



TERMS OF REFERENCE

NAFEMS Stochastics Working Group (SWG)

Mission

The SWG shall provide a vendor-neutral, end-user driven forum that promotes advancement of the technology and practices associated with all aspects of stochastic engineering analysis and simulation processes. Stochastic analysis and simulation is defined as any methods and tools taking variation into account in contrast to the traditional deterministic analysis and simulation methods. It will support the mission of the international NAFEMS organization, namely:

- To facilitate international industry, academia, government, and vendor collaboration, that leverages unbiased multi-disciplinary expertise dedicated to the engineering modeling, analysis, simulation, and systems engineering communities.
- To improve engineering product and process simulations.
- To have a positive impact on quality, profitability, schedules and safety for engineering companies.

Vision

The vision of the SWG is to promote the use of stochastic engineering analysis and simulation processes, procedures, and best practices as strategic business assets within all companies utilizing virtual and physical engineering product development techniques.

Scope

The focus of the SWG is to champion and improve best practices that relate to stochastic engineering analysis and simulation methods and tools. It will promote the extension of current engineering analysis and simulation practices to include stochastic methods and tools for enabling virtual and physical product development processes that result in more realistic behavior of the modelled systems and components. This includes the development and promotion of benchmark problems, training, guidance and standards that will have general benefits to the international engineering analysis and simulation community.

The SWG will coordinate with the AMWG (Analysis Management Working Group) on the development of management practices aligned with the rapidly-developing technologies in advancing the productivity and quality of product development processes. The SWG is specifically chartered by NAFEMS to be:

- a. the NAFEMS focal for stochastic engineering analysis and simulation methods and tools,
- b. the NAFEMS focal for Uncertainty Quantification (UQ) methods related to performing virtual and physical engineering simulation,
- c. the primary link between NAFEMS and other groups and organizations that are active in the UQ and Stochastics space,

and to capture and share knowledge & guidelines related to:



- a. Stochastic engineering simulation processes, methods and tools,
- b. Uncertainty Quantification associated with engineering simulation processes, and
- c. Competency requirements related to Stochastics and UQ.

Members & Roles

The members of the SWG:

- a. should preferably be industrial users of stochastic engineering simulation technology.
- b. should be such that two-thirds of its membership are also current members of NAFEMS. A check on the consistency of the working group will be made following the release of each NAFEMS annual report.
- c. shall include the NAFEMS Technical Officer or an appointee thereof.

Potential new members should submit a CV to the SWG chairman indicating their knowledge and experience of stochastic industrial analysis and simulation as related to the working group. This will be reviewed by the SWG members and if approved by at least a two-thirds majority of the SWG members, the person will be invited to meetings and will be provided access for a maximum of 6 months to the WG Collaboration Tools. After that, either the candidate member or the SWG can decide to invite full membership or walk away. The term of membership shall be until the individual resigns his/her position as an SWG member, or when the individual does not meet the required participatory levels as defined elsewhere herein.

Election of the SWG Chairman - The responsibilities of the SWG Chairman shall include leading the SWG in creating a working roadmap for the team and ensuring that the planned deliverables of the team are met accordingly.

The candidate for chair receiving the largest number of votes shall become the Chair. In the case of a tie vote, the membership shall be repolled until the tie is broken. The term of office shall be three years or until he/she resigns the position as the SWG Chairman, whichever occurs first. The SWG Chairman may stand for reelection. In any case, the SWG Chairman shall be a current member of NAFEMS, either directly or by their represented company, and if that membership ceases, the Chairman shall stand down and a new Chairman should be elected. It is desirable that the SWG Chairman represents an industrial user of the technology represented by the SWG.

Members of the SWG shall nominate an individual already serving on the SWG to be the new SWG Chairman. Each nomination shall be supported by at least two seconds. A nomination period shall last no longer than five business days. Nominations shall be submitted by email to the NAFEMS Technical Officer or an appointee thereof. Self-nominations are not permitted.

Upon closing of the nomination period, nominees will be contacted by the NAFEMS Technical Officer to either accept or reject the nomination by phone or email. The nomination acceptance period shall last no longer than five days. If a nominee does not respond to the NAFEMS Technical Officer within the five day period, the nominee will not be considered for the election.

If there is a single candidate for chair, that person shall become the chair.

Upon closing of the nomination acceptance period, the NAFEMS Technical Officer will send an email



containing the list of nominees to all SWG members. The election period shall last no longer than fourteen days. The election results will be based on submitted votes.

Upon closing of the election period, and within a 72 hour period, the NAFEMS Technical Officer shall send an email to all members of the SWG to announce the newly elected Chairman.

Required Participation. Members of the SWG are expected to make regular contribution to the Group. If a member does not contribute for more than 9 months, they will be warned by the NAFEMS Technical Officer that their SWG membership may be terminated. Termination will occur after 12 months of non-contribution at the discretion of the SWG chairman.

Meetings

The SWG should plan to meet on a regular basis throughout each calendar year and should aim for an aggregate of twelve hours of meeting time per year. Additional meetings of the SWG may be called by the SWG Chairman as needed to address issues of importance in a timely manner.

The forum for SWG meetings may include teleconferences, interactive web sessions, or face-to-face discussions. To accommodate participation in the meetings by the international SWG members who are geographically dispersed, it is expected that most of the SWG meetings will be conducted virtually. In all cases, notice of any meeting of the SWG should be given at least five business days in advance to each SWG member by email, phone, or other reasonable means of communication.

Quorum - A quorum is not applicable for SWG meetings because their intent is to focus on discussions and proposals; they are not intended to result in team decisions. Any decision making and voting by the SWG shall be conducted according to the process described elsewhere herein.

Communication - The SWG Chairman will aim to provide the following to the SWG members: 1) an agenda for the next working group meeting, at least one week prior to the upcoming meeting, 2) an overview of the working group's priorities, and 3) input to their future deliverables plan.

The NAFEMS Technical Officer shall keep the NAFEMS Technical Liaison Group abreast of the overall charter and ongoing activities of the SWG, and shall bi-laterally share and collaborate ongoing efforts in which multiple NAFEMS working groups are engaged.

Compensation - Participation in the SWG shall be on a voluntary basis, where NAFEMS Ltd. will pay for reasonable expenses related to the WG meetings. These expenses are limited to fees associated with teleconferences, web sessions, meeting facilities and refreshments, pending the approval of the NAFEMS Technical Officer. Other expenses that might be incurred by specific projects of the SWG will be considered, pending approval of the NAFEMS Technical Officer.

Minutes - Minutes will be taken to record discussions and proposals that result from a physical or virtual SWG meeting and will be typed and circulated within two weeks after any such meeting. The scribe shall be either a NAFEMS representative or a member of the SWG who has agreed in advance of the meeting. The SWG members shall be identified in the minutes as having attended, contributed, apologized, or no communication.



Decision Making & Voting

Decisions made on behalf of the SWG shall be conducted via electronic means to collect votes from the “legal” members of the SWG. “Legal voters” shall be identified as those SWG members who have participated in two-thirds of the SWG meetings (discussions) during the previous nine months.

The SWG shall strive to reach consensus when deciding on issues and proposals discussed by the working group. When consensus is not possible, the following process will be used:

- a. A two-thirds majority of the legal votes shall identify the winning option.
- b. The result of any decision or vote shall be recorded in follow-up minutes of the SWG, with each vote being associated with the name of a working group member.
- c. Abstentions shall not be included in calculating a final vote.
- d. Any negative vote shall be counted as such only if the vote is appended with a rationale that includes a proposed alternative to the issue being decided; otherwise it is not included in the final vote.

Amendments

These Terms of Reference may be altered, amended, or repealed, and new terms may be adopted by the SWG provided that the proposed changes are approved by the SWG per the decision-making process described elsewhere herein. Any changes to the Terms of Reference by the SWG shall be reported to the NAFEMS Technical Officer.