, and from the coast to the Alabama state line, a distance of roughly 50 miles, and possibly beyond. I believe we can have some in-person meetings in the future, but for now as we restart, we will function with videoconferencing and remote connectivity."

"However," he added, "we have a real location advantage with our favorable weather, and we have some of the most beautiful sugar-white sand beaches in the world. This would be a very viable location for a future INCOSE convention or symposium, perhaps working with a centralized tourist-friendly location such as Destin. I'm sure we would see a large turnout of our fellow systems engineers."

The chapter currently is in the process of populating its Board of Directors and is seeking shows of interest from chapter members to participate on the Board. Currently the chapter

basis and operating documents are being updated. Also, there are future plans to include colleges and universities within the geographic region. Anyone interested in information regarding the Emerald Coast Chapter can contact Dr. Kuykendall at terry@evolve-eng-llc.com.



Chapter Leadership

President - Terry Kuykendall

Vice President - Lori Zipes

Secretary - Michael Huelsbeck

Treasurer - Garrett Leavitt

Programs Chair - Lori Zipes (dual role)

Communications Chair - Holly Gardner

By Dr. Terry Kuykendall, President INCOSE Emerald Coast Chapter



(Norway) NORSEC

Fourteen systems engineers gathered on 3rd October 2023 to celebrate the 25th anniversary of the formation of the INCOSE Norwegian chapter, NORSEC.

David Long, INCOSE Director of Strategy, was in town to deliver his keynote “Engineering our Future” during which he reviewed the historical context of systems engineering projects and how our practices must evolve to address dynamic environments, ever-increasing connectivity, and individual and societal needs.

Our host for the day, CENSSS, expanded our appreciation for the challenges of developing products and systems suitable to space exploration and collecting samples on the planet Mars. Svein-Erik Hamran presented the accomplishments of the Center for Space Sensors and System - CENSSS and the RIMFAX instrument on the NASA Perseverance Mars rover. CENSSS is collaborating with NASA, JPL, and Norwegian industry to develop new instruments and sensor systems, New-Space system integration, operation

and exploitation of satellite data. (<https://www.censss.no/>).

Kjell Bengtsson, VP Jotne EPM, explained the intricacies of Innovation in Electrical Wire Harness and Fiber Optical Cable Design and Manufacturing and how digital twinning and other state-of-the-art practices are changing the way systems engineers interact with diverse engineering tools and experts. Kjell has been actively involved with the ISO 10303 (STEP), and other related standards for the last 30 years and manages the extensive R&D portfolio of Jotne projects with the EU and the European Space Agency (ESA).

The remainder of the program included brief topical presentations from NORSEC past presidents Kirsten Helle, Todd Wohling, Cecilia Haskins and current president Satya Kokkula. Satya closed the day with a brief overview of coming events sponsored by the chapter.

By Cecilia Haskins

WORKING GROUPS AND INITIATIVES

IVV Working Group

The Integration Verification & Validation Working Group will meet (hybrid) at the International Workshop 2024 to identify content for a Systems Integration Guidebook and additional guidance on verification and validation that is not included in the current V&V Guidebook.

Suggestions for content or questions to answer are welcome at any time via email to Jim Armstrong at jjimarmstrong29@aol.com.

The IV&V Working Group provides products, and expertise to improve the practices related to system integration, verification, and validation.



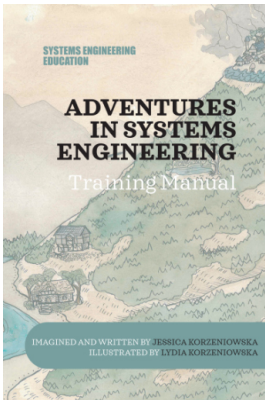
IVV Working Group Webpage



(UK) INCOSE UK

The INCOSE UK Technical Team has been hard at work and we are thrilled to announce the launch of 'Adventures in Systems Engineering' a brand new publication, and 2 new books in the 'Don't Panic!' series.

Adventures in Systems Engineering Manual and Workbook By Jessica Korzeniowska



This book guides trainers in running the 'Adventures in Systems Engineering' training course for early career professionals in all areas of complex engineering projects.

Adventures in Systems Engineering is an interactive fantasy themed training course, designed to present Systems Engineering in an accessible, memorable, and

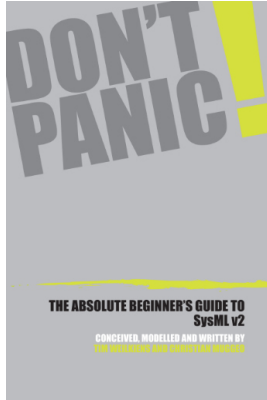
even fun way for everyone. Participants work in teams to define, design and deliver an imaginary rescue system over a simulated full life cycle, all the while journeying across an enchanted valley. Throughout the course, teams encounter engaging characters and scenarios that prompt them to perform Systems Engineering activities.

Available in paperback from the INCOSE UK Online Store. [Click here to get your copy.](#)

Don't Panic! The Absolute Beginner's Guide to SysML v2 By Paul Davies

If you are an existing user of SysML, or are thinking of starting to use it, then this book is for you.

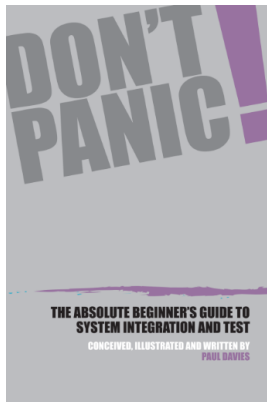
Why? Because SysML version 2 is under development. Unlike the 1.n updates to SysML version 1 which introduced only minor changes, version 2 of the language is a major update. SysML



version 2 has been developed from scratch and is no longer dependent on the UML2 metamodel, but is based in a new metamodel called KerML - the Kernel Modelling Language.

Available on eBook and paperback format. [Click here to get your copy.](#)

Don't Panic! The Absolute Beginner's Guide to Integration and Test



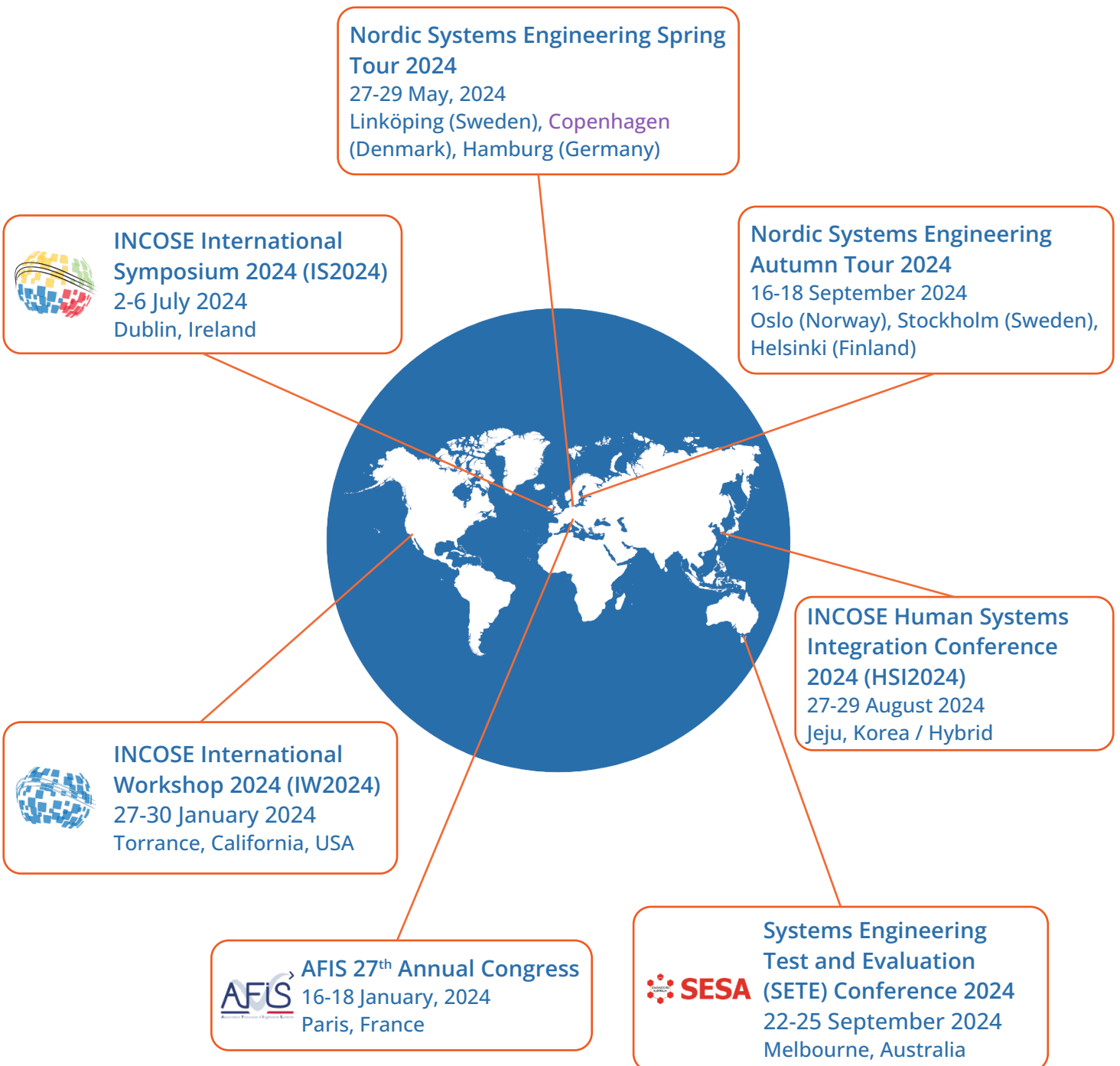
The path to acceptance of a new System is paved with pitfalls. System Elements fail in integration testing, rework follows, then re-testing, and repeat as the full system is synthesised. The whole process can be difficult, time-consuming and inefficient.

But it doesn't have to be. The good news is that principles and processes exist to cover progressive assurance of systems, backed by many decades of cross-industry practical experience. Trying to follow every recommendation can be as financially ruinous as skimping on the integration and testing activities and suffering the resultant rework costs.

Available on eBook and paperback format. [Click here to get your copy.](#)



Upcoming Conferences



Empowering Women at SWE 2023

The 2023 Annual Conference hosted by the Society of Women Engineers (SWE), themed *Live Without Limits*, was held in the bustling, Los Angeles Convention Center.

It was experienced by 17,000 attendees (in-person or virtual) at various phases in their career lifecycle, making it the world's largest conference for women in engineering and technology. SWE held more than 500 sessions, many being both virtual (live and/or on-demand) and in-person, for the second year since changes during the global COVID pandemic. Among the many interactive workshops, empowerment sessions, and networking events offered during the 3-day conference was a multi-day exhibit hall and career fair that lured diverse and inquisitive minds from many domains and fields to a space ripe with opportunities for information, career progression, continuous improvement, and professional development, including academic and training programs.

As in years past, Empowering Women Leaders in Systems Engineering (EWLSE) staffed an INCOSE hosted booth at the exhibit hall. This year's roster included the INCOSE President Marilee Wheaton, EWLSE Founder and incoming Treasurer Dr. Alice Squires, EWLSE Lead Dr. Federica Robinson-Bryant, Outreach Representative Valkand Jhaveri, and LA chapter EWLSE member Victoria Patterson. Throughout the two-day exhibition, the booth welcomed people from all over the world including the United States, Africa, China, India, and Europe.



Marilee Wheaton and Dr. Alice Squires heightened the INCOSE footprint with a provocative session titled *Leading in an Evolving World*, which discussed various gaps in technical leadership competencies in a complex and dynamic world. The speakers engaged with the audience about approaches to address specific gaps using both theoretical grounding and experience. Session attendees were encouraged to stop by the booth to further engage on the topic, adding to the impact of the INCOSE presence at this year's conference.

A range of interest was received from current members looking to engage in the organization in new ways, young engineers seeking to better understand how systems engineering relates to their current experience, and others wanting more information about the organization, its initiatives and the Systems Engineering Professional (SEP) Certification.

Valkand Jhaveri highlighted that *"We had a very good turnout. We had more than 100 attendees come to our booth, and around 50 provided their contact details and expressed interest in Systems Engineering and the INCOSE organization. Several attendees reminded me about my discussions with them from the 2022 conference in Houston, TX, which was a highlight of my experience."*

COMMUNITY UPDATE

Each year brings a slightly different audience to the booth. This year, most of the visitors to the booth were young students and professional engineers who asked about how/why/when to get a degree in systems engineering and how different areas of systems engineering relate to their current education, experience, and career goals. Special attention was given to their uniquely expressed needs and guidance published in INCOSE products like the SE Competency Assessment, SE Vision 2035, Letters to My Younger Self, and the special "diversity" edition of INSIGHT magazine.



Similarly, conversations often led to the value of the SEP certification at various stages - collegiate, professional, and beyond. Attendees were offered certification pamphlets and a robust explanation of the requirements and benefits of each level of certification- e.g., ASEP, CSEP, and ESEP. Each was given an overview of the exam formats available and a general understanding of the implications of the changes to the SE Handbook 5.0 on exam scope.

"My interactions with one individual stood out. She emitted a kind of passion for SE safety that radiated as we conversed. She was a current INCOSE member

with a substantial level of experience, but she wanted to see and do more...she wanted to lead. In my role as Persistence Lead for EWLSE, these interactions drive a much greater sense of purpose and present an invaluable opportunity for the INCOSE organization," Dr. Federica Robinson-Bryant reflected.

Dr. Alice Squires noted: *"Many of the presentations at SWE are heart felt sharing of personal experiences, combined with research, from women who have faced and overcome obstacles in their career. The conference generally focuses on supporting attendees in their lifelong pursuits and career. The conference itself is well attended, is a premiere event for many young women and men in the engineering and related fields and offer a broader venue and focus than what I have found at most engineering conferences."*

As a final event of WE23, EWLSE celebrated EWLSE EMEA lead Dr. Anabel Fraga's receipt of the Distinguished Engineering Educator Award. Dr. Fraga kicked off the award ceremony as the first award recipient with a talk about how empathy and compassion, often seen as a weakness, in fact help us to become a better version of ourselves. She advised: *"Let's make a difference, let's bring more kindness to this world because we need it. Let's be remarkable, let's be extraordinary, and let's be kind."*

EWLSE plans to support the INCOSE booth at SWE 2024 which will be held in Chicago, Illinois from October 24-26, 2024. INCOSE and EWLSE members who live in the area and have an interest in attending to support the INCOSE EWLSE booth at the conference, please contact EWLSE Leaders ewlse-leaders@incose.net.

EWLSE membership is open to all INCOSE members. If you are interested in advocating from women leaders in systems engineering and participating in or receiving news of upcoming initiatives and events, please join us through your INCOSE profile (Join a working group). If you are interested in becoming part of the EWLSE leadership and planning team, please email EWLSE Leaders ewlse-leaders@incose.net.

By Federica Robinson-Bryant, EWLSE Co-Chair and Alice Squires, EWLSE Founder

Not for Women Only

There have been many attempts in recent years to address the “grade gap” between minority and female students and white male students.

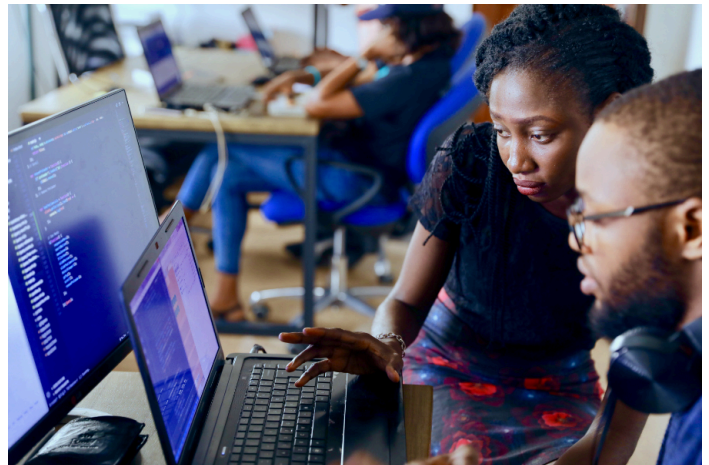
Most of these have tried to do so by lowering standards in one way (perhaps by doing away with gifted and talented or advanced placement courses or by eliminating grades altogether) for all students. One of the latest of these, proposed for the Portland Public School (PPS) system starting in 2025, would prohibit teachers from assigning a grade of zero for late or missing assignments – these would be given a minimum score of 50%; not grading homework or team assignments; and not scoring effort or participation (Schults, 2023). All of these measures are intended to prevent bias in grading.

The case of Maitland Jones Jr. who was fired from New York University after giving low grades to students who performed poorly in his organic chemistry class, illustrates the issue. Jones was quoted in the New York Post (Griffin, October 20, 2022) as saying that he had noted a decline in class attendance and participation over the last several years. He was nonetheless punished for his failure to provide equitable outcomes for all students regardless of their actual performance.



Professors Cassandra Paul and David Webb (reported by Wright, 2023) have proposed a

different tactic to eliminate equity gaps in course grades. Voicing concerns by some that measures like those proposed by PPS to promote inclusion



and equity would diminish excellence in the field of physics (their domain), they focused instead on changing the course structure as a way to address the grade gap. Specifically, Paul and Webb changed the teaching approach to address concepts first, only adding problem solving and calculations-related content in the latter part of the course. They also changed the assessment method and had students take short biweekly quizzes and allowed retakes in the intervening week.

The changes were implemented in a calculus-based physics class and an introductory physics class for non-physics majors. The teaching strategy change resulted in underrepresented students receiving higher grades vs those received in topically organized courses, though it did not close the grade gap between men and women. The retake option eliminated the grade gap for women but not for minority students.

Paul and Webb (in Wright, 2023) provided several explanations for these results. First, students who identify as both women and minority have more of a grade gap than students identifying as just one of these types, suggesting that the observed effects may be differentially impacted by

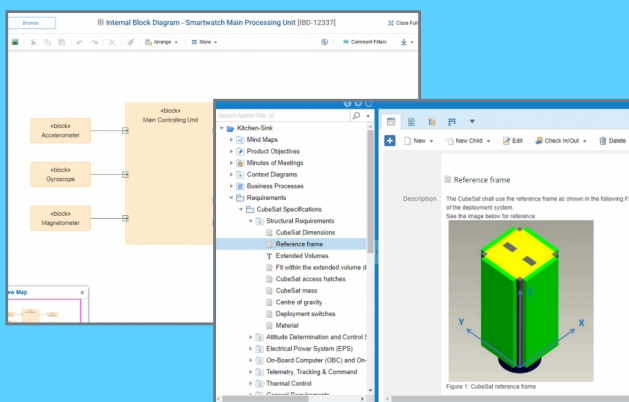
structural sexism and structural racism, though they do not speculate as to how these variables influence student outcomes. More generally, Paul and Webb explain that the results for the concepts-based teaching approach may be the result of increased student interaction with the material. The retake approach allows students to learn from their mistakes, which also enhances student engagement.

Andrew Heckler (also quoted in Wright, 2023), a physics professor at the Ohio State University, sees the results obtained by Paul and Webb as promising, but cautions that they may not be generalizable. Further research is needed to determine whether Paul's and Webb's results can be replicated in other contexts. I, for one, am willing to give it a try, having seen a general decline in grade attainment overall, but particularly by some minority students, in my engineering management classes.

I'm not sure yet how (or if) I will extricate the calculations from the concepts in the early stages of my course. I will need to give that a bit more thought. Introducing quizzes with a retake option will be straightforward enough. My implementation of Paul's and Webb's ideas will not be a controlled experiment: there won't be a group A vs group B treatment condition within the same course. I do, however, have grade and demographic information for students from times when I taught the course previously that I can try to use for comparison purposes. I will report on my results in this and other forums. Wish me (and my students) luck!

By Heidi Hahn

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Unlocking Cyber Resilience: CRWS-BoK – Your Gateway to Authoritative Resources

Picture a comprehensive knowledge hub that not only provides easy access but also serves as a trusted authoritative source for information in the realm of Cyber Resilience.

This is what the Cyber Resilience Weapon Systems Body of Knowledge (CRWS-BoK), is all about. Since the System Security (SysSec) Directorate in the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) first launched this vital resource in May 2021 for the systems security engineering community, CRWS-BoK has emerged as the go-to platform for engineers, science and technology (S&T) managers, and researchers seeking credible, authoritative resources.

With a rapidly expanding collection of more than 600 resources, CRWS-BoK provides easy access to relevant information. Users can perform a standard search or delve into guided searches tailored to the entire repository or for specific engineering design patterns. CRWS-BoK uses a robust tagging system, ensuring the user can effortlessly locate resources that align to their specific needs and interests.

CRWS-BoK prioritizes accuracy and currency by continually vetting and refining resources to ensure the platform provides current industry standards and best practices. After a meticulous review process, new resources are integrated into the platform each quarter, underscoring the platform's commitment to maintaining a collection of superior resources. Users with registered accounts can contribute to this process by

recommending resources to a senior community board review.

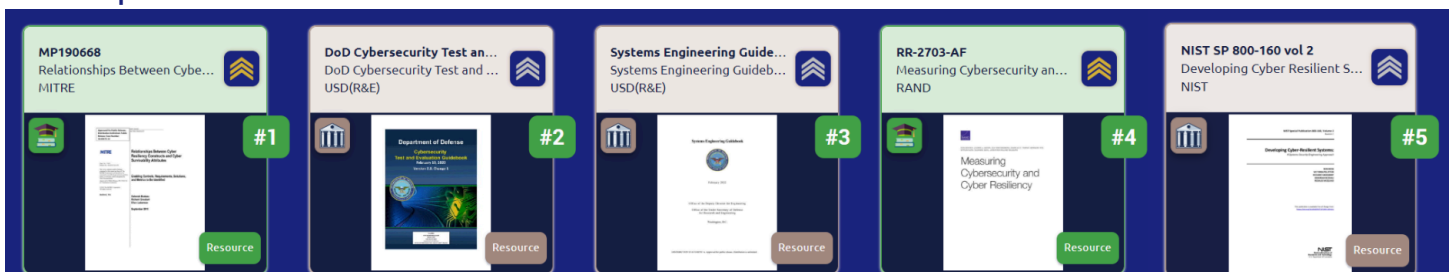
Providing seamless and personalized notifications, CRWS-BoK delivers an exceptional user experience. All users can stay up to date by checking the “News” section on the main page. Registered users receive additional benefits including email alerts featuring updates on their favorite resources, or newly added resources matching previously saved searches. This proactive approach ensures that users have access to the most pertinent information without the need for extensive manual searches.

CRWS-BoK is designed with user convenience in mind. Users can access Adobe PDF files directly within their browser, allowing users to view, annotate, and interact with the content without the hassle of downloading additional files. Registered users can effortlessly save their annotations for future reference, streamlining the research workflow and enhancing overall productivity.

In the fast-paced field of Cyber Resilience, staying informed is crucial. CRWS-BoK serves as a vital bridge, connecting the community to an authoritative resource.

Visit www.crws-bok.org to register for a free account, to access credible resources, and to stay informed about future updates. The next update to the CRWS-BoK is scheduled for release in late January 2024.

Most Popular Resources



Exciting Developments for FuSE



Exciting developments are underway as the Future of Systems Engineering (FuSE) Initiative strides into 2024 with a mission to redefine the landscape of global systems engineering.

Here's a glimpse into the latest endeavors that promise to shape the future of our field:

FuSE Synthesizes Insights from 2023 Workshops

The heart of FuSE beats with the rhythm of collaboration and innovation. Following a series of workshops in 2023, the initiative is now in the process of synthesizing the wealth of data generated. These workshops, marked by diverse perspectives and cutting-edge insights, have laid the foundation for what promises to be a transformative journey in systems engineering.

Informing the Global Systems Engineering Story

The FuSE team is harnessing the power of the gathered data to craft a compelling global systems engineering narrative. This story, enriched by the collective wisdom of industry leaders and experts, will take center stage at the INCOSE 2024 International Workshop (IW).

FuSE at INCOSE IW2024

Anticipation is building as the FuSE team gears up for the INCOSE 2024 International Workshop. Sessions are being meticulously planned with a particular focus on developing the 2024 product and services portfolio. This promises to be a pivotal moment, shaping the tools and methodologies that will propel systems engineering forward.

Your Expertise is Needed

FuSE thrives on the collective brilliance of our community. We invite you to be a part of this dynamic journey by participating in the INCOSE



Vision & Roadmaps



Foundations



Methodologies



Application Extensions

IW2024. Your subject matter expertise is invaluable as we push the boundaries of innovation in systems engineering. Join us in the vibrant exchange of ideas, forging connections that will define the future of our profession.

The FuSE Initiative stands at the intersection of collaboration and progress. As we synthesize the insights from 2023, plan for the INCOSE IW2024, and shape the global systems engineering narrative, we invite you to be an integral part of this transformative expedition. Together, let's pioneer the future of systems engineering.

Looking forward to your active participation and the collective brilliance that will illuminate the path ahead.

By Erika Palmer, INCOSE Deputy Technical Director

The FuSE Initiative is proudly sponsored by:



Mentoring Service Launch



INCOSE Launches Mentoring Service to Empower Systems Engineers.

To address the growing demand for capable systems engineering professionals in leadership roles across various domains, INCOSE introduced the Mentoring Service earlier this year. After the successful launch of the pilot, the results of which were presented at IS2023, the full program has now been launched.

This initiative aims to foster knowledge sharing and professional growth within the INCOSE community, offering invaluable support for both mentors and mentees.



Why Mentoring in Systems Engineering Matters

Mentoring is a proven pathway to accelerate personal and professional development, and this holds particularly true in the field of systems engineering. The INCOSE Mentoring Service recognizes the importance of experienced systems engineering professionals mentoring the early career systems engineers within the organization and those new to systems engineering.

Here are some key reasons why mentoring can be beneficial:

Customized Guidance: The INCOSE Mentoring Service is designed to provide tailored guidance to individuals at different stages of their careers. Input from a more experienced professional can help you understand how others have dealt with situations similar to the ones you face.

Skill Enhancement: Systems engineering is a dynamic field, and staying updated with the latest developments is crucial. INCOSE mentors can help mentees acquire new skills and expand their knowledge base, ensuring they remain competitive and effective in their roles.

Building Networks: The INCOSE community is a vast network of professionals with diverse experiences and backgrounds. Mentoring not only facilitates knowledge transfer but also allows mentees to expand their professional networks, opening doors to new opportunities and collaborations.

INCOSE Mentoring Service facilitates the pairing between mentors and mentees by taking information from INCOSE members interested in mentoring and those seeking a mentor.

How the INCOSE Mentoring Service Works

The INCOSE Mentoring Service simplifies the mentor-mentee pairing process, making it easy for INCOSE members to connect and benefit from this valuable resource. Here's how it works:

Volunteer Mentors: Experienced INCOSE members who are eager to share their expertise and support the growth of fellow systems engineers can sign up online to become mentors.

Mentee Registration: INCOSE members seeking mentorship can register their interest in the

WORKING GROUPS AND INITIATIVES

program in a similar way, providing information about themselves.

Pairing Process: INCOSE Mentoring Service uses this information to facilitate mentor-mentee pairings. Mentees select a mentor from the pool of experienced volunteers based on their preferences and areas of expertise.

Once a match is made, the mentor and mentee meet to discuss their specific needs and goals. If the match feels right, the mentee records the match online. If not, other mentors will be offered until the match is right. The mentee is in the driver's seat.



Head over to the INCOSE YouTube Channel to hear Dorothy McKinney speak about her experience as a mentor and about the process of setting up the INCOSE Mentoring Service.

By participating in the INCOSE Mentoring Service, both mentors and mentees have a unique chance to contribute to the growth and success of systems engineering professionals while enhancing their own skills and knowledge. This initiative strengthens the INCOSE community, fostering collaboration and innovation within the field of systems engineering.

The mentor program is open to all full INCOSE members. Whether you're a seasoned systems engineer or just starting your journey, consider becoming a part of this exciting mentoring program and help shape the future of systems engineering.

Find out more at www.incose.org/mentor



Mentoring Webpage

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Quality Management: A Matter of the Heart

The INCOSE Handbook, version 5, released recently, adds a significant new aspect to quality management—that of human values.

Systems engineers have always been aware that the people involved in a project or organization, and the specific human values they exhibit, are an important determinant of the overall quality produced by the project or organization. In this article, we'll dive into one of the key values shown in the INCOSE Handbook's model of quality management, vocational certainty (highlighted in Figure 2.21 from the Handbook, shown here).

In the Handbook, vocational certainty is defined as "a measure of our faithfulness to our career agenda" (Table 2.3). Vocational certainty is related to the common concept of competence and professionalism, which appears in Figure 3.5 of the Handbook in the section on human-systems integration but goes much further.

Vocational certainty is a value that expresses whether the person is right for the position—for *this* position, at *this* time. Vocational certainty is knowing that you know what is to be done and how to do it properly. The alternative to vocational certainty is guessing. We have all seen people who may have education and credentials, but who have been placed in a position for which they have no vocational certainty. They spend their time guessing what to do and trying to avoid accountability. Dr. Laurence Peter in this book, *The Peter Principle*, identified the result of taking successful people and promoting them to a level where they have no vocational certainty. A person might be an excellent engineer, but lack the skills, interest, temperament, and knowledge to perform

well as an engineering manager. Of course, the person can grow into the new position, but at what cost to the organization as they try to grow and bridge their gap in vocational certainty? A great deal of mediocre or even poor performance can be attributed to a lack of vocational certainty on the part of the people performing the work.

We all have areas in which we *have* vocational certainty and areas in which we don't. Consider the would-be entrepreneur described in Cal Newport's excellent book, *So Good They Can't Ignore You*, who left a corporate job to start a Yoga studio. She was an experienced and enthusiastic

devotee of Yoga but lacked the vocational certainty about how to start and run a yoga studio or any kind of small business. It became a race against time—could she learn and grow into a vocationally-certain entrepreneur before the business failed? If she had understood vocational certainty, she might have instead kept her corporate job, but gone to work part time at a local studio

(not mentioning that she one day wanted to start her own studio) and worked hard to provide good value to the employer, while learning all about running a yoga studio—growing the vocational certainty and knowledge to launch her business, or alternatively, finding that she had no interest, and taking another path.

The best place to look to start to understand vocational certainty is in the mirror. Before stepping into a new role or task, ask yourself if you are the right one for this task, right now, or whether you would be stepping into the role and guessing what to do from day one, and then either scrambling to learn what you needed to know to

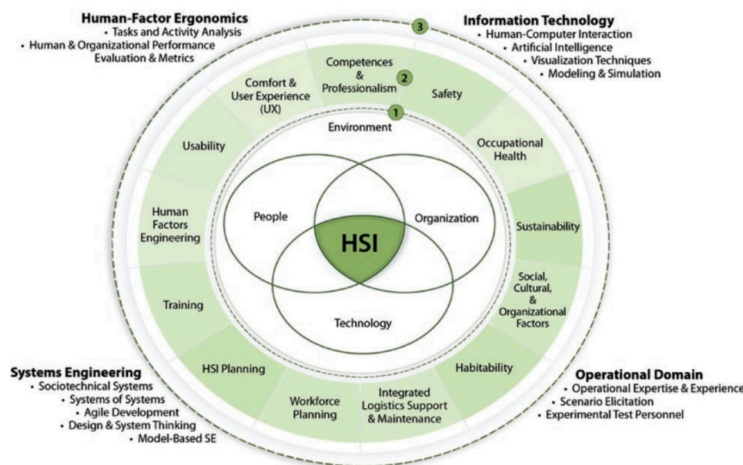


FIGURE 3.5 HSI technology, organization, people within an environment. INCOSE SEH original figure created by Boy. Usage per the INCOSE Notices page. All other rights reserved.

have vocational certainty, or simply continuing to guess indefinitely.

Competency and credentials are not enough. A

master's degree or even a PhD does not confer all knowledge in a field, nor does it inject the wisdom and knowledge gained from first-hand experience. Even experience is not enough. Ten years' experience might just be one year of experience, repeated ten times, without significant learning and development.

Even attitude is not a substitute for vocational certainty. Blind enthusiasm and guesswork can derail a project even faster than a more reluctant and tentative leader without vocational certainty. Only vocational certainty itself is enough to produce a quality result from a project or organization.

Meetings are a great place to observe vocational certainty, or its absence. Before speaking, does each person ask, am I the right person to be speaking about *this* matter, at *this* time in this situation? Do I have the vocational certainty or would I be guessing? There is no shame in not having vocational certainty, but in the words of Gene Kranz during the Apollo 13 situation, don't "...make things worse by guessing." Without vocational certainty, one should remain silent rather than guess. On the other hand, those who have the vocational certainty often rightly feel compelled to speak—to tell the truth, based on facts and evidence, even if it is unpopular.

We'll conclude by answering the question, can vocational certainty be built, grown, and developed? Of course—that's the only way. No one is born with vocational certainty about anything. We build vocational certainty, or perhaps more correctly, specific vocational certainties in particular areas, through a combination of education, personal study, experience, personal growth and development. Those with vocational certainty in an area have developed it by becoming a student of that area. There is no

shortcut. An entrepreneur who succeeded once in business may have learned a great deal, but that one instance is not likely enough to have vocational certainty in a new business venture.

Entrepreneurial failures also teach significant lessons, but alone are not sufficient. Vocational certainty is what we want and need most in our leaders, team members, and colleagues.

The Systems Engineering Quality Management working group invites you to join us, and participate in our educational and

research activities, focused on values-based quality management. See www.incose.org/seqm for more information.

By Dr. Barclay Brown, Quality Management Working Group Chair

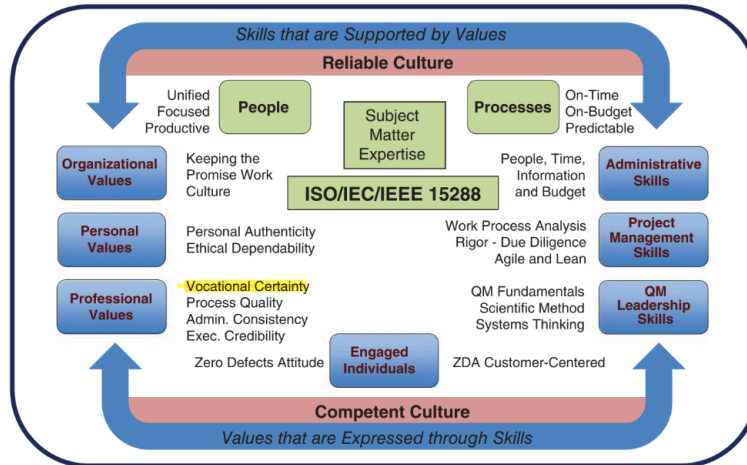


FIGURE 2.21 QM Values and Skills Integration. From Kennedy (2005). Used with permission. All other rights reserved.

SEQM Working Group Planned Activities

- Continue weekly management meetings to develop strategies and review of opportunities
- Institute quarterly meetings with entire WG to discuss project ideas and continue developing SE QM concepts.
- Work with INCOSE chapters to make presentations on SEQM and impacts/benefits
- Reach out to other organizations to work on cross organization projects involving QM (IEEE, PMI, AQM) - Post COVID - conference attendance as available
- Look for/seek opportunities to team with other WG's on joint efforts.



Requirements Working Group (RWG)

The Requirements Working Group (RWG) continues to be active as the year comes to a close. We are proud to announce that we now have over 1,000 followers on our Viva Engage community site!

This is a highly active site for INCOSE members to post questions and comment on topics concerning needs, requirements, verification, and validation. We also use this site to communicate upcoming events and provide links to presentations given at our monthly meetings and other presentations given by the RWG leadership on our [INCOSE RWG YouTube Channel](#).

Following the release of a major update to the Guide to Writing Requirements (GtWR) in June 2023, the RWG has received multiple requests to give overview presentations. In September, Lou Wheatcraft, RWG Cochair, supported the Finger Lakes Chapter by giving a two-part presentation providing an update concerning the RWG status and 2023 activities as well as an overview of the GtWR. In October, Lou supported the INCOSE monthly Webinar Series, Webinar 168, presenting an overview of the GtWR. This was a very highly attended Webinar. Lou was also asked to give this presentation in December for the INCOSE Turkey Chapter online event focusing on Requirements Engineering.

Starting in November, during the RWG monthly meetings, Lou will be conducting the first of three interactive sessions whose focus is on applying the rules contained in the GtWR to a set of poorly formed requirements, assessing the defects (violations of the rules), and providing an improved version of each requirement that is well-formed per the rules in the GtWR. While presentations have been made concerning an overview of the GtWR and a more in-depth presentation on the rules for writing well-formed need and requirement statements is available on the INCOSE RWG YouTube Channel, there is a demand for an interactive series of presentations, where the rules are applied to requirements for an actual case study and attendees have the

opportunity to be actively involved. This series of sessions will be a great learning experience for attendees – the devil is in the details and until you can apply the rules to a real case study it will be difficult to be proficient in defining well-formed requirements.

The RWG is in the planning stages for IW2024. We are planning to have a pre-IW event like we have had the last two years. We have also reserved rooms for RWG meetings during IW. The agenda for both will be posted on the RWG public facing webpage, the RWG iNet Site, as well as Viva Engage. If anyone has topics they would like addressed or a presentation they would like to give, please let us know.

Current and future activities involve providing updates to the SEBOK that will result in closer alignment with the newly released INCOSWE SE HB v5 as well as the RWG products. This effort is being led by the RWG Chair, Tami Katz. Another major activity is the update of the INCOSE RWG Needs and Requirements Manual (NRM) in preparation for its publication by Wiley. This effort is being led by the RWG CoChairs, Lou Wheatcraft and Mike Ryan.

As always, the RWG would love to hear from you all concerning suggested topics for our monthly meetings, IW, suggestions for SEBOK updates, and updates to the NRM (and other guides). We would also like to hear about success stories concerning how you and your company are applying and benefiting from the RWG suite of products. You can reach the RWG leadership at this address: requirements-leaders@incose.net

By Lou Wheatcraft, Requirements Working Group Co-Chair



SE Lab Offers New Tools for Free to INCOSE Members



INCOSE members now have a new reason to value membership: access to state-of-the-art systems-engineering tools for free, non-commercial use.

The **SE Lab** is up and running, with full operational capability launching at IW2024 in Torrance, California, Jan. 27-30, 2024.

Vendors provide tools in the form of licenses or cloud space. INCOSE members can use those tools for free for non-commercial purposes. There are benefits for everyone:

- The INCOSE working groups and communities can collaborate in a model-based way.
- The vendors can get more members exposed to their tools.
- Members can access a broader set of tools.
- INCOSE can release INCOSE products in model-based format.

The tools are already making life easier and better for those who are taking advantage of them.

INCOSE Deputy Services Director Heidi Davidz said, *"Model-based practices are a key part of the INCOSE SE Vision 2035. The SE Lab enhances the ability of working groups and other INCOSE teams to collaborate in a model-based way. Also, these tools can be very expensive. The SE Lab provides INCOSE members the opportunity to use a variety of tools and upskill as interested."*

Davidz said the vendors reap the benefit of being able to market their products.

"We didn't know if vendors would participate or not, but they are drawn to the opportunity to access the INCOSE membership globally," she said.

Vendors can contribute one license to unlimited seats - whatever they want to donate.

Check out the SE Lab at www.incose.org/selab

Vendor-Supported Tools



Open-Source Tools



INCOSE Expands PDP Offerings with Phase Two Rollout

When INCOSE launched the Professional Development Portal (PDP) back in 2022, they knew it would be a living program that would continue to evolve and grow over time.

Now, the PDP enters its second phase, expanding its catalog of learning and assessment tools for society members and beyond.

Since its inception, the PDP compiled self-assessments and extended education resources including webinars, videos, books and more in eight different languages. Phase two enhances user's search capabilities with advanced filters to parse through their collection resources.

"We started with just about 100 resources", commented Kirk Michealson, Director for Outreach and a major force in the PDP's development. *"Now we're over 1,000, approaching 1,100."*

The PDP's competency self-assessment also receives an advanced option exclusive for INCOSE members. This update to one of the program's key features offers a more in-depth analysis of the user's developmental needs and provides them tailored suggestions.

"It's an agile project," Michealson added. *"We still keep building, we're not stopping."*

The PDP remains an ever-improving asset for INCOSE members. A quick glance at the homepage offers new capability as it rolls out alongside new advanced metrics. INCOSE members are invited to explore all that the PDP has to offer and provide vital feedback for the program to continue to grow.

By Chase S. Wilkinson

The PDP is proudly sponsored by:



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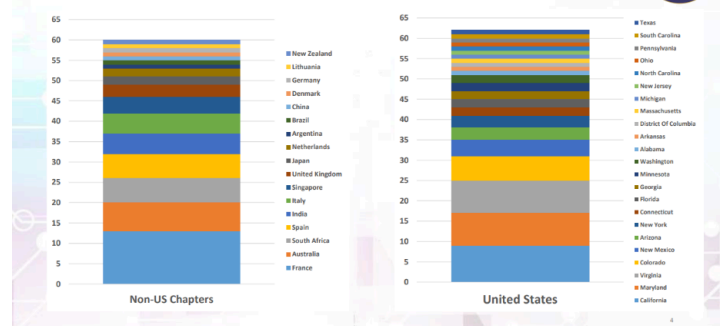
Updates from INCOSE's Technical Leadership Institute (TLI)



Every year, December to January marks a time of transition, and it's no different for the TLI. The 20 members of Cohort 8 have completed their major projects and submitted papers detailing their learnings to IS 2024.

With luck, these papers will be accepted and you can learn more about psychological safety, leading in the face of uncertainty, and safe-to-fail probes from the cohort at the symposium in Dublin in July 2024. Members of Cohort 8 are approaching induction as full members of the Institute. They will be looking beyond the initial two-year experience to their lifelong leadership journey exploring the role the TLI plays in their continuing journey of discovery and what role they wish to play in the TLI.

A Vibrant Network of **122 Leaders** from 6 Continents, 18 Countries, and 23 U.S. States!



The TLI itself is also transitioning. Our founding coach, Mike Pennotti, formed an Institute so that members could be part of an enduring leadership learning network that they continue to own and advance. The TLI is far more than a leadership program. The initial two-year experience is the beginning of a journey rather than the end. To further that vision, we recently surveyed all TLI members to gain their insights as we chart our future together.

The Foundations of the INCOSE Technical Leadership Institute (TLI)

Developing systems leaders equipped to address today's product, enterprise, and societal complexity



TLI Vision

- **Individual members** become more capable leaders and join an international network of systems engineering leaders
- **Sponsoring organizations** obtain non-proprietary, tuition-free technical leadership training for future SE leaders
- **INCOSE** has a growing pool of leaders to draw on and an enhanced international reputation for SE leadership

As Cohort 8 completes their major projects, the 24 members of Cohort 9 will begin identifying their burning questions about leadership. The first portion of the initial two-year experience helps establish a common foundation through major workshops in June and January. As part of January's workshop, cohort members will individually and collectively identify critical topics they would like to explore as part of their learning journeys. We will work together to shape these into major projects that the cohort will address in 2024, learning themselves while contributing to the greater body of knowledge on leadership.

Earlier this year, the TLI began a series of social and topical engagements at IS 2023 in Honolulu. While the TLI is firmly committed to its virtual presence embracing members around the world, we want to leverage regional and international events to strengthen our bonds. In Honolulu, Jeff Mikulina from the Hawai'i Climate Coalition shared his leadership experiences in an interactive workshop "Creating a Climate for Change". At IW 2024, Juan Llorens from our first cohort will lead a workshop on "Intercultural Communication" helping our members appreciate and navigate the cultural differences of our interconnected world.

The TLI also launched a quarterly virtual workshop series enabling us to explore emerging topics, hear from leaders inside and outside INCOSE, and continue to learn together. In July, Suja Joseph-Malherbe, TLI Coach and member of Cohort 1, led our first workshop "Building Successful Mentoring Relationships" helping us better embrace and leverage these critical relationships throughout our learning journeys. Grace Kennedy from Cohort



TLI Cohort 7



TLI members gather at IS 2023 in Honolulu



TLI Cohort 9

7 followed up in November with “Facilitating Virtual Workshops.” Grace conducted this workshop on multiple levels both demonstrating the tools and techniques for facilitation while verbalizing the thought process behind her actions which positions us to hold more engaging and higher value sessions in our increasingly virtual world. In February 2024, Willy Donaldson, Founder and President of Strategic Venture Planning and author of *Simple Complexity*, will share his insights on “How to Talk so that Senior Executives will Listen.” We will wrap up the first year of our virtual series in May with a leader from outside INCOSE sharing their leadership stories from the front line of industry and government.

It's a time of transition and a busy time for the TLI, one that we embrace as we take our Institute to the next level and maximize the value of our global network learning together!

Cohort 10 Nominations Open in January 2024

Would you like to be part of this global learning network of active INCOSE members seeking to improve their leadership skills in an open, collaborative environment?

Nominations for our 10th cohort open in January and close on March 29th. All INCOSE members are eligible to participate in the initial two-year experience and join the Institute. The TLI is not a

self-study or book-structured leadership program. It's about experiential learning supported and facilitated by coaches as we advance our knowledge, skills, and abilities together enabling us to better address today's product, enterprise, and societal complexity. We are looking for individuals passionate about lifelong learning and being part of this growing global network.

Participation in the Institute and the initial two-year experience is free. No travel is necessary – all required sessions are held virtually. Our membership spans the globe with diverse leadership experience ranging from 3 to 30+ years. Nominees are selected based upon their proven aptitude in both systems engineering and technical leadership, comfort working in an uncertain world and ability to tackle wicked, messy problems, demonstrated interest in and commitment to enhancing personal leadership, and potential for assuming positions of greater leadership in the future.

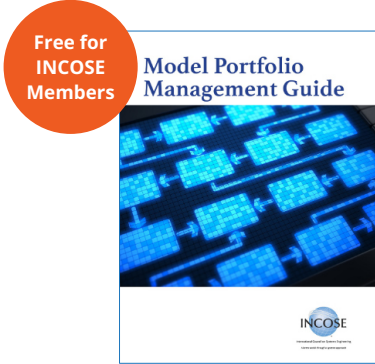
Individuals can be nominated by an INCOSE Board Member, Director, Assistant or Associate Director, Chapter President, or member of the Corporate Advisory Board. To learn more, visit www.incose.org/learn/tli.

By David Long, TLI Coach, david.long@incose.net



Latest Product Releases

Model Portfolio Management Guide



The intent of this guide is to provide an organization that is managing a portfolio of models with the terms, tasks, and approaches that could be adopted to create a comprehensive Model Management approach. The organizational response to this guide depends on their organizational and modeling objectives as well as available resources.

Read it at www.incose.org/modelportfoliomangementuide

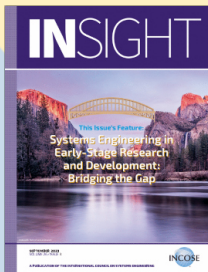
Human Systems Integration Primer



Human Systems Integration (HSI) is a trans-disciplinary human-centered design and management approach to systems engineering (SE) used to ensure that the technical, organizational, and human elements are dealt with appropriately throughout the life cycle of the socio-technical system (STS) at stake. This Primer Volume 1 provides useful definitions, principles, and perspectives on HSI

Read it at www.incose.org/hsi

INSIGHT Volume 26, Issue 3

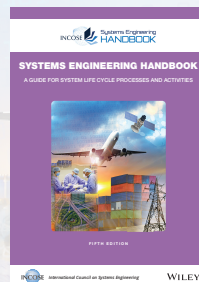


Systems Engineering in Early-Stage Research and Development: Bridging the Gap

Read it at www.incose.org/insight

If you wish to make a submission for upcoming issues, or to find out more information email insight@incose.net

Systems Engineering Handbook Fifth Edition



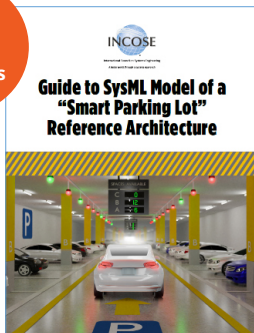
The INCOSE Systems Engineering Handbook is a vital reference for systems engineering practitioners and engineers in other disciplines looking to perform or understand the discipline of systems engineering.

Grab your copy at www.incose.org/sehandbook

Latest Product Releases

Guide to SysML Model of a "Smart Parking Lot" Reference Architecture

Free for
INCOSE
Members



The model is developed to provide a reference architecture for developers or independent contractors to build Smart Parking Lots that would work effectively with the other elements of the smart city.

Read it at www.incose.org/smartparkinglot

Systems Engineering Journal



Systems Engineering
Journal Volume 26,
Issue 6

Read it here:
<https://bit.ly/3abMeYW>

Editor's Choice

"Technical debt in the engineering of complex systems"

By Ye Yang, Dinesh Verma, Philip S. Anton

This paper extends the concept of technical debt (TD) from software to systems engineering, offering a TD taxonomy with seven types.

"Model-based diagnosis with FTTEll: Diagnosing early pediatric failure to thrive"

By Natali Levi-Soskin, Fatma Yasin, Dov Dori, Ron Shaoul

FTTEll is a model-based diagnostic system for Pediatric Failure To Thrive (FTT) in infants, achieving 87% accuracy compared to expert assessments. This approach is applicable beyond medicine, extending to the diagnosis of various system problems.



Check out the New INCOSE Online Store!

The Online Store stocks a wide range of publications and guides, most of which are free for INCOSE Members.

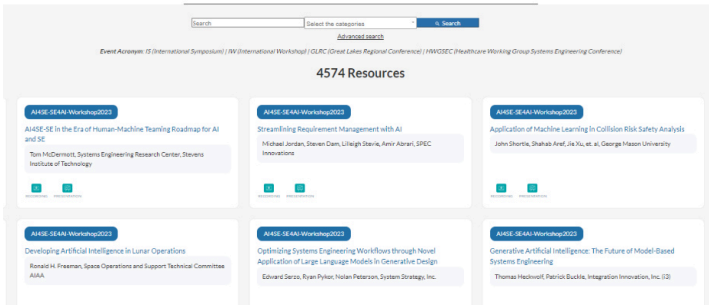


INCOSE Library Launches as the Main Source for all Organization Resources

Imagine a one-stop shop for all INCOSE-produced resources. That dream is a reality now with the INCOSE Library – a goal Barclay Brown had during his term as CIO.

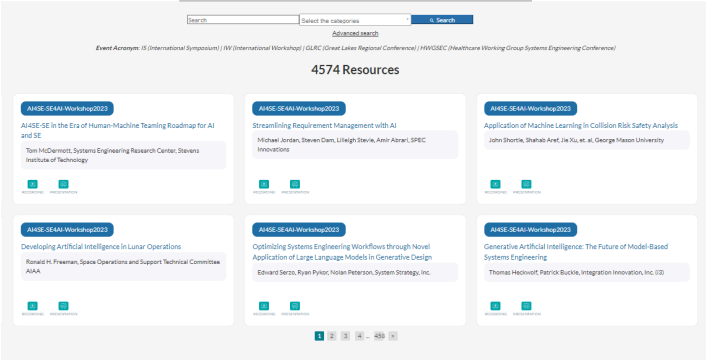
“As long as I can remember, there has been a desire to capture and access recorded presentations given at INCOSE conferences and meetings,” Brown said. “We’ve had the INCOSE Papers and Presentations library for many years, but it contained only those—papers and presentations, but no recordings.”

COVID-time INCOSE events produced plenty of recorded events, in addition to recordings from chapters and regional conferences. Sometimes those were available after the event on platforms such as YouTube, but not always.



The INCOSE Library is a system that brings together all INCOSE-produced resources, including papers, presentations, products, and recordings. The INCOSE Library is both an index and a storage system.

“It will be searchable in a number of ways, so users can find materials on any topic or from any conference or author,” Brown said. “The INCOSE Library will become a rich resource for a growing set of key systems engineering information and recordings.”



INCOSE launched the Professional Development Portal a year ago—a complementary system developed in conjunction with the INCOSE Library and based on a common database.

“Over time, the INCOSE Library will be the one place to go to learn about the latest processes, methods, and knowledge in the field of systems engineering,” Brown said.

Access 4,500+ Resources in the INCOSE Library

The INCOSE Library is open to the public, though many of the publications and recordings are only available to INCOSE members, or to attendees of specific conferences.

“In this way, INCOSE membership becomes even more visible as a unique and valuable resource in systems engineering,” Brown said.

Access the INCOSE Library at incose.org/library

By Beth E. Concepción



INCOSE International Events

As we head into the end of year slow down, events planning is heating up.

The International Workshop (IW) is just around the corner taking place 27-30 January in Torrance, CA, USA. The events team has been busy setting the schedule for what is bound to be an engaging workshop. This year's workshop will feature Safer Complex Systems, Future of Systems Engineering (FuSE), and MBSE alongside our traditional working group sessions and business meetings.

All members are encouraged to attend either in person or remotely. The event schedule is available at www.incose.org/IW2024 and is updated frequently as new meetings are added. IW Registration is open, and the hotel link is live. Regardless of where you are in the world, virtual attendees can participate in the plenaries, town hall, Safer Complex System and MBSE keynotes, and any meeting where the host has indicated they want virtual participants. We encourage all members to join the workshop to learn what is happening across INCOSE and contribute as we work together to advance the state of systems engineering. I look forward to seeing you at the event.

In July, the International Symposium (IS) is heading to Dublin, Ireland. We will be holding the event at the Convention Centre of Dublin near the Harp bridge on the river Liffey. Please take note, the event has shifted this year to start with the opening plenary and technical program on Tuesday, 2 July, and ends with tutorials on Saturday, 6 July.

IS registration information is available from the IS website at www.incose.org/symp2024 (registration will open after the IW). Several links have been posted for hotels near the Convention Centre. I encourage you to make your hotel reservations early as there are several events happening in Dublin around the same time. If your organization is considering becoming a sponsor demonstrating your commitment to INCOSE and systems



engineering, sponsorship package details are available on the website.

We had another great year for submissions – a record 570 submissions across papers, presentations, panels, and tutorials. Our dedicated volunteer reviewers are hard at work reviewing all the submissions. The Technical Program Committee will gather at the IW to organize the accepted submissions into the preliminary technical program. I look forward to another exciting technical program and a record number of participants.

Mark your calendars for INCOSE events in 2025. We start the year with the International Workshop occurring in Seville, Spain at the beginning of February. The International Symposium will be held in Ottawa, Canada in late July. Also occurring in 2025 will be EMEA SEC and AOSEC. Let us know if you are planning an event - <https://app.smartsheet.com/b/form/8755a0e866854485b7ffb8b9ec9aa02c>. We can help with resources and getting the word out!

By Donna Long, AscD Events,
donna.long@incose.net





34th Annual **INCOSYMBOL** international symposium

hybrid event

Dublin, Ireland
July 2 - 6, 2024

Start planning your agenda
for #INCOSYMBOL 2024

Dates

Tuesday 2 July –
Saturday 6 July, 2024

The Venue

The Convention Center Dublin
Spencer Dock, N Wall Quay
Dublin, Ireland



TOP REASONS TO ATTEND

- ✓ Enjoy a diversified program on different application domains
- ✓ Learn something new that you can use on the job
- ✓ Expand your network among the worldwide SE community
- ✓ Get inspired by forward-looking thought leaders
- ✓ Contribute and advance the discipline



THANK YOU TO ALL SUBMITTERS

The 2024 Call for Submissions was a great success:

- **568** Submissions
- **117** Reviewers
- **42** Countries represented

💡 Notifications of acceptance will be sent out on 21 February 2024!
The program will be out in April 2024.

SIGN UP AS A SPONSOR!

Take advantage of a golden opportunity to gain recognition for your organization among the worldwide community of Systems Engineering.



WHAT TO EXPECT IN DUBLIN?

A city brimming with history, culture, and friendly locals!
Nestled on the east coast of Ireland, it offers a unique blend of old-world charm and modern vitality.



BOOK YOUR HOTEL IN ADVANCE

💡 Hurry to benefit from negotiated group rates at a selection of hotels, just a few minutes' walk from the venue!



International Council on Systems Engineering
A better world through a systems approach / www.incose.org

Stay tuned for more! www.incose.org/symp2024

#INCOSYMBOL - Join the conversation

INCOSE Members Newsletter

Publication of the International Council
on Systems Engineering

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On the Web: www.incose.org

Article Submission newsletter@incose.net

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

- Q1 2024 Newsletter: 15 Feb 2024
- Q2 2024 Newsletter: 15 May 2024
- Q3 2024 Newsletter: 15 August 2024
- Q4 2024 Newsletter: 15 November 2024

For further information on submissions and issue themes, visit the INCOSE website: www.incose.org/marcom

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Who are we? INCOSE is a 22,000+ 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.

All views expressed in this Newsletter are the writers' own and do not reflect the views of INCOSE.

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