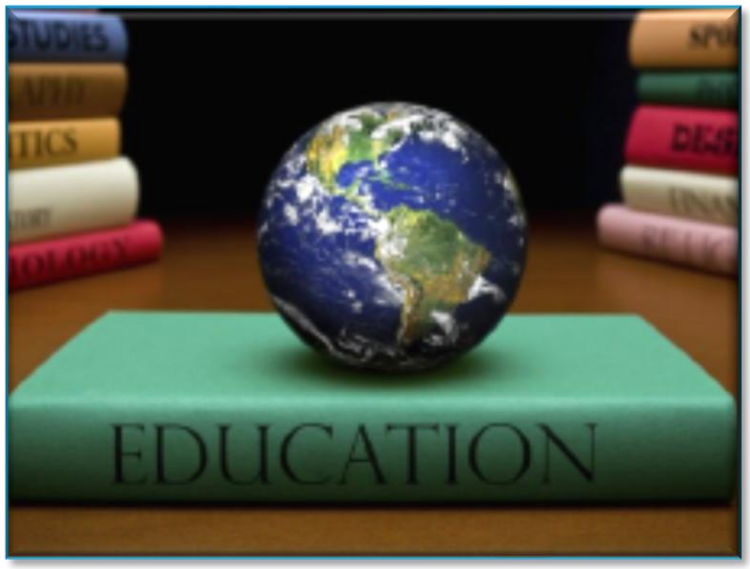
2024 Report of Activities

Fueling Systems Engineering Worldwide



February 28, 2025

INCOSE Foundation 2024 Report of Activities

Table of Contents

I. Managing Director Introduction

We are pleased to announce the release of the ***INCOSE Foundation's 2024 Report of Activities***. This report highlights our commitment to advancing systems engineering education and practice globally, and we invite you to explore the impactful initiatives we've undertaken.

As a 501(c)(3) nonprofit, the INCOSE Foundation supports Systems Engineering (SE) worldwide to address global challenges, drive innovation, and create solutions that matter—especially in emerging markets. Our mission is to expand access to systems thinking and engineering education through diverse collaborations and strategic initiatives. The Foundation Board of Directors is committed to the substantive role that we are called to fulfill.

In 2024, we made significant strides to advance our high-priority initiative, the SE Global Member Project. We increased funding commitments for the development of an academic equivalency course in Brazil for Associate Systems Engineering Professional (ASEP) certification—the first of its kind at an international university.

The Foundation plays a crucial role in training the next generation of systems engineers, supporting the first international academic equivalency course, and fostering a global SE community. This report outlines our key initiatives, achievements, and the impact of our work.

Through strategic partnerships with INCOSE chapters in international geographies, universities, and corporations, the Foundation supports systems engineering education, provides financial assistance, and promotes STEM outreach. By aligning with INCOSE's broader strategic vision, the Foundation ensures that systems approaches are accessible to a diverse and global membership.

We responsibly use Foundation funds to support a variety of projects and scholarships. This report provides an overview of how these funds have furthered our mission to advance systems engineering.

Support from all of you drives our mission forward. Together, we are making systems engineering more accessible, equipping individuals and communities with the skills to create a better future, fueling Systems Engineering worldwide.

Dorothy Benveniste, Managing Director

Photo by Andy Pickard

II. Impact and Achievements: Strategic Activities

1. Foundation Strategic Plan

In early 2024, the Foundation developed a Strategic Plan to foster a diverse, global membership. We work in consonance with INCOSE to enable complementary goals that promote broad, inclusive participation, enhance engagement, and address the unique needs of members across different regions and cultures. Key elements of the plan include tailored outreach initiatives, fostering cross-cultural collaborations, and creating accessible resources to support active involvement. A snippet of our plan is provided below

INCOSE Foundation Strategic Plan

Vision: A better world through a systems approach that is accessible to all.

Mission: Provide inspiration, leadership, partnerships, and philanthropic funding to advance systems approaches through diverse membership and broad collaborations.

Goal 1	Goal 2	Goal 3
Advance the SE Discipline	**Expand the SE Community**	**Operate Efficiently and Effectively**
Objectives	**Objectives**	**Objectives**
• Support the advancement of the state-of-the-art and application in systems engineering and integration. • Fund research projects to improve SE knowledge and practitioner awareness. • Foster a culture of innovation, research excellence, and diversity within the SE community via targeted funding and support.	• Partner with the CAB/AC, Industry, and academia to ID/support universities with an interest in systems engineering education and academic equivalency. • Strengthen partnerships with universities around the world to provide INCOSE resources to professors and students that cannot afford INCOSE membership. • Build SE communities through informal means using digital technologies in Africa and Latin America. • Enable and enrich a trained, employable SE global workforce.	• Collaborate with INCOSE organization and others to identify high-priority philanthropic projects and fundraising strategies. • Leverage digital platforms and social media channels with others to promote our mission and inspire financial support. • Solicit feedback and input from Foundation stakeholders, donors, and global project members to ensure alignment with SE needs and priorities.

2. Strategic Collaborations and SE Global Member Project Initiatives

Collaboration lies at the heart of the Foundation's efforts. Through partnerships with the INCOSE Brasil and LatAm international chapters, the Foundation has assisted universities in advancing SE curricula and achieving academic equivalency. Specific initiatives include:

a. Support for African SE Communities

Collaborations with the University of Lagos and the University of Nairobi have expanded access to INCOSE resources, fostering the growth of SE in these regions. We have worked closely with Engineering Prof. Ayub N. Gitau, University of Nairobi, Kenya, and Ipinnimo Oluwafemi, PhD, University of Lagos, Nigeria, to explore the underlying factors contributing to the under-developed systems engineering ecosystem and evaluate how best to motivate students to embark on a career in systems.

We appreciated the opportunity to develop an understanding of the challenges facing systems engineering education at these universities. We can understand the pressing challenges many students face, which may take precedence over their pursuit of systems engineering education.

b. Academic Expansion in Brazil

The INCOSE Foundation Board of Directors collaborated with Universidade Federal de Minas Gerais (UFMG) and the INCOSE Brasil Chapter. We provided the UFMG School of Engineering with an INCOSE CAB membership to facilitate the development of an INCOSE academic equivalency course for Associate Systems Engineering Professional (ASEP) certification.

UFMG is one of Brazil's most prominent universities and a pioneer in systems engineering education. The UFMG staff have designed an impressive and comprehensive course based on a systems approach. It aligns well with INCOSE academic equivalency requirements, meets

stakeholder needs for an instructor-led engineering course delivered in Portuguese within a collaborative environment, and forms the basis for INCOSE ASEP certification.

In 2025, we are excited to support the promotion and delivery of the UFMG initial course by having detailed discussions with their staff on new ASEP certification requirements and reviewing their revised draft syllabus. The target audience is engineers and managers, including former undergraduate students, from a wide range of industries and businesses that can benefit from systems engineering concepts and ASEP certification. Leading local employers include Embraer, Boeing, Petrobrás, GE HealthCare, Stellantis, and Wabtec, as well as banking and healthcare firms.

We look forward to working with UFMG and INCOSE Brasil Chapter in 2025 and beyond to enable academic equivalency to other engineering departments at universities in Brazil.

c. Sustainability challenges in Colombia

We have worked closely with faculty and staff at the Universidad Autónoma de Bucaramanga (UNAB) in Colombia and the INCOSE Latin America Chapter (LATAM).

UNAB and the Foundation were a committed and high-performing team in 2024. We value the collaboration with UNAB professors, students, and the leaders of the INCOSE LatAm Chapter to develop a high-value initiative, Systems Thinking for Sustainability, and a proposal for international cooperation.

We are excited to provide these UNAB professors and students with INCOSE memberships:

- UNAB Staff: Verónica Chajín, Javiér Pinzón, and Jorge Andrick Parra Valencia (renewal)
- UNAB Students: Bernardo Rey Moreno, Beatriz Marín, Helien Parra, Daniel Mora, Juan Sebastian Sanchez Nova, and Santiago Mejia Wilches

UNAB faculty are enthusiastic to join the newly formed Sustainability Working Group to develop innovative solutions and best practices for renewable energy, environmental management, and urban planning. UNAB students are eager to apply systems thinking skills for sustainability within academic programs, research initiatives, and community engagement activities.

Collaboration with INCOSE Working Groups will help develop innovative solutions, integrate sustainability principles into systems engineering practices, and educate future professionals who are well-equipped to address complex sustainability issues around the globe.

Many thanks to the LATAM chapter leaders for their dedicated efforts to onboard UNAB staff and students, as well as other Latin American universities, to develop Systems Engineering programs for the design, analysis, and management of complex systems.

Congratulations to the LATAM Chapter on its recognition as the Latin American region's premier systems engineering professional society.

UFMG, Minas Gerais, Brazil

UNAB, Bucaramanga, Colombia

III. Impact and Achievements: Advancing the SE Community

We had a significant impact in 2024 on the SE community, contributing to advancing education, professional development, and process innovation in several industries. Through research grants and scholarships, the Foundation helped engineers to tackle complex global challenges.

1. Recognizing Excellence: Doctoral Research Awards

A core component of the Foundation's mission is recognizing and supporting innovative research in systems engineering. The INCOSE Foundation and Stevens Institute presented the **Stevens Doctoral Award** to two outstanding researchers. Recipients were awarded a $5,000 grant, a commemorative plaque, and recognition at the 2025 INCOSE International Workshop as follows:

a. Stephanie Charo Chiesi (Tucson, AZ) - Award for her doctoral research to bridge the gap between research and implementation in advancing the practice of SE.

Stephanie's research looks at how digital engineering can shorten project timelines. Companies and government agencies are adopting digital methods to update their systems. A significant part of this is creating connected data environments to increase design speed. However, it may also uncover hidden issues, and we do not yet have a quick way to see how digital engineering affects project speed or efficacy.

Her approach uses modeling and simulation to abstract the development stages and enable measuring effort and time in different digital engineering scenarios. This work can find problems in decision-making caused by digital changes and help evaluate new processes that cannot be quickly attempted in real life.

b. Hossein Taramsari (Jersey City, NJ) – Award for his original approach to addressing sustainability in product design. Doctoral research was undertaken to enable a comprehensive framework for integrating multiple dimensions of sustainability into the product design process.

Hossein's research addresses the current limitations of sustainable design practices and offers a structured methodology for assessing and improving sustainability outcomes. By incorporating system thinking and system dynamic techniques, the research introduces new perspectives on addressing sustainability challenges.

The developed framework is to provide a deeper understanding of sustainable design systems' complex interactions and feedback loops. The multi-domain matrix (MDM) and automated life cycle assessment (LCA) tools offer enhanced decision-support capabilities. These tools enable designers to quantify the impacts of design decisions on sustainability and make informed choices that balance environmental, social, and economic factors.

Stephanie Charo Chiesi
Tucson, AZ

Hossein Taramsari
Jersey City, NJ

2. Student ISEF Awards

Since 2009, INCOSE has participated in the International Science and Engineering Fair (ISEF), offering special awards to outstanding high school students. The Bill Ewald Socio-technical Award of $1000 awards projects that demonstrates a global impact and includes a 1-yr free student membership to INCOSE and free virtual admission to the next IS. ISEF 2024 awardees:

- Robin Dao from Exeter, NH, USA [*Micro RNA223-Biomarker Based Exponential Rolling Circle Amplification CRISPR -Cas12a System for Disease Detection and COPD Diagnostics*] developed a low-cost way to detect obstructive pulmonary disease .
- Jeslyn Tan from Sydney, Australia [*UpLift Mobility: Robotic Lift to Elevate Frequently Falling Individuals*] developed a lift that can be used by frequently falling individuals as they age, providing them with more independence.
- Diana Martynova from Los Gatos, CA, USA, the Bill Ewald Socio-technical awardee [*Securing Global Food: Biopolymers, Cryptography, and Visual Transformers for Affordable Anti-Counterfeit Seed Protection*] was inspired after learning 50% of the seeds sold in Africa are counterfeit, lowering germination rates leading to global food shortages, starvation, and political unrest.

3. STEM Education

We collaborate with local INCOSE chapters to increase awareness of SE principles among younger students. This commitment enables funding for schools and community centers excelling in STEM education in middle and high school courses. As an example, the San Diego Chapter provided grants to neighborhood STEM schools and centers in the San Diego area:

Ada Harris Elementary School
Casita Center-Tech Science
De Portola Middle School
Expanding Your Horizons
FRC Team 6995 NOMAD
Kelly Elementary School
Poway High School
San Marcos High School
Twin Peaks Middle School

IV. Financial Operations

The INCOSE Foundation operates through well-structured committees to ensure financial sustainability and strategic allocation of resources. Budget and finances are carefully managed through an annual budget and strong financial policies to ensure transparency and accountability.

The annual income of the Foundation results from two sources: 1) individual and organizational contributions and 2) income from investments of our endowment fund which accrues from interest in certificates of deposit and stock dividends, and the increase in the value of the stocks and bonds managed by an investment management firm. Increase (or decrease) in the value of our endowment fund is denoted as "*Change in Fund Value*."

In 2024, the donation and investment incomes remained stable. There was a slight reduction in administrative expenses as some management functions were combined with INCOSE as part of the INCOSE restructuring. 2025 income will not have the benefit of an IW Soiree; we intend to resume our Wine Soiree, our primary fundraising event, sponsored by the Corporate Advisory Board, at IW 2026, allowing attendees once again to network and enjoy wine tasting. Nevertheless, because of careful stewardship of our funds, we will be able to support the planned scholarships and grants as well as the continuation of the Global Member Project in 2025. The Foundation's 2024 Total Income, Total Expense, and Net Income are shown on the right.

The INCOSE Foundation is a 501(c)(3) nonprofit organization established in 2005. Contributions to the INCOSE Foundation are tax-deductible to the extent allowed by laws of the donor's country. The INCOSE Foundation does not offer financial advice. Please consult your personal financial advisor. Credit card donations are accepted.

Income 2024	**Totals**
Donations	$35,170.55
Change in Fund Value	$45,477.06
Interest and Dividends	$5,111.08
Total Income	$85,758.69

Expense 2024	**Totals**
Project Expense	$5,622.13
Grant Expenses	$2,475.00
Scholarship Expense	$17,576.00
Investment Mgt Fee	$4,115.94
Fundraising Expense	$1,756.43
Insurance	$1,691.00
Legal Fees	$300.00
Management Services	$20.00
Accounting Services	$799.00
Bank Charges	$89.40
Total Expense	$34,444.90
Net Income	**$51,313.79**

V. 2025 and Beyond

1. Challenges and Future Plans

Despite notable successes, the Foundation faced several challenges in 2024, including:

- Resource Constraints: Expanding initiatives required greater financial support, emphasizing the need for increased donor engagement and diversified funding sources.
- Geographic Barriers: Ensuring equal access to SE education in remote and underserved regions continued to be a logistical challenge.
- Strengthening Global Awareness and Outreach: Focusing understanding of SE's importance and application has remained a key area for future efforts.

To address these challenges, the Foundation has set ambitious goals for 2025, including:

- Expanding INCOSE university membership to reach more students worldwide.
- Strengthening partnerships with international engineering universities to increase systems engineering education and eventual academic equivalency for international students.
- Enhancing digital outreach to provide more online SE learning resources and workshops.

2. Call to Action: Ways to Give

We encourage all INCOSE members to actively contribute to shaping the future of systems engineering. There are numerous ways to get involved, whether through financial support, volunteering, or serving on the Foundation Board. The Foundation's success depends on the generosity and dedication of its members. **Please consider making a donation directly via PayPal or debit/credit card: Donate Here.**

Contributions can also be made through various channels, including:

- Foundation Giving Day: Encouraging broad participation to raise critical funds.
- 50/50 Raffle Tickets: Fundraising at INCOSE International Workshops and regional events.
- Membership Auto-Donation: A seamless way to contribute by opting into an annual donation during INCOSE membership renewal.
- The IRS reminds those age 70½ and older, who hold an individual retirement arrangement (IRA), that they can donate up to $108,000 in tax-free charitable donations during 2025 through Qualified Charitable Distributions (QCDs). For those age 73 or older, QCDs also count toward the year's RMD. The INCOSE Foundation is a non-profit, 50(c)(3) corporation. Generally, IRA distributions are taxable, but QCDs remain tax-free if sent directly to a qualified charity by the trustee.

VI. The INCOSE Foundation

1. Board of Directors

Managing Director 	**Dorothy Benveniste** Project Engineer Mgr., Boeing Commercial Airplanes, ret; LA Chapter Past-president; LA Chapter SEP Study Group Lead	**Secretary** 	**Larry Strawser, PhD** Adjunct Professor, ABET Coordinator, The Johns Hopkins University, Whiting School of Eng; INCOSE Academic Council Member
Treasurer 	**Jim Armstrong, PhD** INCOSE ESEP; Adjunct Professor, Steven Institute of Tech; Sys Eng and PM. consultant, ret.	**Directors:** 	**Stephen Cook, PhD** INCOSE Fellow; Director, Shoal Group Pty Ltd; Professor of Defence Systems, Univ. of Adelaide
	**Regina Griego, PhD** R&D Engineer, Sandia Labs ret; Author, Speaker, Coach, Independent Consultant, INCOSE Fellow		**Leroy Hanneman** US Nat 'l Security & Aerospace Exec, ret; Univ. Inst.& SE Exec Advisory Board Manager
	**Suja Joseph-Malherbe** SA Chapter Past president; Letter 27; solo consultant; INCOSE CSEP		**Robert Stow** BAE Systems, Inc., Chief Technology Officer & Sr. VP Engineering, ret.
	**Jon Wade, PhD** Jacobs School of Eng, Univ. of Calif. San Diego; Director Convergent Systems Engineering; INCOSE Fellow		**Marilee Wheaton** Systems Engineering Fellow, Aerospace Corporation; Fellow INCOSE, AIAA, SWE; Past INCOSE President

2. John Snoderly Recognition

The 2024 Report of Activities of the INCOSE Foundation would be incomplete without expressing our profound appreciation and heartfelt gratitude to Dr. John Snoderly, who retired in 2024 after an extraordinary 34 years of service to INCOSE and 61 years of dedication to the Defense Acquisition University (DAU). His retirement marks the end of a truly remarkable era for both INCOSE and the broader systems engineering community.

Dr. John Snoderly's Retirement Celebration, with Ms. Kristen J. Baldwin, from the Defense Acquisition University, Oct. 2024. Ms. Baldwin is Deputy Assistant Secretary of the Air Force for Science, Technology, and Engineering.

Dr. Snoderly's leadership was not just about strategy or vision—it was about heart. His unwavering commitment, tireless efforts, and genuine passion for advancing systems engineering have inspired an entire generation of professionals. His influence has been transformative, shaping the very essence of what INCOSE stands for today. Through his guidance, he didn't just lead; he nurtured, he mentored, and he empowered others to reach their fullest potential.

The legacy Dr. Snoderly leaves behind is immeasurable. His vision, his integrity, and his deep care for the people and the work have left an indelible mark. Countless individuals, both within INCOSE and across the broader systems engineering community, have been touched by his kindness, wisdom, and support. He set a standard for leadership that goes beyond technical excellence—it's about service, humility, and dedication to the greater good.

The INCOSE Foundation is forever grateful to Dr. Snoderly for his extraordinary contributions. As he enters this new chapter of life, we want to express our deepest thanks, not just for what he has done, but for who he is. We wish him a retirement filled with the same joy and fulfillment he has brought to so many throughout his career, knowing that his legacy will continue to inspire us all for years to come.

VII. Foundation Donors

1. Gratitude and Looking Ahead

The Foundation extends its deepest gratitude to all donors, partners, and volunteers whose support in 2024 has been instrumental in advancing the INCOSE Foundation's mission. Every contribution—big or small—plays a crucial role in advancing systems engineering and empowering emerging nations. We are grateful for your unwavering support.

As we look forward to 2025, we remain committed to fostering innovation, expanding our global reach, and ensuring our activities continue to drive significant and beneficial changes in the world.

2. Donor List

Every effort is made to be accurate in the listing of donors. Please contact the INCOSE Foundation should a correction be needed.

Areej AlKhalidi
Sean Amick
Randall Anway
Billy Barber
Ronald R. Barden
Andrea Barp
Hector Barrio
Michael W. Barry
Todd J. Bayer
Eric C. Belle
Dorothy Benveniste
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