INCOSE International Symposium Paper Evaluation Criteria

Overview

This document provides instructions and guidance for reviewers to assess papers submitted for consideration for the Annual INCOSE International Symposium. This document is also intended to help authors achieve high quality submissions, increasing their likelihood of acceptance.

Note that a double-blind peer review process is used for paper submissions; the author's identity is concealed from the reviewer and the reviewer's identity is concealed from the author.

Evaluation Criteria

The subject matter of the paper must address or have a clear connection to systems engineering. Papers that are only concerned with other areas, for example, software development or project management, are not acceptable. In addition, presented concepts:

- should be usable
- should advance systems engineering knowledge
- should have sufficient supporting information to enable the reader to assess the efficacy of a stated position
- should be sufficiently complete to understand the paper's use and applicability.

Papers must not be used for the promotion of any commercial product or interest, and further must not promote or voice an opinion on political or religious matters. The material must not have been previously presented to INCOSE; if it has been previously presented elsewhere, this should be noted.

The following sections provide further insight into the evaluation criteria for papers.

1. Content demonstrates the value of applying systems engineering

The paper should provide usable systems engineering information to novice or seasoned practitioners, or insight to enable and advance new concepts in order for INCOSE to improve its application of systems engineering. This may consist of:

- insight into the development, application, or evolution of existing or new systems processes or domain-specific applications of generic systems engineering principles, concepts, processes, or methods
- compilation and synthesis of documentation that enables an expanded view or new insight into existing applications of systems engineering
- methods of analysis or modelling of customer needs and requirements
- techniques for applying existing systems engineering concepts, for example: templates, management insights, or automation of specific systems engineering tasks or processes

- refinement of existing systems engineering principles, concepts, techniques, etc. OR articulation of new systems engineering principles, concepts, techniques, etc. OR innovative approaches or fields of applications for systems engineering principles
- practical experience and insights into the selection, implementation, and use of systems engineering tools (not thinly-disguised advertisements or campaigns for a specific toolset)
- insights and techniques for applying new systems engineering related standards to project research or recorded observations that indicate the need for new processes, techniques, or understandings in the application of systems engineering
- specific techniques for measuring performance of a project against the project's technical plan, requirements, and schedule
- specific techniques for assessing the efficacy of an existing, modified, or new systems engineering process using capability maturity or assessment models
- breakthroughs in obtaining executive management support and understanding of the need to apply systems engineering principles (and how these breakthroughs were achieved)

The following features of a paper are inappropriate:

- The paper's only purpose is to train the audience in the application of a proprietary tool. While potentially useful, such a paper should be presented in a special session associated with the vendor exhibits.
- The paper solely serves as a review of and reference for any part or all of systems engineering. While such reviews and annotated bibliographies are very useful and could be published in a journal, they are not suitable for presentation to an audience.
- The paper represents a clear case of conflict of interest because the author voices an opinion on a product in which he or she has a commercial interest.

2. Content is substantive

The case presented must have enough detail to provide value. Typically, substantive papers provide answers to the following types of questions:

- What are the specific methods used to effectively accomplish the product's purpose - a sharing on the specifics of 'how' rather than just 'what'?
- How is the product addressing challenges such as commonality; increasing the use of COTS; working globally, etc.?
- What are the predictors for success - e.g., can the quality of architecture be predicted during the concept/design phases?
- How can systems engineering principles be applied to the product and practices across both commercial and government enterprises, and how can the practices and lessons learned from both types of enterprises improve the product under review?
- How does systems engineering need to evolve to accommodate the types of systems and ways of working for the next decade?
- How are we educating systems engineers?
- How are we maintaining technical vitality of the systems engineering workforce?

- What constitutes an innovation in systems engineering practices?
- Can we share case studies relating to the application of systems engineering – how we did things, how things worked out, what we would do differently on the next project?
- What are the Working Groups of INCOSE investigating, what solutions or lessons have been agreed to, and are they usable for the paper under review?
- What are the significant achievements captured in this paper?

A substantive paper concerning the use of a tool should provide insight into how to adapt a given tool to a specific process or project need, or specifics on how to use the tool to reduce the time required for validation of requirements, rather than merely extol its virtues or appeal. Alternatively, such a paper might explain in depth the criteria and specific tasks an organization followed in accomplishing an in-house assessment of the adequacy of its processes. Such a paper provides insight that enables the reader to understand the "why" behind the knowledge or the "how" of implementing the imparted knowledge.

3. Content is logical

The paper should present its case to the reader such that the reader is able to follow the reasoning and is not subjected to confusing jumps and gaps. For example:

- Does each argument of position follow a prior set of facts?
- Are conclusions consistent with the defined premises and substantiated by logical arguments?
- After reading the paper, can a reviewer understand how the paper was organized?

4. Content assertions are backed by supporting data

Assertions, conclusions, and positions on issues presented must be backed up with supporting data. The paper should not simply state an assertion without providing suitable rationale, references, and documented results or events.

For example, a paper should not simply state that a new process reduced time to market by 85%. Instead, it might state that this reduction was achieved by executive management electing to apply the "six sigma" team concepts and supporting that decision by providing effective team training from external specialists, providing the necessary resources to select and execute projects, and selecting leaders known for their vision and completion skills.

5. Content is effectively conveyed and key concepts are integrated

An excellent paper exhibits clarity of purpose, enabling the reader to easily comprehend the intent and conclusions after one reading, understand its progression from one point to another to its conclusion, and visualize the "whole" as well as the individual pieces (and their interrelationships) that make up the whole. For example:

- Are the key points easily comprehended?
- Are the conclusions clear and believable?
- Are the key concepts integrated throughout the paper?

Procedure for Reviewers

Follow the instructions below. For additional details on accessing EasyChair and submitting a review, see the "EasyChair Instructions for Reviewers" available in the Downloads section of the INCOSE IS website: https://www.incose.org/symp2023/downloads/

1. Familiarize yourself with the above evaluation criteria.
2. Log into EasyChair and access the review database for **papers**. If you already have an EasyChair account from another conference, you can use that account. If you do not have an EasyChair account, follow the instructions to create a new account.
3. Select **Reviews > Assigned to me** to access papers that have been assigned to you for review and open an assigned paper.
4. Read the paper quickly to get an understanding of its objective and structure. An exceptional paper makes it easy to comprehend its intent and conclusions, to understand its progression from one point to another, and to be able to visualize the "whole" as well as the individual pieces (and their interrelationships) that make up the whole.
5. Re-read the paper more thoroughly, jotting down comments.
6. Assess the extent to which the paper meets each of the evaluation criteria described above and the overall contributions of the paper to the symposium. Select one of the following recommendations:

   3 = Strong accept
   2= Accept
   1 = Weak accept
   0 = Borderline
   -1 = Weak reject
   -2 = Reject
   -3 = Strong reject

   Note: A paper that is still in outline form should not be rated highly. The rating should reflect the paper in its current form, even if the outline or rough draft has strong potential.
7. Provide constructive comments. Limit comments to suggestions on how to improve the paper.
   - Opinions and conclusions of the reviewer should not be captured, unless made as a constructive "have you considered" statement.
   - Comments might include recommendations such as "the section on xyz should be shortened" or "the section on abc should be expanded to include a more detailed explanation and rearrangement. I suggest…" Be specific.
   - Words of encouragement such as, "This is a great paper; looking forward to hearing more about the subject" are always welcome when deserved.
8. Identify a confidence rating regarding your expertise in the subject areas of the paper using the following scale:

   1 = None
   2 = Low
   3 = Medium
   4 = High
   5 = Expert