



INCOSE Tool Integration and Interoperability Working Group Charter

1 PURPOSE

The purpose of the Tool Integration and Interoperability Working Group (TIIWG) is to provide the INCOSE membership with best practices and guidelines for integrating computer based tools, processes, methods and environments (PMTE) for the exchange and interoperability of data between systems engineering processes, methods and tools in the systems engineering environment and other engineering domains engaged in system product and acquisition lifecycle management activities.

The TIIWG was originally formed by Technical Operations to define the requirements for an Integrated System Engineering Environment (ISEE). As this effort evolved into the need for interoperability and data exchange standards for integrating computer based tools, interchanging data between tools and the interoperability of tools in the systems engineering environment in support of the INCOSE 2020 Vision.

2 GOALS

To provide the INCOSE membership best practices and guidelines for using computer based tools and exchanging data between the tools and processes supported by these tools in an integrated systems engineering environment.

To characterize systems engineering tool integration and interoperability technical support for the INCOSE 2020 Vision.

Foster productivity and quality of systems engineering through integrated processes, tools and environments.

Provide a forum for discussion and information dissemination on tool integration, process implementation and operational behavior.

Promote the development, validation and deployment of standards that advance the interoperability of engineering toolsets.



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3 SCOPE

The TIIWG supports the interoperability of tools, data and processes as they relate to Systems Engineering processes and methods throughout the acquisition and product development life-cycles. The scope of these activities is defined by the Direction of the BOD, CAB and Technical Operations leadership. The content and direction of these activities is designed to meet the needs of the MBSE Initiative Activity Teams, the TIIWG members, the needs of other INCOSE Working Groups and the membership of INCOSE.

Having completed the development of ISO10303-AP233, the Systems Engineering Data Exchange Standard, the TIIWG focus is on model exchange, interoperability and model management in support of the MBSE Initiative.

4 SKILLS AND EXPERTISE REQUIRED

The skills and expertise that will enable our success are very flexible. The TIIWG membership is comprised of a mixture of personnel from several tool vendors, industry, government, military and standards organizations. Systems engineering process execution is migrating from the traditional document centric to a data centric paradigm that focuses more on the modeling of data than making hard copies of data. This is the paradigm shift the MBSE is stimulating to take systems engineering to the next level and it is a shift that has occurred in various design disciplines for the past 30 years. INCOSE members with experience in modeling, or wanting to develop the skills are welcome, as well as familiarization with toolsets used throughout the lifecycle, systems engineering processes and the deployment of these processes using new methods and tools are desired. If members are interested in working with tool vendors, NIST, OMG, ISO, and fellow INCOSE members on this problem set, they are welcome to participate.

5 MEMBERS, ROLES AND RESPONSIBILITIES

List the names of members and briefly describe their responsibilities.

- Lead: John F. Nallon
 - o Responsibilities include maintain the direction of the working group, keeping INCOSE CONECT site up to date, organizing projects and tracking progress.
 - o Responsible for status reporting to the Assistant Director for Technology Enablers.



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- Responsible for attending the Technical Operations virtual meetings.
- Co-Lead(s): Charlie Stirk
 - Responsibilities include assisting in maintaining the direction of the working group, leading projects and tracking progress.
 - Responsible for status reporting to the Chair and the Assistant Director for Technology Enablers.
 - Responsible for attending the Technical Operations virtual meetings in addition to or in the absence of the TIIWG Chair.
 - (e.g. The co-lead shall be responsible to act in the absence of the lead.)
- Technical Project Leaders:
 - Responsibilities include maintaining the direction of the project and involvement of the project team members, leading projects and tracking progress.
 - Responsible for status reporting to the working group chair and co-chair on a regular basis as defined in the Technical Project Plan.
 - Responsible for attending the working group virtual meetings and the International Workshop if possible.
 - The project co-lead shall be responsible to act in the absence of the project lead if this position is filled.
- Board Sponsor(s)/Champion(s): Director of Technical Operations
 - The Director of technical operations is responsible for resource advocacy and status reporting to the INCOSE BOD and external stakeholders.
- TIIWG Members are listed on the TIIWG CONNECT site at <https://connect.incose.org/tb/tote/tiiwg/default.aspx> and Technical Project Plans identify specific sets of members who are engaged on a project.

5.1 **TERMS OF OFFICE**

All terms of office shall be for two years commencing 1 April of the re-election year. Prior to the International Workshop during the second year of office, the outgoing chair will solicit volunteers for the positions and electronic balloting will be used to elect new leadership.



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5.1.1 CAUSES AND MEANS OF REMOVAL

The working group leadership, including the chairs and project leaders, can be removed from office if the WG Measures of Success are not being met, if members are indicating majority need for change and petition for new leadership, or the INCOSE Technical Operations withdraws the WG permission to claim affiliation with INCOSE.

6 OUTCOMES (PRODUCTS/SERVICES)

A Technical Project Plan is being developed to produce a guideline for the integration of modeling tools and the interoperability of modeling tools and data in support of the Model Based Systems Engineering Initiative. Details of all applicable to deliverables shall be defined in separate Technical Project Plans (TPP's). TPP's shall be developed, submitted and tracked as defined by the applicable Technical Operations procedure for each working group project.

The TIIWG provides information services for other Working Groups to consider in developing their own agendas and plans that involve the use of computer based tools in the execution of their plans. Frequent requests from the ToolsDb WG, Standards activities, and the MBSE activity groups are supported as required.

The TIIWG provides services (as needed) to the Standards Initiative for developing international standards that involve the integration and interoperability of systems engineering tools. The TIIWG continues to support the ISO 10303-AP233 standard for systems engineering data exchange. The TIIWG communicates with numerous vendors engaging in data exchange and will provide briefings on AP233 as requested by INCOSE.

7 APPROACH

The general approach that guides the operation of the TIIWG includes the following:

- TIIWG meetings will be held every 60 days via Webex and telecom. More frequent meetings or follow up meetings will be held as needed.

- In person TIIWG meetings will be scheduled and held at the International Working Group Workshop and the International Symposiums. These meetings will provide virtual communications with the membership if it is available. Otherwise meeting notes will be taken and distributed.



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- Decision making will follow an integrated process team approach where group consensus will formulate working group and project team decisions. However, when a project team or working group team has to make a final decision on efforts to move forward, the project team leader will confer with the WG chair and co-chair and together they will make the final decisions for the project or the working group.
- The working group chair and co-chair will be accountable for the budgeting, governance of project schedules, and completion of projects. The project leaders will be responsible for the execution of the Technical Project Plan for the project.
- TIIWG Communications will be conducted by the communication assets provided by INCOSE in the form of telecommunications, e-mail, mail reflectors, the INCOSE Connect site, wiki's and any other communication asset that the working group member companies or Corporate Advisory Board member companies may be able to provide that enables adequate communication between members.

8 MEASURES OF SUCCESS

The measure of success for the WG will be directed to the quality of products or services produced or to be provided, the level of support for integration or interoperability standards development, the level of MBSE initiative support and the growth of working group membership. Detailed measures of success for individual products or services produced will be contained in the applicable individual Technical Project Plan for these products or services. TIIWG measures of success include:

- The size of the active member versus the total membership,
- The number of enterprises involved in the project,
- The number of products or services engaged in active development (as defined by individual TPP's), and
- The number of products or services delivered to the INCOSE membership for internal or external use.



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9 RESOURCE REQUIREMENTS

The resources required to attain success in terms of human requirements will be dictated by the number of projects and what is required by any project to complete the plan.

Good communications resources are required in terms of infrastructure support (e.g. telecoms, Microsoft LiveMeeting). For virtual working group meetings we need to maintain excellent communications via telecom, chat rooms, wiki's, INCOSE Connect, Connect Online services and so forth.

If resources outside INCOSE are required this need will be defined on terms of who and when and the proposed method to secure attainment (e.g. MOU/MOA) will be processed with Technical Operations leadership following the appropriate processes. The working group member companies may be willing to provide communications assets in support of projects and our working group members.

10 DURATION

This Charter will remain in effect until rescinded by the signatory. It is anticipated this working group will be chartered through June 30, 2020 in support of the INCOSE Vision.



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11 SIGNATURES

A handwritten signature in black ink that reads "John F. Nalla". The signature is written in a cursive style.

June 19, 2011

Working Group Chair

Date

1st Level of Approval

A handwritten signature in black ink that reads "John F. Nalla". The signature is written in a cursive style.

June 19, 2011

Assistant Director, Technology Enablers

Date

2nd Level of Approval

Director, INCOSE Technical Operations

Date



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Revision History

<u>Date</u>	<u>Revision</u>	<u>Description</u>	<u>Author</u>
01/15/2011	1.0	Initial Draft.	John Nallon
03/24/2011	1.5	Submittal for approval	John Nallon
04/23/2011	1.5	Updated Scope	John Nallon