INCOSE ANNUAL OPERATING PLAN 2015

Contents

1. Introduction

This INCOSE Annual Operating Plan (AOP) describes the planned activities funded by the INCOSE International Budget in 2015. The purpose of this narrative is to guide the activities through the year, and to ensure that INCOSE members understand the organisation's priorities and how it intends to achieve them.

This 2015 AOP was created in the context of INCOSE's Vision, Mission, Goals, and Strategy – described as a set of Five-Year Objectives. As an annual plan, this AOP is informed by the INCOSE Long Range Financial Planning process, which is led by the Budget and Planning Committee of the INCOSE Board of Directors.

2. INCOSE Mission, Vision, Goals and Values

These frame our ongoing purpose and should be included in the AOP. Next year we expect to include the INCOSE Principles as well.

2.1 Mission

The mission of INCOSE is to share, promote and advance the best of systems engineering from across the globe for the benefit of humanity and the planet.

2.2 Vision

The INCOSE vision is to be the world's authority on Systems Engineering.

2.3 Goals

INCOSE has established the following goals for the organization to achieve the mission and vision:

    a. To provide a focal point for dissemination of systems engineering knowledge.

b. To promote international collaboration in systems engineering practice, education, and research.
c. To assure the establishment of competitive, scalable professional standards in the practice of systems engineering.
d. To improve the professional status of all persons engaged in the practice of systems engineering.
e. To encourage governmental and industrial support for research and educational programs that will improve the systems engineering process and its practice.

2.4   Values
In INCOSE we value:

- **Systems Thinking** – thinking and acting to apply systems approaches to address complex challenges and thus to realise successful sustainable solutions.
- **Pioneering and Innovation** – taking opportunities ourselves or with partners to evolve systems approaches to meet future challenges.
- **Learning and Development** – life-long learning with a changing world through education and continuing professional development, covering both technical and leadership competencies.
- **Respect, Diversity, Collaboration** – building and maintaining respectful relationships internally and externally in order to enable effective collaboration across the diverse community.
- **Individuals** – the importance of people, their intellect and influencing skill, to support complex decisions and to deliver enduring change.
- **Volunteerism** – volunteers and staff working together to achieve our objectives and to deliver benefit to our members, individuals and society.

3. INCOSE Five Year Objectives
As the result of two years of thoughtful strategy sessions before board meetings, and in cooperation with chapter and working group leadership, the following five-year objectives have emerged, and these will guide policy and budgeting decisions for the years to follow. These objectives are demanding and may not all be achieved in a five-year timescale, but are intended to allow us to make significant progress in evolving INCOSE. Each objective is provided with its short title, the name of the current champion, and a brief description of the intended outcomes and supporting strategies.

3.1 Growth
Led by the Sector Directors

Objective: INCOSE doubles its membership and embraces the healthcare, mobility, and energy business sectors.

Supported by two strategies:

- **Other Professionals**: In targeted industries (healthcare, mobility, energy, national security), address professionals who do only a little systems engineering or who work with systems engineers but do no systems engineering themselves, and make them

aware of the value of systems engineering; create a membership model that delivers impactful products and services to them at an attractive price

- **More Systems Engineers**: In targeted industries, address those whose primary role is performing systems engineering, including those who are not called systems engineers, and make them aware of the full range of value that INCOSE offers them; attract them to INCOSE with customized offerings

3.2 Alliances

Led by the Director for Outreach

Objective: INCOSE amplifies its ability to achieve its mission through diverse alliances.

Supported by two Strategies:

- **Chapter, et al Leverage**: Leverage synergies with allies at global, sector, regional, and chapter levels while ensuring specific benefits at each level
- **Industry Associations**: Develop and leverage alliances with industry associations representing targeted industries; seek active collaboration around the Systems Engineering Vision 2025

The primary desired outcomes from 2015 for Alliances are:

a. To consolidate the list of current Alliances, with POCs for INCOSE and the Alliance partners established or renewed, and renewal dates for all of them jointly understood.
b. To create and agree on Context Diagrams for INCOSE, at International and National Chapter levels, with generic and specific outreach targets for:
    i. Standards bodies
    ii. Other professional bodies or associations, by engineering discipline and by industry etc. domain
    iii. Academic agencies, and if necessary specific partners (education / certification preparation, research, curriculum development, ...)
    iv. Chapter membership agreements (possible overlap here with Growth Objective)
c. For each Outreach interface across the context boundary, to define and agree
    i. *What* is being exchanged or agreed
    ii. *Why* it is in INCOSE's interests to set up and maintain the Alliance. It should be linked to one or more of our other Goals or Objectives; or otherwise show demonstrable "Impact". This should lead to a set of guidelines for new potential Alliances; does the proposal *align* with our direction and aspirations? Does it add value / membership / impact?

See also Section 4.3 on Outreach activities and objectives for 2015 onwards.

3.3 Education

Led by the Director for Academic Matters

Objective: INCOSE curricular recommendations are widely adopted around the world, raising the quality of engineering education.

Supported by two strategies:

- **Engineering Programs**: Advocate for incentives that encourage university engineering programs to integrate systems engineering and systems thinking into their curricula; create mechanisms such as curricular materials, experience reports, and adoption workshops, to help universities implement such integration
- **GRCSE**: Advocate for GRCSE to encourage university systems engineering graduate programs to adopt GRCSE; create mechanisms, such as curricular materials, experience reports, and adoption workshops, to help universities to implement such adoption

The primary desired outcomes in 2015 related to the Education Outcome and the supporting two Strategies are:

a. A worldwide directory of university systems engineering programs will be published and broadly disseminated to university deans of engineering and other academic leaders to increase their awareness of systems engineering programs.

b. At least two workshops on integrating systems engineering and systems thinking into the education of all engineers will have been held, creating a broader and deeper understanding of what has been done in this area already and what can be done to accelerate such integration. One of these workshops will be held in conjunction with the annual conference of the American Association of Engineering Educators, which is the largest and most influential body of engineering faculty in the US.

c. A plan will be in place to develop an update to GRCSE in 2016, where that update may expand the focus to include curricular recommendations for systems-related materials in general engineering programs.

d. Awareness of INCOSE throughout ABET will be elevated through an outreach program at ABET events. Eventually, INCOSE wants to influence ABET accreditation standards to incorporate systems-related criteria.

e. A new honor society for university students with systems-related majors will be operational at five to ten universities in the US.

f. INCOSE's visibility among secondary school educators and students will be higher as a results of INCOSE's continued sponsorship of engineering contests in secondary schools.

3.4 Products
Led by the Technical Director

Objective: -INCOSE produces and brokers the most impactful systems engineering information in the world, grounded in effective practice and research.

Supported by two strategies:

- **Bottom U**p: Harvest high impact products initiated and developed by chapters and working groups

- **Top Down**: Sponsor technical initiatives, including funding and other resources, selected by the Board of Directors as strategically important to both individual and corporate members

The key intended outcomes in 2015 are as follows:

a. Wiley publication of the Systems Engineering Handbook version 4
b. English translation of the AFIS Product Line Guide
c. INSIGHT restructured into a quarterly practitioners magazine published by Wiley beginning with the 1st Quarter 2015 issue with the objective to advance the state of practice of systems engineering and to close the gap between the state of practice and the state-of-the-art
d. Revised tutorial based on Systems Engineering Handbook version 4
e. Revised SE Competency Guidelines in collaboration with the UK Chapter
f. Support release of BKCASE versions 1.4 and 1.5
g. Harmonize INCOSE position on tailor-able and scalable systems standards
h. Make INCOSE technical products and technical data more accessible to members.

Critical dependencies to achieving the five-year objective are as follows:

a. Revised Technical Operations technical review procedure responsive to differentiation of different types of products and data, and a more inclusive constituent review process.
b. Operationalize the Knowledge Management Working Group to more fully perform the knowledge management function for technical products and data.

3.5 Forums

Led by the Events Director

Objective: INCOSE produces and supports the most impactful forums in the world on systems engineering practice, policy, education and research.

Supported by one strategy:

- **Portfolio**: Encourage, enable, and coordinate global forums that address targeted audiences and expand face-to-face and virtual participation; forums include INCOSE branded and events held in conjunction with allies.

3.6 Competency

Led by the Chair of the Corporate Advisory Board

Objective: -INCOSE teams with industry to raise systems engineering competency across their supply chains.

Supported by one strategy:

- **Tailor:** Collaborate with targeted industry leaders and targeted industry associations to develop tailored offerings to mutually enhance industry systems engineering competency

3.7 Transformation

Led by the Technical Director

Objective: INCOSE accelerates the transformation of systems engineering to a model-based discipline.

Supported by one strategy:

- **Community:** Build a broad community that promotes and advances model-based engineering and the role that model-based systems engineering plays in it

The key intended outcomes in 2015 are as follows:

a. INCOSE Model-Based Grand Challenge kick-off
b. INCOSE tracks and publishes state of the art advances in model-based systems engineering, base-lined against state of the art in computing and communications technologies
c. Tool survey updated quarterly with all vendors submitting, including capabilities, interoperability and interfaces.

Critical dependencies to achieving the five-year objective are as follows:

a. IT infrastructure
b. Establishing a network of model-based constituent groups both internal and external to INCOSE.

4. INCOSE Budget Lines

INCOSE's main activities are funded through its budget lines. This section of the AOP provides a short description of the main activities in each line.

4.1   Strategy

Throughout 2015, work will continue on Strategy Development and support of the Alliances objective by working to achieve Systems Engineering Vision collaborations.

4.2   Events

The Events committee will ensure the conduct of the International Workshop and International Symposium in 2015, as well as any early planning and contractual activities necessary to achieve the same events in 2016 and 2017.

In addition, the committee will look at the range of events taking place at chapter, national, and sector levels and encourage the development of new Events that capitalize on these initiatives.

4.3   Outreach

INCOSE outreach seeks to engage across geographic and application domain boundaries in order to contribute to the development and practice of systems engineering. This includes the identification and definition of outreach strategies and initiatives; coordination with other INCOSE entities on the execution of outreach campaigns; the identification, facilitation, and management of alliances; and the establishment and leadership of an appropriate supporting volunteer structure.

The main Outreach activities planned in 2015 are:

- Outreach to an increasingly wide range of Industries where Systems Engineering is applicable; this is managed by the Industry Outreach Board (IOB).
- Management of existing relationships

4.3.1   Industry Outreach

As a vital means to growth of the INCOSE and the development of SE practice, Industry Outreach seeks to establish the sustainable membership of INCOSE members in all industries where SE is applied, even when it is described using different language. This is achieved by directed initiatives aligned with the INCOSE strategic 5 year objectives that are carried out by dedicated resources and in collaboration with other INCOSE entities.

The approach taken is to work along four major areas of initiatives:

- Create visibility and attract new industry members via an effective value proposition
- Empower leaders (e.g. Ambassadors) to engage industry members
- Enhance SE knowledge & practices among the widening industry community

4.3.2 Management of Strategic Relationships

The intention of this activity is that:

- INCOSE formalises its Strategic Relationships in Memorandums of Understanding (MOU) and other equivalent agreements.

- Creation of relevant Assistant Director roles
- Create a new pro-active approach to identify and manage relationships based on understanding of mutual value and costs

4.4   Corporate Advisory Board

The main activities for the Corporate Advisory Board during 2015 are:

- Development of an industry SE competency framework
- An online self-assessment portal regarding Systems Engineering Professional Development
- A continued strong focus on the CAB's top five needs
- Focused outreach activities
- Networking and information sharing among CAB members and other INCOSE members
- Updating the existing CAB membership value proposition

4.3.1   Development of an industry SE competency framework

The CAB's highest priority is to develop guidelines for how to get and how to maintain skilled Systems Engineering employees. The CAB has a special integration manager in order to provide guidelines to the working groups in order to enable suitable products and services. 2015 will be the year for the confluence of results into a cohesive framework.

4.3.2   An online self-assessment portal in System Engineering skills

During 2015, the CAB will take the first steps to launch an on-line Systems Engineering Professional Development portal. The portal will be based on sections taken from the Systems Engineering Professional Development Framework and it will run on INCOSE's IT platform.

4.3.3   Strong focus on the CAB's Top 5 needs

During 2014 CAB's management strength increased by 50 % (from 2 people to 3 people). This growth is a result of a strategic insight that the CAB needs to be able to interact with other INCOSE entities more strategically but also that the CAB's needs have to result in products/services much faster than in the past.

4.3.4   Target new possible CAB members

The CAB Management together with the INCOSE administrative office will plan for targeted outreach activities in order reach new possible CAB members e.g. invite special companies and organization to participate in a CAB function during IS/IW.

4.3.5   Networking and information sharing

CAB members are motivated to learn how to utilize INCOSE's products within their own organization as well as to be involved in the development of good Systems Engineers, therefore, the CAB organizes one dinner at IS for its members as well as being a sponsor to INCOSE Foundation's scholarship activity during the IW.

4.3.6   Updated CAB value proposition

The CAB has a growth target that requires an updated CAB value proposition information package. The information package shall also be available and used by local chapters and

other outreach activities. It will be accessible as a download from INCOSE's homepage and may be delivered as a brochure at the IS/IW.

4.5   Sectors and Chapters

4.5.1   Americas Sector

The Director for the Americas Sector has identified the following activities and outcomes for 2015:

- Support INCOSE Growth objective through chapter membership initiative
- Support INCOSE Growth objective through support of struggling chapters and chapter partnerships to maintain momentum and support involvement in INCOSE
- Develop marketing and membership development initiatives to energize above two activities utilizing association expert resources and proven best practices
- Support Chapters in producing better programs through speaker/session database and related resources (depends on new IT, and info from Events Committee)
- Expand the Chapter Excellence Program beyond Circle Awards to other chapter development areas, including programs, communications, local working groups (depends on, or related to Tech Ops).

4.5.2   EMEA Sector

The EMEA Sector efforts will be focused in 2015 on the contribution to the Growth Strategic objective through support to Chapters and in particular looking at support for the translation of documents.

4.5.3   Asia-Oceania Sector

For the immediate future in the Asia-Oceania Sector, the focus will be on working to facilitate the promotion of INCOSE in the region and support the individual chapters' activities at both the local and regional level. This will be achieved through regular meetings, mutually agreed action plans and common activities, starting with small but defined progressive steps.

Based on this support the Sector will be specifically targeting the following:

- Advice/support for people presenting an approved paper/material at a regional event.
- Support to regional conferences.
- Support to local chapters in the promotion of Systems Engineering and INCOSE.
- SE Handbook Translations (Chinese, Japanese and Korean).

These activities are intended to facilitate a stronger base for growth in the sector, will provide a potential starting point for generating regional alliances, will support SE in the education and academia arena, particularly those seeking CSEP status, and may potentially lend itself to creating forums in SE. Once this base is established the Asia-Oceania sector will broaden its focus to other events and support, aligning initially with the promotion of growth, alliances, education and forums in the sector.

4.5.4   Chapter Support

Sector directors provide periodic support to individual chapters to promote excellence in chapter operations or intervene for struggling chapters. Chapter Marketing and Promotion provides brochures, publications, and give-aways that can be used by chapters for INCOSE promotional activities.

One key aspect of support which is emerging is support to Chapters for translation of documents.

- Translation from English to another language: This is the case where an existing product needs to be translated for a better and wider communication in the national language of a Chapter (e.g. the SE Handbook). This may be covered whenever needed by a specific MOU between INCOSE and the Chapter
- Translation from National Language to English: This is the case where a document has been produced in the national language within a Chapter and this document is proposed to become an INCOSE product.

4.5.5 Chapter Awards
Sector Directors sponsor various awards to promote excellence in chapter and membership activities. Budget is used to provide chapter awards for the chapter awards program, and past-president recognition pins.

4.5.6 Sectors, Chapter and Member Shared Services (CAMSS)
The purpose of CAMSS is to provide a collaborative environment where chapters can share with each other. Meetings are held at the International Workshop (IW) and the International Symposium (IS). As well as providing routine support, CAMSS undertakes to increase value to chapters and members, such as the Keys to Effective Chapters, Speaker's Bureau, Sector configuration of IT services, Membership Retention Initiative, Chapter Calendars, and provision of Promotion Items.

4.6   Technical Operations

4.6.1   Technical Infrastructure
The Internal Technical Operations activities are broken into special initiatives for Internal Technical Operations overall, support of Technical Events, performance of Technical Reviews, conduct of Technical Information Management and Control, support of Technical Communications and development and maintenance of Technical Policies, Procedures and Plans. The Internal Technical Operations initiatives include development of mechanisms for INCOSE products in conjunction with the INCOSE Publications Office. Support of Technical Events is supporting the International Symposia, and monitoring INCOSE Chapter and Regional Conferences to ensure consistency and release ability of their products.

The Associate Director for Technical Reviews oversees the reviews of documents produced by each Working Group (WG) to create Technical Data and INCOSE Products, IS papers, and other publications as needed. Internal Operations oversees the technical management and control by improving and maintaining the flow of INCOSE Technical Products and Data to members and ensuring that all INCOSE Technical Intellectual Property is properly released and controlled. Technical Communications is focusing on improving the flow of information internal to the Technical Infrastructure and between the Technical Infrastructure and the rest of INCOSE to enable members to gain improved insight into technical capabilities that INCOSE can offer to them. The Technical Policies, Procedures and Plans is focusing on standardizing and improving the INCOSE Organizational Standard Processes so that they are clearer, more complete and more useful to members.

Several internal structures operate cooperatively. The Technical Policies, Procedures and Plans area is responsible for maintaining consistency of procedures governing operation of Technical Events, Technical Reviews, Information Management and Control and Technical Communications. However, each of these areas is responsible for implementing the standard procedures and providing feedback to the Technical Policies, Procedures and Plans. Technical Communications works closely with the Communications Committee and INCOSE administrative office to ensure consistency, provide timely updates to the newsletter and website, and to improve communications between tech ops and members. While Technical Reviews oversees reviews of IS papers, the reviews and paper database are implemented by Technical Events. Technical Reviews oversees reviews of standards and compiles and releases the results, however, the Standards Initiative implements the standards reviews.

4.6.2   Standards Liaison

Standards development will continue, but under a defined schema for planning longer range efforts aligned with the Systems Engineering Vision 2025, interoperating with Working Groups and other parts of INCOSE, and ensuring maximum visibility of plans and results to INCOSE stakeholders. This is in support of ISO, IEEE, and OMG standards. In 2015, we intend to align participation in standards with working group activities and set up a more strategic approach to participation in standards activities as we continue to liaise with standards development bodies.

- ISO/IEC JTC1 SC7 WG7 – 24748 (Guide for Life Cycle Management) Editor for Systems Engineering Management, which is key for the INCOSE SE Handbook
- ISO/IEC JTC1 SC7 WG7 – 24748 (Guide for Life Cycle Management) Editors for Systems Integration.
- ISO/IEC JTC1 SC7 WG 7 – 24748-6 (Guide for Life Cycle Management) Editor for V&V, which needs to be consistent with SE Handbook
- ISO/IEC JTC1 SC7 WG7 – Continue as Editor of Requirements Tools..
- ISO/IEC JTC1 SC7 WG04 – SE Tools and tool environment editor.
- ISO/IEC JTC1 SC7 WG20 - Certification. This includes developing initial SE criteria. Preparation for preparing standard for SE Certification.
- ISO/IEC JTC1 SC7 WG24 – Life Cycles for Very Small Enterprises. Provides INCOSE exposure to smaller international companies and inserting SE processes into SW development. Serve as project editor and Working Group Secretary.
- Object Management Group (OMG) Support for modeling standards including SysML, UPDM, SysML/AP233 mapping and other model-based systems engineering. Provide inputs to INCOSE MBSE Initiative. Also, chair of the OMG systems engineering domain special interest group (SE DSIG).
- ISO/IEC JTC1 SC27 – IT Security Techniques.
- ISO TC184 SC5 Object Process Methodology (OPM).
- IEEE 15288.1 and IEEE 15288.2 tailoring of ISO/IEC/IEEE 15288 for US DoD.

4.6.3   Technical Projects

4.6.3.1 BKCASE Initiative

This budget covers stewardship of the Systems Engineering Body of Knowledge (SEBoK) and Graduate Reference Curriculum for Systems Engineering (GRCSE).

4.6.3.2 MBSE Initiative

MBSE Initiative continues to develop and implement the roadmap for MBSE in direct support of the SE Vision. Initiative now has an organizational structure based on increasing the knowledge base using activity leads for key areas related to MBSE and challenge teams that apply the knowledge. The MBSE Initiative continues to conduct workshops and LiveMeeting webinars with an emphasis in 2015 to engage more fully with Working Groups.

4.6.3.3 PMI / INCOSE Initiative

Expand beyond the closed PMI/INCOSE MOU to establish a global project management / systems engineering community of practice.

4.6.3.4 Government Domain

- Technical participation in GEOSS Architecture & Data Committee meetings. INCOSE now has the leadership responsibility for architecture definition in this area, led by GEOSS Working Group Chair Participation in the annual GEOSS Plenary session by the INCOSE GEOSS representative.
- Power and Energy Systems Working Group support to EnergyTech conference.
- Transportation Systems Working Group continues to outreach to companies in the ground transportation industry.
- Space Systems Working Group support for MBSE Space Systems Challenge Project.

4.6.3.5 Industry Domain

- The Automotive Working Group objectives are to report on the state of SE practice in the industry; entity-relation diagram with respect to other INCOSE entities; world map of automotive initiatives.
- The Healthcare Working Group objectives include PCAST Response, MBSE Challenge, Case Study Library, SE Value, Technical Education, and Safety Cases.
- Very Small and Micro-sized Enterprises (VSME) continues to support Systems Engineering and Management guides for very small entities, as well as the definition of deployment packages.
- Infrastructure Working Group objectives include MBSE application to infrastructure (connect the MBSE and the Building Information Modeling (BIM) http://en.wikipedia.org/wiki/Building_information_modeling development teams), Guide to the Application of Systems Engineering in Large Infrastructure Projects, NETLPISE collaboration, develop a meta model for infrastructure, and bring construction companies into INCOSE.
- Product Lines Working objective includes evolving Product Lines in the Enterprises.

4.6.3.6 Processes Enablers

- The Systems Security Engineering Working Group,
- Support for Systems Security Engineering,
- An Integrated Approach to Building Trustworthy Resilient Systems; NIST Special Publication 800-160

4.6.3.7 Technology Enablers

- Participation in PDES and OSLC to further tools interoperability.

4.6.3.8 Knowledge Enablers
- The Agile Systems and Systems Engineering Working Group is undertaking a multi-year Agile SE Life Cycle Model (ASELCM) Fundamentals Project.
- The Systems Science Working Group (SSWG) will continue collaboration with the International Society for the Systems Sciences (ISSS), conducting joint workshops and participation in each organization's annual events.
- Architecture Working Group continued collaboration with FEAPO.

4.6.3.9 Academia Liaison
- Technical Operations liaison to the Academic Council

4.6.3.10   Technical Director Development Activities
- NDIA Coordination
- Contingency Development
- 2015 IW Expenses

4.6.4   Webinar Series
INCOSE will continue its internal webinar series in 2015. First offered in October 2008, the webinar series brings internationally recognized speakers to our members' desktops in synchronous and recorded format. Each month, a different speaker delivers a 60-minute presentation. Each presentation is recorded for later viewing.

4.6.4.2 2015 Deliverables: It is assumed that the costs for the access to Global Meet meeting services are covered in Virtual Meeting / Conference Capability budget.

4.7   Academic Program

4.7.1   Education
Academic Matters will continue to sponsor Academic Forum workshops outside the IW and IS, producing tangible products and influence thinking by academics and others.

- The Spring workshop (May 2015), hosted by WPI and co-sponsored by the SERC and the American Society of Engineering Educators (ASEE), will focus on practical steps to integrate SE and systems thinking into the education of all engineering students. An additional workshop on this topic will be held at the ASEE Conference in Seattle, Washington in June 2015. The inclusion of ASEE in the effort is extremely significant because it is by far the most important professional society in the US associated with university engineering education. The intent of these activities is to build the community of academics contributing to this goal and to create momentum for broader action.
- The Fall workshop (later in 2015) topic and venue to be decided later.

The SE-SWE relationship workshop in June 2014 (co-sponsored by INCOSE) recommended a project be started to:

- Gather and report information about what is being taught now to college engineering students about SE

- Gather and report information on what SWE information is being taught to SE college students

That project is expected to begin in early 2015 and is expected to last into the fourth quarter of 2015. The information being gathered for the SE-SWE project will also fuel efforts to understand the SE-SWE relationship in industry and may lead to additional products as well, such as recommendations on how to better develop software and systems engineers to leverage and reinforce their dependence on each other for success in the workplace.

4.7.2 Academic Research
INCOSE co-sponsored a workshop with the US National Science Foundation and SERC in November 2014 on the Theory of Systems Engineering. A project is expected to start during early 2015 jointly with the SERC to help refine and publish a framework for the Theory as was proposed during the workshop. Panels further exploring this topic will be presented at the 2015 Conference on Systems Engineering Research in March, the 2015 IEEE Systems Conference in April, and at the INCOSE IS in July.

INCOSE is a co-sponsor of the Conference on Systems Engineering Research.

4.7.3   Accreditation
As a member of ABET, INCOSE supports accreditation visits and seeks to influence their direction through our membership on their Board. The Assistant Director for Accreditation leads these activities. Labor activities associated with ABET are volunteer.

The Assistant Director for Accreditation will seek to raise the visibility of INCOSE among other ABET-affiliated organizations and universities in order to increase requests for INCOSE to participate in certification and to grow our influence within ABET. In 2015, the primary activity to raise INCOSE visibility will be concerted outreach at ABET events.

A small amount of outreach to another certificate organization besides ABET may be conducted, although this is not yet firm and there are no plans to join another certification organization until 2016 at the earliest.

4.7.4 Youth Outreach
Youth Outreach has primarily sponsored high school students participating in FIRST competitions. The Assistant Director for Youth Outreach leads these efforts. While successful, Youth Outreach has been isolated from the rest of INCOSE and needs to morph significantly to have a bigger "footprint" and greater impact.

INCOSE will continue to sponsor student teams, which is giving INCOSE greater visibility among some of the best young engineers in the US.

The Assistant Director for Youth Outreach will build relationships with chapters who can provide outreach in their community schools across many countries. This effort will take time to develop and will depend on getting chapter leaders interested in expanding youth outreach appropriately.

4.7.5. Academic Communications
INCOSE is well-known among academics who teach SE, but is much less visible in other engineering academic units. The Assistant Director for Academic Communications will lead the outreach to faculty in these broader programs explaining why SE is important to them

and the value of INCOSE participation to them. This will include creating a more compelling case for SE academics to actively participate in INCOSE, leveraging the many products and services that INCOSE offers now and the growing set that will be offered, such as the workshops and resulting products mentioned earlier under Education.

On its website, INCOSE will offer an increasingly rich set of information of value to academics. The most important addition in 2015 will be the worldwide directory of systems engineering and industrial engineering university programs. This directory, published jointly with the SERC, will be released in the first quarter of 2015 and updated annually.

Additionally, INCOSE will seek to raise the awareness of SE in non-SE academic publications and professional societies and may join one or two of them.

4.7.6 Student Divisions
Student divisions have been growing well over the past several years, led by the Assistant Director for Student Divisions. To increase the value of student divisions, the Assistant Director will hold the first regional conference for students at a university in 2015. If successful, this could be a model for additional conferences in 2016 and beyond.

The Assistant Director will work to strengthen the ties between local INCOSE chapters and student divisions that are housed at nearby universities.

4.7.7 Academic Council Leadership
A new honor society for college students in systems-related majors is expected to be started by August 2015 for universities in the US, which is the country where such societies are popular. The new society will have a national organization sponsored by INCOSE with local chapters for exceptional students. Initially, between five and ten universities are expected to participate with up to $5,000 total in start-up funds contributed by INCOSE.

4.8   Systems Engineering Certification
The INCOSE SE Certification Program draws individuals in to the organization and promotes INCOSE as the global source of knowledge about Systems Engineering. It offers three levels of recognition for Systems Engineering Professionals: Associate Systems Engineering Professional (ASEP), Certified Systems Engineering Professional (CSEP), and Expert Systems Engineering Professional (ESEP).

The Certification Program will support the awareness and use of the INCOSE Systems Engineering Handbook 4th Edition by transitioning the Certification Knowledge Exam to be based on this product. Hundreds of SE Handbooks will continue to be sold each year to individuals and organizations preparing for the knowledge exam.

In the next five years, Certification will support the INCOSE Strategic Goals as follows:

- Growth:
    - Greater non-US expansion, building on UK MOA and GfSE equivalency models
    - Identify equivalent SE certifications in languages other than English
    - Certification to build on business domain outreach activities initiated elsewhere in INCOSE
- Alliances:

- o Collaboration with student-focused professional societies, recognizing that INCOSE's focus has been more on working professionals
  - o Certification to build on business domain outreach activities initiated elsewhere in INCOSE
- Education:
  - o Work with INCOSE Academic Council, Graduate Reference Curriculum for Systems Engineering (GRCSE) and universities to identify relationship between ASEP and students' expected knowledge, with a potential for equivalence
- Products:
  - o Identify products and training materials of use to Certification Program community
  - o Direct Systems Engineering Professionals to Tech Ops and Working Groups to contribute to production of SE info
- Forums:
  - o Guide volunteers from Certification Program to engage in all aspects of INCOSE
- Competency:
  - o Industry members of BoD and CAB to encourage their supply chain to use INCOSE certifications
  - o Increased recognition of Certification's value by "customers"
- Transformation:
  - o SEPs in transformational roles pulled in to help INCOSE evolve
  - o Continue to develop relationship with Object Management Group

The significant 2015 deliverables will be the knowledge exam based on INCOSE SE Handbook 4th Edition, new forms for use by certification applicants and by the internal review teams, and a new website through which SEP applicants will be able to upload application materials and track the status of the certification approval process. New strategic agreements with industrial organizations supporting certification will also be developed during 2015.

4.9   Information Technology

The goal of the IT function is to help INCOSE be recognized as the definitive source for the best information about systems engineering, its practice and practitioners by making that information available and accessible.

Maintaining the requisite impactful nature of this great resource demands immediacy and currency that is challenging to achieve and even more difficult to sustain.

Tools and resources must be readily available to the chapters and accessible by the membership as required. Knowledge about and understanding of these capabilities needs to be at the fingertips of any member, and reachable through effective and comprehensive online facilities.

The INCOSE IT strategic plan will maximize the accessibility and usability of this resource, ensure applicability to the ever-evolving needs of the consumers of this material, and the essential growth over the duration of our next strategic period.

A tactical, annually renewed plan to manage the IT infrastructure, implementation and resources complements the longer term strategy with achievable initiatives that can be realized by central and chapter teams - together and independently, and contributes to the effectiveness of the overall strategy.

Short term, the focus is on completion of the essential new web site and related packages, which will be ongoing. Subsequently, the development of delivery and management of the extensive resource of knowledge that is currently held, and growth of that knowledge base in a progressively more accessible form will be a key part of the strategy.

New Website Development/Rollout

During the first quarter of 2015, the IT Team has been working with three new vendors to develop a new platform for web site, membership administration and collaboration.

- The new website offers a fresh, modern look, easy navigation, and access for the general public and membership to INCOSE information, events and products.
- Member management is integrated with the website, and supports member login as well as the opportunity for new members to join and sign up easily. The user profile is designed to help support Chapter and Working Group membership, membership status, etc. in a coordinated manner that will enhance the overall management of the membership.
- The Connect collaboration area is now hosted on a new SharePoint platform, linked with single sign-on to the membership management, and reorganized to provide easier access to all the collaboration resources required for working groups and all the other member activities.

Of course, this newly launched implementation is still young, and there will be continuing development of infrastructure and content during the year.

The major expenditure for setting up the new web presence was budgeted in 2014, but delays in implementation also delayed some of the actual expense, and essential ongoing enhancements will continue to require investment during the year.

4.10 Communications
INCOSE Communications supports many of the other operational areas and all of the 5 year objectives. To that end, decisions to spend money versus use volunteer energy lie in other budgets. The only explicit cost uniquely attributable to Communications is the stipend offered to the editor of the quarterly INCOSE newsletter, which will be revived in 2015 as INSIGHT transitions into a Practitioner's Magazine. All newsletter entries will be submitted by members or written by specified volunteers as follows:

- Assistant Director for Social Media
- Tech Ops Communications
- Academic Matters Communications
- 25th Anniversary Communications

The newsletter will have a salaried editor. Graphics support will perform the layout of the newsletter on a quarterly basis. The central admin contract includes efforts to disseminate

the newsletter, consistent with the current level of effort involved in informing members of the release of a new issue of INSIGHT.

Maintaining a presence on social media is one of the tasks allocated to the PR contract, which also supports a number of other marketing and PR activities so only a portion of the total contract is allocated to Communications efforts, which are often complementary.

Communications with members on timely matters, such as calls for nominations or other alerts, will continue to be handled by eNote. This relies on an annual license payment for Constant Contact, or whichever software is funded through the central admin budget.

4.11 Central Admin

INCOSE Administration Office provides salaried staff to support the execution of day-to-day operations of the organization: General Administration and Member Services for both Individual and Chapters; Database Management / Administration; Financial Affairs.

Admin supports the Board of Directors, Technical Operations, Corporate Advisory Board, Academic Matters, Certification, Publications and various committees: Events, Nominations & Elections, Ways & Means, Honors and Awards, Fellows, IOB, Technical Review, and IT.

Admin will play a critical role in the implementation process of the strategic objectives: Growth, Alliances, Education, Products, Forums, Competency, and Transformation as the administration office will be the paid staff assisting with the communication, coordination, etc through its support of:

- Scheduled Meetings/Major Events
- INCOSE Online Store
- Virtual Meeting / Conference Capability
- Marketing

4.12 Publications Office

The Publications Office was established in early 2015 with a mandate to develop its operational procedures while continuing maintenance activities in several publication areas as follows:

- *INSIGHT, The INCOSE Practitioner's Magazine*: Contracts negotiated with Editor in Chief and Assistant Editor; interface between editorial team and layout designer; as well with publisher to ensure timely submission and preparation of manuscript.
- *Systems Engineering,* the journal of INCOSE, where the office maintains the contract archive, and ensures that the BoD list is updated for journal masthead.
- *Journal of Enterprise Transformation*: Maintain contract on file; collaborate with IIE on any public relations outreach (announcement of new editor, for example).
- *INCOSE Handbook*: Contract negotiation and maintenance; monitoring of publication process; IP oversight. Oversight for upload and protection of member-use pdf of published manuscript. Budget for Handbook currently maintained with Tech Ops.

4.12.1 Advertising revenue

INCOSE derives revenue to the bottom line of its contract with Wiley through several advertising programs within the Wiley framework: SE Journal, INSIGHT and eBlasts on a

two/month basis in a test program. The Publications office monitors the eBlast program; and, reports on revenue as it relates to income projections in the overall contract.

4.12.2 Developing an INCOSE Publications Office

This office will exist to ensure the continued success and quality of the INCOSE publications. Led with a volunteer/staff team, the office will maintain records for and support existing publishing projects. This concentrated emphasis will also encourage an atmosphere for increasing INCOSE activity in publishing in order to gain exposure and generate revenue.

Major activities in 2015, in addition to continued activity for existing publications and programs (above), this office will work on an operational description and Publications Office policy.

Appendix A: INCOSE Memorandums of Understanding

INCOSE's Memorandums of Understanding are held on file in Connect at the following link:

https://connect.incose.org/strategy/SAWG%20Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fstrategy%2fSAWG%20Shared%20Documents%2fMOUs%20and%20MOAs

Appendix B: INCOSE Support Contracts

All contracts referred to in this AOP are maintained in the INCOSE Admin office and will be held in the new INCOSE Connect. Please contact Christine Kowalski: christine.kowalski@incose.org for more information.

Administrative Support
- Contractor: Universal Management Services
- Contract Value: $378,000 in INCOSE budget for FY2015
- Contract Dates: Indefinite duration, SOW reviewed every two years. Next review is by 8th July 2015
- Contract Manager: Treasurer
- The contract with UMS provides administrative support, member services and a part-time PR/Marketing Company for INCOSE (J Walcher). Services delivered by UMS. This contract also allows for additional tasks to be performed at agreed rates.

International Workshop 2015
- Contractor: ASK International Conference
- Contract Value: $42,000 in IW15 budget (20,610 + 8,000 euros w/travel)
- Contract Dates: September 2014 until finalisation of IW finances: approx. April 2015
- Contract Manager: Treasurer
- INCOSE contracts annually for administrative support for the annual International Workshop.

International Symposium 2015
- Contractor 1: ASK International Conference
- Contract Value: $126,000 in IS15 budget (74,200 + 12,000 euros w/travel)
- Contract Dates: 13 Feb 2014 until finalisation of IS finances: approx. October 2015
- Contract Manager: Treasurer

Each year, INCOSE awards contracts for the support of the annual International Symposium. The support tasks have been carefully identified and allocated.

International Symposium 2016
- Contractor: ASK International Conference
- Contract Value: $4500 in IS16 budget (site inspection)
- Contract Dates: March 2014 until finalisation of contract
- Contract Manager: Treasurer

In preparation for IS16 in Edinburgh, UK, a contract was let with ASK International Conference.

International Symposium 2017
- Contractor: ASK International Conference
- Contract Value: $4500 in IS17 budget (site inspection)
- Contract Dates: March 2014 until finalisation of contract
- Contract Manager: Treasurer

In preparation for IS16 in Adelaide, Australia, a contract was let with ASK International Conference.

INSIGHT Practitioners Magazine Chief Editor

- Contractor: William Miller dba WDM Systems
- Contract Value: $25,000 in INCOSE budget for 2015
- Current Dates: 1 January 2015 – December 2016
- Contract Manager: President-Elect/Publications Office

INCOSE has a contract with WDM Systems for editorial support for the new INSIGHT Practitioners Magazine

INSIGHT Practitioners Magazine Sub Editor

- Contractor: Lisa Hoverman
- Contract Value: $12,000 in INCOSE budget for 2015
- Current Dates: 1 January 2015 – December 2016
- Contract Manager: President-Elect/Publications Office

INCOSE has a contract with Lisa Hoverman for editorial support for the new INSIGHT Practitioner's Magazine

INCOSE Newsletter

- Contractor: Lisa Hoverman
- Contract Value: $8,000 in INCOSE budget for 2015
- Current Dates: 1 January 2015 – December 2016
- Contract Manager: President-Elect/Publications Office

INCOSE has a contract with Lisa Hoverman for editorial support for the new INCOSE Newsletter

INCOSE Typesetter / Graphics

- Contractor: Chuck Eng
- Contract Value: $45/hr as needed
- Current Dates:
- Contract Manager: President-Elect/PublicationsOffice

Certification Program Manager

- Contractor: V1 Decisions
- Contract Value: $140,000 in INCOSE budget for 2015
- Contract Dates: July 2013 through June 2015
- Contract Manager: President- Elect

A contract has been put in place with V1 Decisions to provide a Certification Program Manager to support the INCOSE Certification program.

Certification Testing Services

- Contractor: Prometric
- Contract Value: N/A (applicants pay testing fee directly to Prometric) – However, Special Accommodation Fees anticipated of approximately $1,200 for 2015..

- Contract Dates: Master Services Agreement dated 1 April 2010, for three years with automatic one year renewals thereafter. Statement of Work (SOW) dated 1 April 2010. Contract Manager: Certification Program Manager

Certification Psychometric Services
- Contractor: Certification Management Services
- Contract Value: $7,500 per year for DataWise exam results management.
- Contract Dates: N/A. Contract Manager: Certification Program Manager

IT Support
- Contractor: CGTS (server support)
- Contract Value: $130 - $160 Hourly rates
- Contract Dates: Began 11/1/2009 and continues
- Contract Manager: CIO supported by INCOSE Admin
- Estimated Use of Support: $10,000

GlobalMeet Service
- Contractor: PGi (Teamings)
- Contract Value: $7,500 (Licenses: 21 GlobalMeet accounts @ $30ea) - Does not include phone usage (currently $4,000/mo.)
- Contract Dates: April 2013 – Renews automatically
- Contract Manager: INCOSE Admin supported by CIO

The GlobalMeet accounts are assigned by Admin upon request by various groups (chapters, working groups, committees, board). Platform allows for 125 users on the webinar and 300 on audio.

Web Hosting Services
- Contractor: CGTS for SharePoint License and Server
- Contract Value: $72,000 includes hosting for old sites until discontinued at a cost of $1700/mo
- Contract Dates: 8/1/2014 –
- Contract Manager: INCOSE Admin supported by CIO

Email Services
- Contractor: CGTS for Email
- Contract Value: $400/mo
- Contract Dates: Tentative
- Contract Manager: INCOSE Admin supported by CIO

Web Site Development/Platforms
- Contractor: MemberSuite (AMS)
- Contract Value: $25,000
- Contract Dates: May 2014 – May 2017
- Contract Manager: INCOSE Admin supported by CIO

Contractor: Invenio (SharePoint)
- Contract Value: $150/hr
- Contract Dates: May 2014 –
- Contract Manager: INCOSE Admin supported by CIO

Contractor: MemberSuite (AMS)
- Contract Value: $22,000
- Contract Dates: May 2014 – May 2017
- Contract Manager: INCOSE Admin supported by CIO

Systems Engineering, the journal of INCOSE
- Contractor: Wiley & Sons Inc
- Contract Value: $25,000 in INCOSE budget for 2015
- Contract Dates: February 2013
- Contract Manager: President-Elect/Publications Office

A contract was let on 1998 for the publication of the SE Journal. This was most recently amended 2002 to include a revised cost structure and renegotiated in 2012 with renegotiations to expand to include INCOSE Online Proceedings Library in 2014.

Journal of Enterprise Transformation
- Contractor: Taylor & Francis
- Contract Value: $0 in INCOSE budget for 2015
- Contract Dates: October 2009 – September 2017
- Contract Manager: President-Elect /Publications Office

A contract was let in 2009 with Taylor & Francis for the publication of the Journal of Enterprise Transformation. A joint publication with the Institute of Industrial Engineers.

Election Support Contract
- Contractor: Votenet – not contracted yet for 2015
- Contract Value: $4,000 plus email
- Contract Dates: March 2015 -
- Contract Manager: INCOSE Admin supported by Chair, Nominations & Elections

INCOSE had a 3 year contract with Votenet for 2012-2014 elections and renegotiating 2015.

Insurance
- Contractor: Tyrisco: Directors & Officers Liability Insurance - Arch
- Contract Value: $3,500
- Contractor: Tyrisco: Professional Liability Policy – Evanston Insurance Co.
- Contract Value: $8,000 in 2015 (covers Certification)
- Contractor: Tyrisco: Foreign Liability Policy - AIG
- Contract Value: $2,750 in 2015
- Contractor: Tyrisco: Precision Policy – Zurich (covers symposium)
- Contract Value: $2,750

All policies are contract year: March 2015 to March 2016