

# What is Systems Engineering?

Systems engineering is a transdisciplinary and integrative approach to enable the successful realization, use, and retirement of engineered systems, using systems principles and concepts, and scientific, technological, and management methods.

Systems engineering practitioners work within a project team and take a holistic, balanced, lifecycle approach to support the successful completion of systems projects.



## Why is Systems Engineering Important?

The purpose of systems engineering is to conceive, develop, produce, utilize, support, and retire the right product or service *within budget and schedule constraints*.

Delivering the right product or service requires a *common understanding of the current system state* and a common vision of the system's future states, as well as a methodology to transform a set of stakeholder needs, expectations, and constraints into a solution.

Source: Systems Engineering Handbook V5

## What Role Does INCOSE Play in the Systems Engineering Field?

INCOSE is vital to the SE community, providing a global platform for collaboration, knowledge sharing, and the advancement of systems engineering practices.

INCOSE sets industry standards, offers certification programs, and promotes professional development, advocating for the widespread adoption of systems engineering across various industries.

## Systems Engineering Competency Areas



### Core SE Principles

- Systems Thinking
- Lifecycles
- Capability Engineering
- General Engineering
- Critical Thinking
- Systems Modelling & Analysis



### Professional Competencies

- Communications
- Ethics & Professionalism
- Technical Leadership
- Negotiation
- Team Dynamics
- Facilitation
- Emotional Intelligence
- Coaching & Mentoring



### Technical Competencies

- Requirements Definition
- System Architecting
- Design for:
  - Integration
  - Interfaces
  - Verification
  - Validation
  - Transition
  - Operation & Support



### SE Management Competencies

- Planning
- Monitoring & Control
- Decision Management
- Concurrent Engineering
- Business & Enterprise Integration
- Acquisition & Supply
- Information Management
- Configuration Management



### Integrating Competencies

- Project Management
- Finance
- Logistics
- Quality

# What is INCOSE?

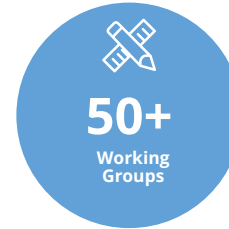
The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded to develop and disseminate the transdisciplinary principles and practices that enable the realization of successful systems.

INCOSE is designed to connect Systems Engineering professionals with educational, networking, and career-advancement opportunities in the interest of developing the global community of systems engineers and systems approaches to problems.



[www.incose.org](http://www.incose.org)

## Impact of INCOSE



## Benefits of Membership



Connect to global network of colleagues who understand systems engineering.



Formally recognize your progress through your career with Systems Engineering Professional (SEP) Certification.



Access quarterly ePublications; INSIGHT, Systems Engineering Journal and Members Newsletter.



Get a free electronic version of the Systems Engineering Handbook.



Collaborate with experts and practitioners locally, through chapters and worldwide, through working groups and initiatives.



Receive member discounted registration to the International Workshop and International Symposium.

Join today at [www.incose.org/join](http://www.incose.org/join)

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# What is the Corporate Advisory Board (CAB)?

The CAB helps INCOSE to investigate important systems engineering challenges facing the industry and government, shape INCOSE's strategic direction and identify and prioritize the best ways to advance the discipline of systems engineering in industry, science, and academia.

Being a CAB member organization supports your position as a leader in systems engineering. As your employees pursue systems engineering professional certification, your organization is recognized for its growing credentials. CAB Associates gain access to materials to help them grow and develop as systems engineers and later progress towards being full INCOSE members and earning their certification. Teaming up with INCOSE provides a path to excellence for systems engineering in your organization.

[www.incose.org](http://www.incose.org)

## Key CAB Member Organization Benefits



Recognition on the INCOSE CAB home page with a link to the organization.



Opportunity to submit candidates for the 10 CAB-reserved spots in INCOSE's Technical Leadership Institute.



The designated representative of each CAB member is granted full INCOSE membership for the years they serve as CAB representative.



Reduced rates on selected advertising within INCOSE, recognition in selected INCOSE publications and ability to participate in virtual job fairs for systems engineers.



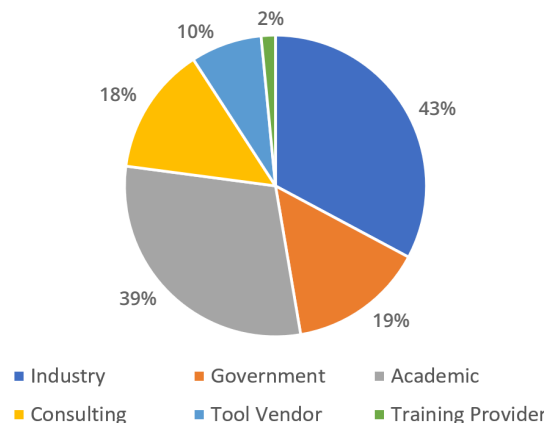
CAB organizations get free CAB Associate memberships for their employees.



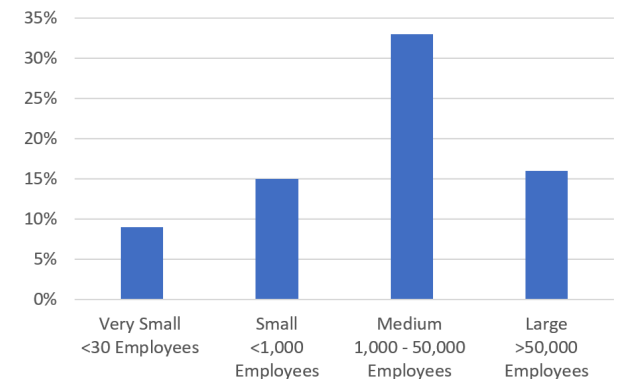
One complimentary registration at the annual INCOSE International Symposium.

## CAB Metrics

CAB Organizations by Category:



CAB Organizations by Size:



# What are Corporate Advisory Board (CAB) Associates?

A **CAB Associate** is a complimentary account offered to employees or students of CAB member organizations.

CAB Associates can access select INCOSE resources and upgrade to a full individual membership at discounted rates.



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## CAB Associate Benefits

Employees and students of CAB Member organizations gain access to several INCOSE resources, including:



Free electronic version of the Systems Engineering Handbook.



Participation in webinars and SE community offerings.



Access to the Professional Development Portal (PDP).



Access to current and archived soft-copy products and publications.



Video recordings of INCOSE tutorials and International Symposium presentations.



Access to the INCOSE Content Library.

## Benefits of Upgrading to Full INCOSE Membership

Upgrading from a CAB Associate to INCOSE Member offers several advantages, such as:



Access to the INCOSE Certification program.



Access to local chapters and over 50 working groups.



Discounts on events and hard copies of internally developed products.



The right to vote in INCOSE elections.

[Upgrade today at www.incose.org/join](http://www.incose.org/join)

# What is a Corporate Advisory Board (CAB) Representative?

A CAB Representative is a key liaison between their organization and the International Council on Systems Engineering (INCOSE).

This role is vital for ensuring effective communication and collaboration between INCOSE and corporate and academic organizations.

The CAB Rep acts as a bridge, facilitating a two-way flow of information and feedback to enhance systems engineering practices globally.



[www.incose.org](http://www.incose.org)

## Why Become a CAB Representative?



**Influence Industry Standards**  
Directly impact the development of systems engineering policies and standards.



**Professional Growth**  
Access exclusive professional development opportunities and resources.



**Networking**  
Connect with a global community of systems engineers and industry leaders.



**Organizational Advancement**  
Drive the adoption of cutting-edge systems engineering practices in your organization.

## Role and Responsibilities



Liaison between INCOSE and the CAB member organization.



Facilitate connections between their organization's systems engineers and the broader INCOSE community.



Advocate to promote the value and benefits of systems engineering within their organization.



Promote opportunities available through INCOSE, such as certifications, training, and conferences.



Provide feedback to INCOSE on the needs and challenges faced by their organization.



Ensure that their organization's strategies and goals align with INCOSE's mission and objectives.

**Become a CAB Representative and help shape the future of systems engineering.**

[www.incose.org/cab](http://www.incose.org/cab)



# What is INCOSE SEP Certification?

Systems Engineering Professional (SEP) certification formally recognizes your progress through your career as you develop and apply systems engineering knowledge and practices. INCOSE offer three levels of certification: ASEP, CSEP and ESEP.

CAB Associates have access to INCOSE online and downloadable resources, including the SE Handbook. The Handbook is the body of knowledge for the INCOSE Certification knowledge exam. By studying the handbook, employees gain SE knowledge and also benefit from "reading off the same sheet of music," with the handbook serving as a common baseline from which they can tailor their specific business processes.



[www.incose.org](http://www.incose.org)

## Certification Levels



### Associate Systems Engineering Professional

ASEP is for systems engineers in the early stages of their careers. The ASEP has "book knowledge" but not yet significant experience as a systems engineer.



### Certified Systems Engineering Professional

CSEP is for practicing Systems Engineers with more than five years of Systems Engineering professional work experience.



### Expert Systems Engineering Professional

ESEP is for systems engineering leaders with recognized systems accomplishments and many years of systems engineering professional work experience.

## Quotes from SEPs

*"I Promote SEP Certification. I would suggest that everyone considering it do some introspection on their "why."*

*In an ideal world, all systems engineering professionals are INCOSE SEPs for personal motivations like recognition, objective communication of your knowledge, and the ability to apply systems engineering learnings in the workplace."*

– Kahdeem Cohens, ASEP

*"The reason to get my SEP Certification is the opportunity to inspire the practitioners of my country to perform a really engineered founded approach to complex systems development. It is not only to improve my career it is a way to improve engineering in my country."*

– Wellington Oliveira, CSEP

*"The INCOSE ESEP has been the most pivotal certification that I have achieved in my career. Receiving ESEP changed my outlook, my confidence level in what I knew and what I could convey to others about the discipline. Having that confidence to talk about the processes and why you use them and when you should use them and what to expect from using them. Having that knowledge and experience opened so many doors."*

– Lory Wingate, ESEP

Get certified at [www.incose.org/certification](http://www.incose.org/certification)