

CFS-C5-02

AI in SE Practice: Use Cases, Native Integration Patterns, and Quality Governance

Tools & Digital Practice Series

SERIES GOAL

This series addresses the gap between the SE tool capabilities that exist and the SE tool capabilities that organizations actually realize in practice. INCOSE seeks proposals that go beyond tool promotion to address the structural reasons adoption fails: usability barriers, IT governance conflicts, fragmented ecosystems, and the challenge of communicating model results to non-SE stakeholders. Applicants should be willing to challenge tool vendors, not just enable them.

THE NEED

Organizations are failing to leverage AI capabilities embedded in SE tools and are uncertain how to govern AI-assisted SE outputs for quality and auditability. There is no authoritative INCOSE guidance on where AI adds genuine value in SE workflows, how to integrate AI natively rather than as a post-hoc addition, or what governance and quality standards should apply to AI-assisted requirements, architecture, and verification work. INCOSE has a narrow window to establish authoritative guidance before the space fragments into competing vendor narratives.

SUGGESTED DELIVERABLE CATEGORIES

The following categories are illustrative. They signal the type of output INCOSE envisions but do not constrain the applicant's approach. Applications that address the stated need through other delivery formats are equally welcome.

- Use case library with governance framework
- SE-activity-organized AI use case library
- Native integration pattern guidance and anti-patterns

ACCEPTANCE CRITERIA

These criteria define the minimum bar for a successful outcome. Applications must demonstrate how they will satisfy each criterion.

- Use cases must be organized by SE activity, requirements, architecture, verification and validation, decision analysis, not by AI technique/tools.
- Native integration patterns must be distinguished from post-hoc bolt-on patterns, with explicit anti-patterns documented.
- Governance framework must address auditability and human accountability for AI-assisted outputs beyond quality checking.
- Tool-agnostic: applicant must demonstrate no commercial AI vendor bias.
- Must address portfolio-scale AI application (systems-of-systems and program-of-record level), not only individual project SE.

EVALUATION PRIORITIES

These priorities indicate how solutions will be scored. The first priority carries the highest weight. Applicants are encouraged to address each explicitly.

- Organization of use cases by SE activity.
- Governance and auditability depth.
- Tool-vendor neutrality.
- Portfolio-scale coverage.
- Applicant's demonstrated AI-in-SE application experience.

About This Call

The INCOSE Corporate Advisory Board (CAB) represents leading organizations across industry, government, and academia who are invested in advancing the systems engineering profession. This open call invites INCOSE members, both individuals and teams, to provide solutions that address documented, high-priority needs of the systems engineering community.

These Calls for Solutions (CFSs) are organized into seven thematic series, each targeting a distinct group of interconnected needs. Solutions are not required to address an entire series; each CFS is an independent scope of work. However, applicants who can demonstrate how their approach creates value across multiple CFSs within a series are encouraged to note this in their application.

The INCOSE CAB has defined the problem each CFS addresses, the acceptance criteria that define a successful outcome, and the evaluation priorities that will guide solution scoring. Applicants are expected to design their own approach to meeting the stated need. Innovation in delivery format, methodology, and execution is welcome.

How to Apply

All applications must be submitted through the INCOSE CAB Microsoft Forms application (link below). The form collects the information needed for review, including applicant background, organizational affiliation, planned approach, timeline, and responses to the acceptance criteria for the CFS being addressed.

Application Form: [INCOSE Call for Solutions Application](#)

The application form will ask you to identify the CFS you are responding to, describe your planned approach to meeting the stated need, provide evidence of relevant background and prior work, and address each acceptance criterion listed in the CFS. Supporting materials, such as a CV or resume, may be attached.

Review Process

Applications will be reviewed by a joint panel comprising the following INCOSE leadership:

- **Technical Operations Director and Deputy Director**
- **Academic Council Chair and Co-Chair**
- **CAB Chair and Co-Chair**

Each solution is evaluated against the Acceptance Criteria and Evaluation Priorities specified in the corresponding CFS. Evaluation Priorities indicate the relative weight given to different aspects of the solution. Applicants are encouraged to structure their application to address these explicitly.

Applicants may be invited to a brief discussion with the review panel before final decisions are made. All applicants will be notified of outcomes following the review period.

Award and Recognition

Teams whose applications are selected will work with INCOSE to finalize a project scope and delivery timeline through a collaborative negotiation process. Delivery timelines will be agreed upon jointly and will reflect the nature and complexity of the planned work.

Upon successful delivery of the work according to agreed project criteria, each awarded team member will receive a one-time complimentary registration to the INCOSE event of their choice.

INCOSE recognizes that the most valuable contribution awarded teams make is to the SE profession itself. Completed work will be attributed to the project team and published under the INCOSE brand as an authoritative resource for the global SE community.

Additional Resources

INCOSE Call for Solutions Application

Submissions open: April 1, 2026 | Submission deadline: April 30, 2026 Estimated completion time: 60–90 minutes

SECTION 1 — Welcome

This form collects applications in response to the INCOSE Corporate Advisory Board (CAB) Call for Solutions. Each Call for Solutions (CFS) defines a high-priority need of the systems engineering community, the acceptance criteria for a successful outcome, and the evaluation priorities that will guide scoring. Before beginning, read the full CFS document for the specific CFS you are responding to. Submit a separate application for each CFS you wish to address. Applications will be reviewed by a joint panel of INCOSE leadership comprising Technical Operations, Academic Council, and CAB. Applicants may be invited to a brief discussion before final decisions are made.

SECTION 2 — Submission Identification

1. **Which CFS are you responding to?** *(Required)* [Select CFS ID — submit a separate application for each CFS]
2. **Submission Title** *(Required)* [A concise, descriptive title for your planned work]

SECTION 3 — Applicant Information

3. **Lead Applicant Full Name** *(Required)*
4. **Lead Applicant Email** *(Required)*
5. **INCOSE Membership Status** *(Required)* [Lead Applicant's INCOSE Membership Status]
6. **Primary Organizational Affiliation** *(Required)* [The organization the lead applicant represents. If independent, enter "Independent."]
7. **Team Members** *(Required — max 2,000 characters)* [List all team members. Include name, role, organizational affiliation, and INCOSE membership status for each. If applying as an individual, enter "Solo applicant."]
8. **Working Group / Committee / Chapter Affiliations** *(Optional — max 500 characters)* [If any team members are affiliated with a relevant INCOSE Working Group, Committee, or Chapter, identify the group(s) and the nature of the affiliation. Informational only — not a scoring factor.]

SECTION 4 — Applicant Credibility & Background

9. **Relevant Experience** *(Required — max 3,000 characters)* [Describe the team's directly relevant experience for this CFS. Focus on demonstrated work, not general SE background. Reference specific programs, publications, standards development, organizational change work, or other concrete evidence.]
10. **Domain and Specialist Credentials** *(Optional — max 1,500 characters)* [List any non-SE credentials relevant to this CFS — e.g., organizational development, IP law, technical communication, academic partnerships, standards body experience.]
11. **Prior INCOSE Contributions** *(Required — max 1,500 characters)* [List any prior contributions to INCOSE products, working groups, publications, or standards. If none, enter "None."]
12. **Industry Sectors with Demonstrated SE or Domain Experience** *(Required — select all that apply)*
 Aerospace Defense Automotive Healthcare / Medical Device Oil and Gas / Energy
Government / Public Sector Information Technology Telecommunications Infrastructure /
Construction Financial Services Academic / Research Other

SECTION 5 — Planned Solution

13. Problem Understanding (*Required — max 1,500 characters*) [In your own words, describe the problem this CFS addresses. Do not simply restate the CFS text. The panel uses this to assess whether you've grasped the actual need.]

14. Planned Approach (*Required — max 4,000 characters*) [Describe how you will address the stated need. Include methodology, delivery format, key activities, and the logic connecting your approach to the acceptance criteria. Innovation in delivery format and methodology is welcome.]

15. Planned Deliverables (*Required — max 2,000 characters*) [List specific outputs your team will produce. For each deliverable, provide a brief description and its intended audience.]

16. Validation and Evidence Strategy (*Required — max 2,000 characters*) [Describe how you will validate your work, with whom, and how you will document this validation. Note any specific audiences required by the acceptance criteria — e.g., executives, non-SE stakeholders, practitioners in non-aerospace/defense sectors, university educators.]

SECTION 6 — Timeline, Resources & Logistics

17. Planned Delivery Timeline (*Required — max 1,000 characters*) [Provide a high-level timeline with key milestones. If your planned timeline exceeds the CFS delivery horizon, explain why.]

18. Resource Requirements (*Required — max 1,000 characters*) [Describe what your team needs to deliver. Include any INCOSE resources required — e.g., member data access, working group coordination, publication support, review cycles — as well as external resources or dependencies.]

19. Key Risks and Constraints (*Required — max 1,000 characters*) [Identify primary risks to successful delivery and your planned mitigations. Include relevant constraints — e.g., access to proprietary data, vendor cooperation, subject matter expert availability.]

SECTION 7 — Supporting Materials & Confirmation

20. Supporting Materials (*Optional — max 5 files, 10 MB each*) [Upload CVs/resumes of key team members, relevant prior publications, sample deliverables, letters of support, or other evidence referenced in your application.] *Accepted file types: Word, Excel, PPT, PDF, Image, Video, Audio*