**CAETS' Goals**

**Goal 1.** Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world.

**Goal 2.** CAETS' strong international network of engineering academies gives collective voice to its mission.

**Goal 3.** CAETS' initiatives strengthen the global engineering profession and its pipeline.

Abstract

This document lays out an initial path forward, with emphasis on refinement of CAETS Objectives and identification of actions that employ existing CAETS bodies to better achieve those objectives. It also establishes a Standing Committee on Communications to address cross-cutting challenges that limit the effectiveness of current CAETS communications and reduce the potential impact of its activities. The implementation plan is delineated in "CAETS Operating Guidelines 2021".

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## Background

The Council of Academies of Engineering and Technological Sciences (CAETS) is an independent international network organization established to facilitate collaboration between national academies of engineering and technological sciences worldwide.  A primary purpose of CAETS is to promote engineering and technology development as engines of economic growth, sustainable development, and societal well-being throughout the world. Today, CAETS is comprised of member academies from 31 countries in Europe, North and South America, Asia, Oceana and Africa.

During the CAETS Board meeting on 24 June 2019, a small group of individuals was appointed to develop a 5-year strategic plan organized around three components: 1) Structuring CAETS to more effectively execute its plan; 2) Membership Development; and 3) Achievement of CAETS' Objectives. The intent was to have a draft plan reviewed by the Council July/August 2020 and a final plan presented for concurrence during the CAETS Annual Meeting in October 2020.

Progress was impacted by the global pandemic; the result was a preliminary framework document that was discussed during the 2020 annual meetings.  The Board and Council discussions focused on refinement of the CAETS objectives (as defined in CAETS Bylaws), and assessment of options for organizing CAETS to more effectively pursue its stated objectives. Subsequent deliberations by Board members considered preliminary options for membership development.

This document lays out an initial path forward for CAETS Strategy 2021-2026; the content may be updated periodically at the Board's initiative.  The CAETS Operating Guidelines focus on strategy implementation and will be refined as needed.

## Methodology

The methodology used in crafting this Strategy begins with the "**ends**" – what CAETS wishes to accomplish.  It then identifies the "**means**" – the resources available to take action.  Finally, it develops the "**ways**" – strategies to be implemented (i.e., the *how*).  This approach is illustrated at right.

## Contents

The next section of this document, titled "Ends", provides the existing mission statement, as established by the CAETS Articles of Incorporation, as well as the (updated during 2021 Annual Meeting) CAETS Objectives, which are documented in the CAETS Bylaws; it also suggests high-level goals that may be useful in focusing strategies and sharpening communications, both internally and externally.  Measures are to be addressed by the Board.

The following section, titled "Means" identifies resources in terms of bodies that can take action on behalf of CAETS, including both existing bodies (Council, Board, EXCOM, Annual Meeting Host, and Committees/Working Groups) and a recommended new Standing Communications Committee. The section includes amendments made to CAETS Bylaws to better leverage available communications channels and increase organizational agility.

The "Ways" section summarizes strategies/tactics that connect the means to the ends. Implementation of the strategies is delineated in the "CAETS Operating Guidelines".

The final section of this document lays out a preliminary timeline for action.

## Ends – *What CAETS Wishes to Accomplish*

*MISSION:*  CAETS mission is defined in the CAETS Articles of Incorporation, FOURTH:

> **"The mission of the corporation is to foster effective engineering and technological progress for the benefit of societies of all countries."**

*OBJECTIVES*:  CAETS objectives are defined in the CAETS Bylaws, ARTICLE 1 – Objectives, and remained unchanged since CAETS was incorporated as a nonprofit in the US District of Columbia in 2000.  The list below includes updates approved by the Board and Council during the 2021 Annual Meetings.

### CAETS Objectives

a) **Provide an independent nonpolitical and non-governmental international forum for enlightened dialog and communication of engineering and technological sciences;**

b) **Contribute to advancing engineering and technological sciences in order to promote economic growth, sustainable development and societal well-being throughout the world;**

c) **Foster collaboration and the development of bi- and multilateral programs between the member academies;**

d) **Prepare science-based proposals in order to advise governments and international organizations on policy issues related to engineering and technology development;**

e) **Promote diversity and inclusion in the global engineering profession;**

f)  Promote ethics in engineering education, research and practice;

g)  Contribute to continuous improvement and modernization of engineering education and practice internationally;

h)  Foster a balanced public understanding of the applications of engineering and technology; and

i)  Foster establishment of engineering academies in countries where none exist.

*GOALS:* The following aspirational goals (*desired end-states*) are inferred from the mission and objectives and suggested as a way to focus CAETS strategies and sharpen its communications both internally and externally.

Goal 1.  Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world.

Goal 2.  CAETS' strong international network of engineering academies gives collective voice to its mission.

Goal 3.  CAETS' initiatives strengthen the global engineering profession and its pipeline.

## Means – *Resources Available to Take Action*

The resources available to take action are supplied by member academies and take the form of individuals/groups chartered or organized for a specific purpose.  Examples include:  Council, Board, Executive Committee, and Annual Meeting Host, as well as Committees/Working Groups.

Historically, CAETS activities centered around its annual meetings; participation was dominated by individuals who make up the member academy delegations to those meetings.  Recent experience with virtual meetings indicates that opportunities exist to increase CAETS member engagement throughout the year and also to leverage an expanded base of expertise by engaging a broader array of Fellows and staff from the member academies.

Recent experience also suggests CAETS could expand its public communications beyond statements and reports by leveraging additional communications channels, for example:  virtual conferences/webinars; YouTube recordings, and a more robust web presence.

The remainder of this section discusses the role of each of the existing Means within the context of CAETS governance and summarizes the Bylaws amendments intended to facilitate more effective pursuit of CAETS Strategy.  It also lays the foundation for the newly established Communications Committee.

**COUNCIL:**  The CAETS Council is described in ARTICLE 2, Section 1, and is comprised of a designated representative from each of the member academies.  Council leadership is established by the Rotation Schedule, which is updated annually.

ARTICLE 2, Section 2. Functions of the Bylaws establishes the responsibilities of the Council:

a) Establish the policies of CAETS;
b) Approve procedures for and the election of academies to membership in CAETS;
c) Establish the initial contribution of new academy members and the annual dues of members;
d) Accept the representative of each member academy to the Council and elect the members of the Board of Directors; and
e) Approve the general concept and outline of CAETS convocations, symposia, projects, and endorsed activities.

ARTICLE 2; Section 5 of the CAETS Bylaws provides guidance for conduct of meetings. The text below includes an addition to the Bylaws to reflect the use of virtual meetings and email to conduct business which was adopted during the 2021 Annual Meeting of the Council.

ARTICLE 2, Section 5. Meetings
Annual meetings of the Council shall be held at a place and date approved by the Council. With 90 days' notice, special meetings of the Council may be called by the President or at the request of four or more members. Both annual meetings and special meetings of the Council may be held via teleconference or video conference provided all persons can hear each other and the means exist to attribute member votes. Council votes may also be conducted via email provided that all members give written consent to action without a meeting and that any question so decided shall have been transmitted in writing prior to the vote to every member of the Council in the same wording. Unless otherwise required by these Bylaws, the Articles of Incorporation, or by law, an affirmative vote of a majority of all of the members of the Council shall be necessary for action by mail vote. Each member is entitled to one vote on each matter submitted to a vote at any meeting, but no member with dues in arrears for a period of six months shall be entitled to vote. Fifty percent of the current CAETS membership, with accepted representation present, shall constitute a quorum.

**BOARD:** The composition of CAETS Board of Directors is defined in ARTICLE 3, Sections 2-5 of the Bylaws. Directors include four officers (President, President-Elect, Past-President, Secretary/Treasurer) and eight additional members drawn from member academies.

ARTICLE 3, Section 1 establishes the functions of the Board. The text below includes amendments to the Bylaws to make explicit the Board's role in implementing CAETS strategy and also to provide greater agility in conducting business.

ARTICLE 3, Section 1. Functions
Subject to the provisions of the Articles of Incorporation and these bylaws, the Board of Directors shall be responsible for executing the policies, strategies, and actions approved by the Council. The Board shall have paramount authority with respect to the funds of CAETS,

and the power to adopt the annual budget of the Council. The Board of Directors shall meet at least annually, in conjunction with meetings of the Council; and, with 30 days' notice, at the call of the President or two other members of the Board through the Secretary/ Treasurer.

ARTICLE 3, Section 6 describes the conduct of meetings of the Board.

> ARTICLE 3, Section 6. Meetings
> The Board of Directors may conduct business in any way permitted by the laws of the District of Columbia, including but not limited to telephone conference or similar communications equipment, provided all persons participating in such a meeting can hear each other. Participation in a meeting by such means shall constitute presence in person at the meeting. The Board of Directors may conduct any of its affairs by mail vote, provided that all members of the Board give signed, written consent to action without a meeting and that any question so decided shall have been transmitted in writing prior to the vote to every member of the Board in the same wording. Unless otherwise required by these Bylaws, the Articles of Incorporation, or by law, an affirmative vote of a majority of all of the members of the Board of Directors shall be necessary for action by mail vote. A quorum for the conduct of business of the Board of Directors shall consist of a majority of the number of its members.

Additionally, ARTICLE 4 permits the Board to establish Standing Committees:

> ARTICLE 4 – Executive Committee
> In addition to the Executive Committee, there shall be such standing committees as shall be authorized from time to time by the Board of Directors.

**EXCOM:**  The Executive Committee is defined in ARTICLE 4 of the CAETS Bylaws; membership includes the President, the President-Elect, and the Secretary/Treasurer.  The EXCOM is empowered to conduct routine business between meetings of the Board and act in emergencies, but all actions must be consistent with the resolutions and policies of the Board. The EXCOM has no independent role in strategy implementation.

**ANNUAL MEETING HOST**:  The member academy serving as the annual meeting host is established by the CAETS Rotation Schedule.  Principle responsibilities include organizing and hosting a technical symposium/convocation[1] as well as hosting annual meetings of the Board, Council, and other Working Groups/Committees.

CAETS Bylaws are silent on the topic of technical symposia/convocations except for specifying that a function of the Council is to "Approve the general concept and outline of CAETS convocations, symposia, projects, and endorsed activities" (ARTICLE 2 – Council; Section 2. Functions; item e).  The vital role played by the Annual Meeting Host is emphasized in strategy implementation.

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[1] CAETS lexicon is that a one-day meeting is a symposium, while a longer meeting is termed a convocation.

**COMMITTEES/WORKING GROUPS**:  Although committees/working groups are not explicitly addressed by formal CAETS governance, they are major contributors to achievement of CAETS objectives.  Recent experience gained through the use of virtual meetings, while motivated by world events, demonstrates that more consistently leveraging such tools going forward could increase both engagement (*by enabling the participation of a broader array of Fellows and academy staff*), and impact (*by maintaining momentum throughout the year and facilitating more rapid generation of statements/reports and other outputs*).

CAETS has used the terms *committee, working group*, and *discussion group* without meaningful distinction.  During the CAETS 2020 discussions on this issue, there was general agreement that the term "*discussion group*" should be dropped in favor of "*working group*," which is more action-oriented, and that a single term should be used for all similar activities for greater clarity.  **During the 2021 Annual Meetings, both the Board and the Council agreed to adopt the term "Working Group" for existing and future CAETS committees/working groups, with one exception as described below.  The Working Groups would operate in accordance with established Operating Guidelines (provided separately).**

A significant and ongoing challenge for CAETS is the absence of a professional/coherent approach to communications across all media and diverse audiences.  This is a cross-cutting issue that limits the potential impact of CAETS activities and communications.  As noted previously, the term "standing committee" is introduced in the Bylaws in the context of the Executive Committee (ARTICLE 4 – Executive Committee: "*there shall be such standing committees as shall be authorized from time to time by the Board of Directors*.") In practice, standing committees[2] are viewed as permanent entities.

This Strategy recommended that the Board authorize establishment of a **Standing Communications Committee** – a new *Means* to improve, on an ongoing basis, all CAETS Communications.  This recommendation was agreed upon by the Board during its 2021 Annual Meeting.  The standing committee subsumes activities of the pre-existing CAETS Communications Working Group and also assumes new responsibilities to include:
1) Development and maintenance of a Style Guide[3] for CAETS communications;
2) Ongoing oversight of the annual CAETS Communications Prizes; and
3) Derivation and synthesis of key messages from Working Groups and other CAETS activities.

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[2] Dictionary definition of standing committee:  A permanent committee, as of a legislature, society, etc., intended to consider all matters pertaining to a designated subject.

[3] A style guide is a set of standards for the writing, formatting and design of documents and other means of communication.  It establishes standard style requirements to improve communication by ensuring consistency both within a document, and across multiple documents.

Membership of the CAETS Communications Committee should include both Fellows and communications professionals nominated by member academies.  The Committee will operate in accordance with a Board-approved Charter and Operating Guidelines.

## Ways – *Strategies and Tactics to be Implemented*

This section connects the *Means* to the *Ends* through the *Ways* (strategies/tactics).  The Operating Guidelines, provided separately, operationalize the implementation of this Strategy.

**COUNCIL** (*Means*):

| Ways (Annual Meeting) | Ends (Objectives) | Ends (Goals) |
|---|---|---|
| Discuss and shape an annual CAETS statement derived from the content of the Technical Symposium/Convocation. | a) Provide an independent nonpolitical and non-governmental international forum for enlightened dialog and communication of engineering and technological sciences. | 1.  Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Ensure that the theme selected by the host country for upcoming annual meetings is consistent with Objective b. | b) Contribute to advancing engineering and technological sciences in order to promote economic growth, sustainable development and societal well-being throughout the world. | 1.  Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Assure ample break time and space for bi- & multi-lateral meetings during annual meetings. *Secretariat: Provide pre-meeting synthesis of individual academy interests to facilitate contact.* | c) Foster collaboration and the development of bi- and multi-lateral programs between the member academies. | 2.  CAETS' strong international network of engineering academies gives collective voice to its mission. |
| Prioritize engagements with non-CAETS nations based on annual meeting topics and locations; support virtual participation. | i) Foster establishment of engineering academies in countries where none exist. | 3.  CAETS' initiatives strengthen the global engineering profession and its pipeline. |

**BOARD** (*Means*):

| Ways (Meetings) | Ends (Objectives) | Ends (Goals) |
|---|---|---|
| Perform annual review of CAETS activities and upcoming events to assess alignment with Objectives; identify gaps (under-served objectives) that may warrant additional attention.  Provide summary report to Council. | All objectives. | All goals. |
| Review Dues Structure every 5 years to ensure equity across members, and facilitate member development.  Recommend changes to Council if needed. | | 2.  CAETS' strong international network of engineering academies gives collective voice to its mission. |

**ANNUAL MEETING HOST** (*Means*):

| Ways (Symposium/Convocation) | Ends (Objectives) | Ends (Goals) |
|---|---|---|
| Plan for in-person participation augmented by new means that engage virtual audiences both during and post-event. Implement hybrid format even when in-person events are primary. | a) Provide an independent nonpolitical and non-governmental international forum for enlightened dialog and communication of engineering and technological sciences. | 1. Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Invite presentations that address technical topic links to economic growth, sustainable development and societal implications. Prepare post-event statements that reinforce linkages. | b) Contribute to advancing engineering and technological sciences in order to promote economic growth, sustainable development and social welfare societal well-being throughout the world. | 1. Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Invite presenters who are role models for diversity and inclusion. | e) Promote diversity and inclusion in the global engineering profession. | 3. CAETS' initiatives strengthen the global engineering profession and its pipeline. |
| Include session/presentations focusing on ethics-related issues relevant to technical topics. | f) Promote ethics in engineering education, research and practice. | 3. CAETS' initiatives strengthen the global engineering profession and its pipeline. |
| Include session/presentations on engineering education implications stemming from technical topics. | g) Contribute to continuous improvement and modernization of engineering education and practice internationally. | 3. CAETS' initiatives strengthen the global engineering profession and its pipeline. |
| Target the public as an audience for a post-event statement. Provide a synopsis of the symposium on the event website to enhance public understanding. | h) Foster a balanced public understanding of the applications of engineering and technology. | 1. Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Invite participation by non-CAETS member nations (including those with no engineering academy); use virtual participation to expand reach. | i) Foster establishment of engineering academies in countries where none exist. | 2. CAETS' strong international network of engineering academies gives collective voice to its mission. |

**STANDING COMMUNICATIONS COMMITTEE** *(Means):*

| *Ways* | *Ends (Objectives)* | *Ends (Goals)* |
|---|---|---|
| Promote and oversee implementation of the Annual CAETS Communications Prizes. | h) Foster a balanced public understanding of the applications of engineering and technology. | 1. Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Derive and synthesize key messages from working groups and other activities that may be used by individual member academies as well as for CAETS messaging. | b) Contribute to advancing engineering and technological sciences in order to promote economic growth, sustainable development and societal well-being throughout the world. | 1. Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Develop and maintain a Style Guide to help build the CAETS brand through website content/presence and other messaging. Assess the utility of alternate communications channels to increase impact. | h) Foster a balanced public understanding of the applications of engineering and technology. | 1. Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |

**WORKING GROUPS** *(Means):*

| *Ways* | *Ends (Objectives)* | *Ends (Goals)* |
|---|---|---|
| Generate reports and/or statements that address topic links to economic growth, sustainable development and societal implications. | b) Contribute to advancing engineering and technological sciences in order to promote economic growth, sustainable development and societal well-being throughout the world. | 1.  Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Share information; identify common interests and facilitate contact among working group members. | c) Foster collaboration and the development of bi- and multilateral programs between the member academies. | 2.  CAETS' strong international network of engineering academies gives collective voice to its mission. |
| Derive targeted communications from reports/statements for dissemination to national and international organizations. | d) Prepare science-based proposals in order to advise governments and international organizations on policy issues related to engineering and technology development. | 1.  Engineering and technology development are recognized as engines of economic growth, sustainable development, and societal well-being throughout the world. |
| Share information/best practices internal to CAETS.  Generate statements/reports regarding benefits of diversity & inclusion for external/international audiences (including the public). | e) Promote diversity and inclusion in the global engineering profession. | 3.  CAETS' initiatives strengthen the global engineering profession and its pipeline. |
| Share information/best practices internal to CAETS.  Generate statements and/or reports regarding engineering ethics for external/international audiences (including public). | f) Promote ethics in engineering education, research and practice. g) Contribute to continuous improvement and modernization of engineering education and practice internationally. | 3.  CAETS' initiatives strengthen the global engineering profession and its pipeline. |

Existing CAETS Working Groups are well-aligned with the CAETS Objectives.  In addition to the links shown in the table above:

- All Working Groups are aligned with Objective a) *Provide an independent nonpolitical and non-governmental international forum for enlightened dialog and communication of engineering and technological sciences*.
- The Communications Committee, in collaboration with other Working Groups, assists with attainment of Objective h) *Foster a balanced public understanding of the applications of engineering and technology.*
- The Council, in collaboration with the Annual Meeting Host, addresses Objective i) *Foster establishment of engineering academies in countries where none exist*.

Operating Guidelines are provided to further increase the individual and collective impact of existing CAETS Working Groups and to inform future decisions regarding establishment of new ones.

## Summary Timeline

**2021**
- **Approve changes to CAETS Bylaws (Council)**
- **Endorse preliminary Operating Guidelines for implementation (Council)**
- **Establish Standing Committee for Communications (Board)**
- **Initiate review of Dues Structure (Board)**

**2022**
- Implement preliminary Operating Guidelines
- Collect feedback and refine Operating Guidelines (Secretariat/Board)
- Identify top-level performance measures (Board)
- Develop Style Guide (Communications Committee) for Board endorsement
- Report to Council on Dues Structure review (Board)

**2023**
- Implement updated Operating Guidelines
- Implement Style Guide
- Evaluate progress in pursuing CAETS Objectives/Goals (Board)
- Review and refine top level performance measures (Board)

**2024**
- Continue refinement of Operating Guidelines (Board/Secretariat)
- Evaluate progress in pursuing CAETS Objectives/Goals (Board)
- Review and refine top level performance measures (Board)

**2025**
- Evaluate progress in pursuing CAETS Objectives/Goals (Board)
- Review overall strategy and implementation (Board)
- Recommend to Council changes that should be considered (Board)

**2026**
- Evaluate progress in pursuing CAETS Objectives/Goals (Board)
- Review overall strategy and implementation (Board)
- Initiate development of next cycle of CAETS Strategy (Board)