ITEM

29. Call to Order
30. Adoption of Agenda
31. Announcements
32. Report on the Closed Session from February 1, 2017
33. Consent Items for Action
34. Agenda Items
35. New Business
36. Adjournment

1 Numbers are sequential from previous FY meetings.
LIST OF APPENDICES

I. Proposed Appointments

II. Sector Management Committee Report

III. Increasing Engagement of Student and Early Career Engineers Task Force Report
29. **Call to Order:**

On March 19, 2017, a regular meeting of the Board of Governors of the American Society of Mechanical Engineers originally scheduled for March 20, 2017, was held at the Four Seasons Hotel in Las Vegas, Nevada. All board members being present either in person or telephonically and no objection being made to the change of date. The meeting was called to order by the President at 5:08 PM Pacific Daylight Time. Attendance was as follows:

**Board of Governors**
- President: K. Keith Roe
- Immediate Past President: Julio C. Guerrero
- President-Elect: Charla K. Wise

**Other Officers**
- Senior Vice Presidents: Laura E. Hitchcock, Standards and Certification, Richard C. Marboe, Technical Events and Content, Paul D. Stevenson, Student and Early Career Development, Timothy Wei, Public Affairs and Outreach

- Secretary and Treasurer: James Coaker
- Executive Director: Thomas G. Loughlin
- Assistant Secretary: John Delli Venneri
- Assistant Treasurer: William Garofalo

**Board of Governors Elect**
- Governors Elect: Stuart Cameron (via phone), Robert E. Grimes, and Mary Lynn Realff

** Officers Elect**
- Senior Vice President Elect: Sam Korellis, Standards and Certification

**Corporate Counsel**
- John Sare

**Task Force Chairs**
- Stacey Swisher Harnetty, Increasing Industry Leadership Engagement Task Force
Adoption of the Agenda: The Board

VOTED: to adopt the agenda circulated on March 3, 2017 as modified

31. Announcements:

President Roe welcomed all to the meeting and informed attendees no formal action was taken during the Board working session.

32. Report on February 1, 2017 Closed Session:

Keith Roe reported that there were no closed session agenda items and the Board took no actions during the closed session on February 1, 2017.

33. Consent Items for Action: The Board

VOTED: to approve the following items: (1) Minutes from February 1, 2017; (2) Proposed Appointments (Agenda Appendix 1.4.3 and Minutes Appendix I).

34. Agenda Items:

The Board heard reports concerning and discussed the following items:

(1) President’s Remarks
    • President Roe remarked on the success of the E-fest in Las Vegas.

(2) Executive Director’s Remarks
• Tom Loughlin expressed how elated he was with the outcome of E-fest West in Las Vegas. He commented on how the Integrated Operating Plan will manage and align all of ASME’s activities for maximum outcomes.

35. **New Business:**
Approval of Bobby Grimes to the Audit Committee.

VOTED: Bobby Grimes to serve on the Audit Committee for fiscal years 2018-2020.

36. **Adjournment:**
The open session concluded at 5:33 PM Pacific Daylight Time and the Board went into closed session.

________________________
James Coaker
Secretary
Date Submitted: March 1, 2017
BOG Meeting Date: March 20, 2017

To: Board of Governors
From: (Sector/Unit/Task Force/Other) Committee on Organization and Rules
Presented by: Larry Dickinson
Agenda Title: Proposed Appointment

Agenda Item Executive Summary: *(Do not exceed the space provided)*

Proposed appointments reviewed by the Committee on Organization and Rules on January 26 and March 1, 2017.

Proposed motion for BOG Action: *(if appropriate)*

Approved the proposed appointments.

Attachments:

Appointment listing.
### PROPOSED APPOINTMENTS

<table>
<thead>
<tr>
<th>External Unit</th>
<th>Nominee</th>
<th>Appointment Position/Title</th>
<th>Appointment Term/Category</th>
<th>Appointment Type</th>
<th>History</th>
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<tbody>
<tr>
<td>Daniel Guggenheim Board of Award</td>
<td>George Lesieutre</td>
<td>ASME Representative</td>
<td>10/2016-9/2019</td>
<td>Reappointment</td>
<td>Current: Guggenheim Board</td>
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<tr>
<td>Daniel Guggenheim Board of Award</td>
<td>George Kardomeateas</td>
<td>ASME Representative</td>
<td>10/2016-9/2019</td>
<td>Initial</td>
<td>Past: Chair of the Applied Mechanics Division Composites Committee</td>
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<tr>
<td>National Inventors Hall of Fame</td>
<td>Marco Ceccarelli</td>
<td>ASME Representative</td>
<td>1/1/2017-12/31/2020</td>
<td>Initial</td>
<td>Current: History and Heritage Committee</td>
</tr>
<tr>
<td>Offshore Technology Conference Board of Directors</td>
<td>Doreen Chin</td>
<td>ASME Representative</td>
<td>7/2017-6/2021</td>
<td>Initial</td>
<td>Current: Nominating Committee</td>
</tr>
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</table>
ASME Board of Governors
Agenda Item
Cover Memo

Date Submitted: February 28, 2017
BOG Meeting Date: March 19-20
To: Board of Governors
From: Sector Management Committee

Agenda Item Executive Summary:

The report updates the BOG on Sector, GPS/GETT and VOLT related activities and is for information only.

Proposed motion for BOG Action: (if appropriate)

No Action

Attachments:
One
I. SMC Operations

- Laura Hitchcock began her term as SMC Vice Chair on January 1, 2017.
- The SMC has been discussing and reviewing recommendations from the Group Engagement & Alignment Task Force.
- The Volunteer Orientation Leadership Training Academy (VOLT) has proposed a plan for Communications training within ASME. The SMC endorsed the activity. VOLT is proceeding with an RFP to outside vendors, and reviewing available budget options for FY’17 and FY’18.

II. Sector Highlights

Standards & Certification – Laura Hitchcock, Bill Berger

Quarterly Highlights

- The Council on Standards and Certification last met on November 14, 2016 and will be meeting via web conference on March 2.
- The Council received final reports and recommendations from the four strategy Task Teams appointed to facilitate implementation of portions of the S&C Strategic Plan [International Working Groups, Derivative (or Companion) Products, Benchmarking Other SDO’s (in how they identify standards opportunities for emerging technologies in their areas), and Committee Best Practices]. The Council approved some of the recommendations that can be implemented immediately, and requested some additional work on other recommendations.
- The Council approved a recommendation to establish a new Standards Committee on Manufacturing and Advanced Manufacturing.
- Although ASME was not a direct participant, a significant decision that will impact all standards developers was reached in the copyright and trademark infringement case of ASTM, NFPA, and ASHRAE vs. PublicResource.org. The United States District Court for the District of Columbia issued a ruling granting the ASTM Plaintiffs’ motion for summary judgement and denying PublicResource’s cross motion for summary judgment. The Defendant was permanently enjoined from all unauthorized use, including through reproduction, display, distribution, or creation of derivative works, of the SDO’s standards that Defendant had posted to its web site. This is a positive development for SDO’s.
- S&C held a workshop in Buenos Aires, Argentina for industry, government, and academia on ASME Nuclear, Quality, and Conformity Assessment. Between 80-90 registrants participated in the workshop. This event was followed by meetings of the newly established Argentina International Working Groups (IWGs) for Boiler and Pressure Vessel Committees III and XI. The BPV III Argentina IWG roster indicates 44 non-staff members. The BPV XI Argentina IWG indicates 25 non-staff members.
S&C worked with Youngstown State University / Youngstown Business Incubator / America Makes to partner on responding to a Broad Area Announcement (BAA) solicitation for the Defense Logistics Agency (DLA). The proposal is for a three-year period with four castings demonstration projects each year. The projects will identify advances in AM-enabled processes, materials and analyses to solve specific DLA supply chain challenges and provide benchmarks for comparison with traditional casting methods. No word yet on whether the proposal was accepted.

At its March 2 web conference, the Council will consider the recommendations of its Committee on Nominations for Council members-at-large and Council Vice Chairs, for terms of June 2017 thru June 2020.

Upcoming Activities/What’s on the Horizon?

Subsequent to its March 2 web conference, Council membership actions will be submitted for Board of Governors (BOG) approval.

Technical Events and Content (TEC) Rick Marboe, John Koehr

Technical Events and Content (TEC) Council

- TEC Council held a face-to-face meeting on November 13, 2016, concurrent with the ASME IMECE in Phoenix, AZ.
- The Council approved a recommend to form the IGTI Division, which was subsequently approved by SMC on 11/15/2016.
- SLT and conference activity is described below for each segment.

Design, Materials, and Manufacturing (DMM) Segment

- DMM has been identifying new leadership and members for DMM since the Chair of the DMM will retire from his post on June 30, 2017.
- The DMM Chair, Amip Shah, Ph.D., Director of IoT Research for HPE, participated in the ASME HQ NYC Enabling Technologies TAP in January 2017.
- The Dynamic Systems and Control Conference took place October 12-14, 2016 in Minneapolis, Minnesota.
- DMM held a face-to-face meeting at IMECE in Phoenix, Arizona, Saturday November 12, 2016.

Energy Sources and Processing (ESP) Segment

- Technology Advancement & Business Development (TABD - Cleri) continues to liaise with ESP Segment.
- TABD (Cleri & Andrei) working with ESP Segment for business development.
- ESP Segment and Petroleum Division working with TABD for feedback on the Energy Technology Center business development opportunity.
- ESP Segment and Pipeline Systems Division working with TABD on the POMME business development opportunity.
- TABD working with PVP, PSD, and PD Divisions to develop Ideation Workshops during upcoming ExCom meetings to increase volunteer interaction in business development as well as gain market insight.

Energy Conversion and Storage (ECS) Segment
- TABD (Cleri) continues to liaise with ECS Segment.
- SLT Working Groups (WG) of volunteers and staff that had been organized by sub-
technologies to focus on potential new business development initiatives continue to work
together and have been identifying/advancing some business development
opportunities.
- TABD (Cleri & Bendo) working with ECS Segment for business development.
- ECS Segment working with TABD for feedback on the Energy Technology Center
business development opportunity.
- TABD working with Power, NED, and other Divisions to develop Ideation Workshops
during upcoming ExCom meetings to increase volunteer interaction in business
development as well as gain market insight. NED Ideation Workshop already held in
ASME NYC office – very successful.
- Next ECS SLT meeting to be held April 2017 in Washington, D.C.
- Power Division Executive Committee meeting and technical committee meetings held in
conjunction with POWERGEN, December 12 & December 13
- Heat Exchangers Technical Committee held a networking reception to attract new
members to the committee
- Internal Combustion Engine Division Winter Executive Committee meeting held January
21 in Chicago at the O’Hare Hilton
- Nuclear Division Executive Committee meeting held February 6/7 at NY Headquarters.
- Gas Turbine Segment (GTS)
  - Senior Manager hired for GTS December 2017.
  - TABD (Cleri) transitioned off as GTS liaison, but TABD (Cleri) will continue to work with
GTS for business development.
  - GTS working with TABD for feedback on the Energy Technology Center business
development opportunity and other possible events (e.g., gas turbine user group
conference).
  - Next GTS SLT meeting to be held March 2017 in Germany.
- ASME Gas Turbine India Student Seminars
  - The ASME IGTI Student Seminar series consists of four seminars. One per
geographic region (North, South, East and West regions). Student Seminars
cover the following content:
    - Gas Turbine Technology
    - Gas Turbine Research/Industrial Perspectives
    - Career Guidance Sessions and Competitions
  - They were held on the following dates:
    - September 25, 2016 at VIT University in Vellore, India
    - October 23, 2016 at National Institute of Technology in Rourkela, India
    - November 7, 2016 at Amity School of Engineering in Noida, India
    - November 22, 2016 at NIRMA University in Gota, India
- ASME Gas Turbine Segment Meetings
  - October, 2016
December, 2016

New Senior Manager of Segment Operations, Angelique Vesey, started December 2016

GTS SLT Began work on a strategic plan for the segment

- Exhibits
  - September, 2016 IGTI exhibited at the Texas A&M University Turbomachinery & Pump Symposia to market IGTI events and products

- Student Advisory Committee
  - The 4-member committee meets monthly to discuss the following:
    - Plan student events
    - represents students before the ASME IGTI Gas Turbine Segment
    - Seeks and encourages student participation in the IGTI technical committees

- Engineering Sciences Segment (ESS)
  - IMECE 2016 held November 2016 in Phoenix.
  - F2F meetings held at IMECE, November 12, in Phoenix, and at the Microproducts Annual Meeting (mAm), February 4 & 5 in Switzerland. (mAm was organized by ASME collaborator MANCEF.) Frequent telecons have been held.
  - ESS continues to work with liaisons from select technical divisions to facilitate a two-way information exchange.

Upcoming Activities/What’s on the Horizon?

- TEC Council
  - Next TEC Council meeting will be via webconference March 3, 2017
  - A face-to-face TEC Council meeting is scheduled for June 10, 2017 in Newport Beach, CA, concurrent with the ASME Annual Meeting.

- Design, Materials, and Manufacturing (DMM) Segment
  - DMM is planning a teleconference with all Divisions that program within DMM including Design Engineering, Dynamics Systems and Controls, Manufacturing Engineering, MEMS, EPPD, Aerospace’s ASMS Technical Committee, CIE, Rail, ISPS, NDPD, Plant, and MHED on Thursday February 16, 2017 to share an update on DMM activities, goals and to improve communications with the Divisions.
  - A DMM Segment Leadership Team face to face meeting is planned for April 15, 2017 in Washington DC.
  - The Rail Transportation Division annual Joint Rail Conference is scheduled for April 4-7, 2017 at the Doubletree Philadelphia City Center.
  - The Manufacturing Engineering Division is scheduled to hold its annual MSEC conference at the University of Southern California in Los Angeles, California, June 4-8, 2017
  - The Design Engineering and CIE Divisions will hold their annual IDETC/CIE conference in Cleveland, Ohio, August 6-9, 2017
  - The Dynamic Systems and Control Division will hold its annual conference in Tysons Corner, Virginia, October 11-13, 2017

- Energy Sources and Processing (ESP) Segment
- Offshore Technology Conference (OTC) 2017, Houston, Texas, U.S., April 2017
- The Pipeline Systems Division Annual meeting will be held in Santa Fe, NM on March 22-25.
- The India Oil & Gas Pipeline Conference will take place in Mumbai, India from April 20-22.
- The International Pipeline Geotechnical Conference will take place in Lima, Peru from July 24-26.

- Energy Conversion and Storage (ECS) Segment
  - P&E 2017 Conference (co-located with Turbo Expo Conference and ICOPE Conference, Charlotte, North Carolina, U.S., June 2017

- Gas Turbine Segment (GTS)
  - Mini- Talks at Turbo Expo
  - Student Competition at Turbo Expo
  - Additive Manufacturing Day at Turbo Expo – common initiative between GTS and DMM segments

- Engineering Sciences Segment (ESS)
  - Planning for the following ESS conferences are underway and on target for execution:
    - 2016 IMECE, November, Phoenix
    - 2017 Fluids Engineering Division Conference, July 30-August 4 in Waikoloa, HI. Fluids 2018 is under consideration by ESS.
    - 2017 Summer Heat Transfer Conference, July 9-14 in Bellevue, WA.
    - 2017 IMECE, November, Tampa, FL

Programs

Public Affairs & Outreach – Tim Wei, Melissa Carl

Cross-cutting Initiatives

Engineering for Global Development (EGD)/ Engineering for Change (E4C)

Quarterly Highlights

- ISHOW Global – Closeout of 2016 campaign was a success and launch of 2017 campaign is underway. ISHOW is open for applications until March 15. Expansion of ISHOW’s partner network to provide access to manufacturing/investor networks for ISHOW contestants is being explored.
- DEMAND ASME Global Development Review – High level contributors, including GE Healthcare, World Bank, USAID, MIT, Berkeley and Autodesk, continue to provide quality content. A special edition issue for USAID/MIT TechCon was released in
November. DEMAND has increased its audience engagement with 2500 Twitter followers and 12,000 page views on the DEMAND website.

- EGD Research – Videos from the EGD Research Forum at IDETC have been posted to .ORG.
- EGD Committee – Sponsorship prospectus for EGD’s portfolio is being finalized to help make the entire portfolio self-sustainable
- E4C site traffic continues to grow, led by E4C News, Solutions Library, Opportunities portal, with a spike for our new course offering – Introduction to EGD. The YTD site traffic as of this quarter has now exceeded the FY16 total.
- E4C secured Yamaha Motor Ventures & Laboratory Silicon Valley (YMVSV) as a new sponsor. YMVSV exists to accelerate the efforts of teams driving disruptive change.

Upcoming Activities/What’s on the Horizon?

- ISHOW Global – Events scheduled: Bangalore, India, April 27; Nairobi, Kenya, May 25; DC, June 22.
- DEMAND, ASME Global Development Review – On track for four issues in 2017 as we switch to a quarterly format. First issue will be released in March.
- EGD Research – Strategy and recruitment for the fifth anniversary EGD Research Forum is underway.

K12/Diversity/Scholarships

Quarterly Highlights

- As of February 6th, there are over 17K students from 428 schools (247 middle/181 high school) on the INSPIRE platform being led by 461 teachers across 43 states – more than twice as many schools this same time last year. We are at 43% of our target goal of engaging 1,000 schools in academic year 2016/2017.
- Submissions are complete for the Future Engineers’ Mars Medical Challenge, with a record 737 received from K-12 innovators. Ten semi-finalists will be announced on February 28th.

Upcoming Activities/What’s on the Horizon?

- INSPIRE school site visits are being scheduled in late spring for NYC, Charlotte, Houston, and the DC –metro area. For the second year, ASME INSPIRE and members from the Petroleum Division will support the “When I Grow Up” Career Fair sponsored by the Houston ISD on April 22nd.
- In celebration of Engineers Week, ASME will be participating in the Discover Engineering Family Day (DEFD) on Saturday, Feb. 18th, at the National Building Museum in Washington, DC. Nearly 10,000 K-12 students are expected to participate in hands-on, activities that celebrate the E in STEM.
Engineering Education

Quarterly Highlights

- Engineering Education Awardees (Church Medal: Dr. Francis A. Kulacki, University of Minnesota and Sparks Medal: Dr. Steven Beyerlein, University of Idaho) were selected.
- Vision 2030 advocacy strategy and role in ABET was featured at Colombian Association of Engineering Faculty Conference, October 4-7, Cartagena, Colombia and Pan American Union of Engineering Societies held October 24-26 in Panama.
- Fall ABET Board of Delegates & Directors/ Society Liaison meetings held October 27-29, Baltimore, MD.
- Engineering Education meetings and forums for ME/MET department heads at the 2016 IMECE in Phoenix, AZ.

Upcoming Activities/What’s on the Horizon?

- Five (5) ASME 2017-2018 Graduate Teaching Fellowships to be awarded by May 2017, anticipating four (4) second year renewals and one (1) new Fellow to be determined.
- ASME/NIST Standards Education Infusion Workshop at Washington University March 10-11, 2017 in St Louis, MO.
- Spring ABET Board of Delegates & Directors meetings, April 1-2, 2017 Baltimore, MD.
- 2017 Summit Int'l ME Ed Leadership (MEED) Washington DC, April 18-20, 2017. General co-chairs are from George Mason University. Ken Ball, Dean of Engineering and Oscar Barton, Chair of ME Dept.

Government Relations (GR)

Quarterly Highlights

- ASME held a Congressional Briefing on “Advanced Robotics in Manufacturing” (December 13). Moderating the panel was Chuck Thorpe, Senior Vice President and Provost of Clarkson University and Co-Chair of the ASME Robotics Public Policy Task Force. The four panelists included: Howie Choset, Carnegie Mellon University, Professor of Robotics; Medrobotics, Inc., Co-Founder; Larry Sweet, Georgia Institute of Technology, IRIM Associate Director of Technology Transition and Professor of the Practice in Robotics; Erik Nieves, PlusOne Robotics, Founder and CEO; and Michael Dudzik, IQM President.
- GR held a December 7th webinar that highlighted a current and former Fellow, Dr. Noël Bakhtian and Dr. Said Jahanmir, who provided their personal perspectives on their accomplishments and challenges while serving as an ASME Fellow in the Executive and Legislative Branch. Sign in with email address and password to hear recorded webinar at: [https://shop.asme.org/Registrations/Account/Login?ReturnUrl=%2FRegistrations%2FCustomer%2FInitRegistration%3FConferenceCode%3DFNDWEB2016-2](https://shop.asme.org/Registrations/Account/Login?ReturnUrl=%2FRegistrations%2FCustomer%2FInitRegistration%3FConferenceCode%3DFNDWEB2016-2)
- ASME’s 2016 WISE interns, Brenna Doherty and Emily Sheffield, attended IMECE 2016, and presented their policy papers to the Committee on Government Relations. Their papers were on planetary defense and imaging the image of manufacturing respectively.
• ASME’s robotics and bioengineering public policy task forces began meeting to discuss policy priorities related to these topics aligned with ASME’s technology strategy areas.

• The ASME Manufacturing Public Policy task force updated ASME’s general position paper on advanced manufacturing entitled, “Strengthening the U.S. Manufacturing Sector,” which can be found at: https://www.asme.org/about-asme/participate/advocacy-government-relations/policy-publications/position-statements. The ASME Board of Governors approved the statement at its November meeting, and it was officially released as an ASME general position paper in January of 2017.

Upcoming Activities/What’s on the Horizon?

• Engineering Public Policy Symposium, 44 engineering society co-sponsors, April 25, 2017.
• An advanced manufacturing-related Congressional briefing is slated to be held on April 26, 2017 post-Symposium.

Industry Advisory Board (IAB)

Quarterly Highlights

• The IAB fall meeting was held December 12-13, 2016 in Washington, DC. The December 12th reception took place at the Decatur House, and the December 13th meeting was held at the Hay Adams. The topic was on energy policy, manufacturing and research and development priorities for the new President’s administration.
• The IAB Executive Committee met via conference call to plan the spring meeting, which will focus on how private equity and the capital markets can help shape the development of engineering initiatives in the areas of robotics and energy.

Upcoming Activities/What’s on the Horizon?

• The IAB spring meeting will be held May 4-5 in New York, NY. The May 4th reception and dinner is TBD, and the May 5th meeting will take place at ASME headquarters.

Student & Early Career Development (SECD) – Paul Stevenson, Brandy Smith

Quarterly Highlights

Programmatic / Operational Activities

SECD Sector

SECD council is reviewing its processes, communication plan and success metrics as part of the implementation of its strategic plan. The Council held a face-to-face meeting at IMECE in Phoenix.
Student Programs

Quarterly Highlights

E-Fests
- Plans are in full swing for the 2017 ASME E-Fests. ASME staff continues to collaborate with the E-Fest steering committee and E-Fest host schools on programming, logistics, marketing and outreach. The Student Programming Committee (SPC) and Community Development Team (CDT) as well as the E-Fest Steering Committee engaged in a special outreach effort to sections, section advisors and ME Dept. Heads to promote the upcoming programs.
- Aggressive marketing campaigns have been rolled out in support of E-Fests including advance signage at UNLV and TTU, plus a special promotion/incentive for students who bring in 15 or more students from the same school.
- E-Fests have secured a number of sponsors to support the events including Siemens PLM, ANSYS, Eastman, Denso, Altair/Solid Thinking, Maplesoft and AutoDesk.
- The ASME BOG have been invited to participate at E-Fest West and planning is underway for the March event in Las Vegas.

Student Competitions
- Human Powered Vehicle Competitions (HPVC) - Three HPVC events will be held in conjunction with the 2017 E-Fest events: Asia Pacific (Mar 3-5) 40 teams; West/UNLV (Mar 17-19) 25 teams; and East/TTU (Apr 21-23) 44 teams. Media/promotion efforts include imbedding a reporter with one of the HPVC teams and filming a video/interviews for future PR use.
- IAM3D - The IAM3D competition is scheduled to be held at all three festivals, culminating with the finals at the August 2017 IDETC in Cleveland, Ohio.
- Student Design Competition, Old Guard - Both competitions will be held at all E-Fest events, with the Student Design Competition featuring a robotic pentathlon and Old Guard offering both a poster and technical presentation. Team solicitation are still open for both.

Upcoming Activities/What’s on the Horizon?
- The E-Fest application has been re-done to capture many of the lessons learned from the FY’17 cycle. Similarly, an EFX application has been created and is under review. The goal is to have both applications completed before E-Fest West and disseminated for schools to apply.
- Plans for E-Fests and EFX for FY’18 include: E-Fest East, E-Fest West, E-Fest Asia Pacific, E-Fest South America, E-Fest Middle East/North Africa and one pilot EFX.

Early Career Programs

Quarterly Highlights
- FutureME Mini-Talks was held at the IMECE2016 conference attracting roughly 98 attendees, NPS 52%.
Introduced a Q&A session immediately following the mini-talks where audience members had the opportunity to ask questions of the presenters and favorite others using a new online platform; Slido.

The audience asked poll questions on career development topics intermittently; 20 questions were asked which got 60 likes.

Mannequin Challenge conducted with attendees emphasizing networking, recorded and shared online.

- Post-production is in the progress for the IMECE2016 Mini-Talks
  - Five transcripts reviewed by the content development lead and mini-talk team reducing the content down to key-take-aways (3-5 minute clips) to be posted on .ORG and YouTube.

- Program plans for P&E/ICOPE/TE2017 FutureME Mini-Talks are underway:
  - Developed an advertisement for online Turbo Expo Advanced Program
  - The team campaigned, interviewed and has successfully identified (4) four presenters and presenters matched with a coach to collaborate and hone talking points for the mini-talks

- Post-production of the FutureME Mini-Talks Program has been brought in-house; working directly with Technology Services the editorial process will produce our online videos to reduce program costs.

- FutureME Mini-Talks from PE-ICONE2016 released on .ORG and YouTube. The videos are:
  1. Defining Disrupting and Changing Technologies through Codes and Standards
  2. Making a Gigaton of Difference
  3. Taking Ownership as a New Engineer

The ECE Programming Committee held a strategy meeting at IMECE2017 to discuss FutureME and Content Development

- An ECEPC Content Development team has been established with a volunteer lead identified; discussions underway on planning and process development, sharing platform established for team to download/review documents and provide feedback
- A content development process has been identified along with a planning calendar
- The team is in the process of reviewing existing content to establish some short-term content goals

Upcoming Activities/What’s on the Horizon?

- Finalize P&E/ICOPE/TE2017 FutureME Mini-Talks program details
- Finalize IMECE2016 FutureME Mini-Talks with Technology Services to release (4) four mini-talks plus (8) eight Q&A bonus clips online. Continue releasing scheduled mini-talks on .ORG and YouTube.
- Continue to develop a strawman to map out the process of the FutureME and Content Development strategies; evaluate the organization and design of FutureME site and YouTube site to increase users providing easy access to content being sought, establishing links between items in a "portfolio".
- The ECE Programming Committee continues to discuss its operations guide
- Assemble a team(s) to plan the next set of mini-talks for IDETC/CIE2017 and IMECE2017 conferences
Community Development

Quarterly Highlights

- The SLTC at IMECE2016 had 250 applicants, 63 invited, 46 attended; 30 of which were funded to attend. Attendee’s satisfaction conveyed as a NPS of 80.5%.

Upcoming Activities/What’s on the Horizon?

- The Community Develop Team is engaging a new volunteer to lead the development of ME Today targeting only early career engineers
- Student Representative Chairs (SRC) plans to develop/contribute to a newsletter aimed at students focused on E-Fest and other student activities; published 3 times per year, introducing it next academic school year 2017.

III. Volunteer Orientation and Leadership Training (VOLT) Academy – Marc Goldsmith, Clare Bruff

Quarterly Highlights

- The VOLT Executive Committee met via teleconference on January 12, 2017.
- VOLT hosted an Officer Elect Orientation at IMECE in November. Reggie Vachon facilitated this event.
- 51 attendees participated in the two VOLT Leadership Workshops during IMECE in November, “Advocacy for Engineers.” Participant feedback was uniformly positive.
- There was reception for alumni of the ECLIPSE, LDI, and MLP programs at IMECE in Phoenix.
- There was a meet-up for past Cross-Sector Workshop participants at IMECE in Phoenix.
- There was a breakfast for the 2016-2017 ECLIPSE Interns at IMECE in Houston. They met with 3 past ECLIPSE interns to talk about expectations for their group project.
- The deadline for ECLIPSE applications for the 2017-18 program year was January 3, 2017. The ECLIPSE intern committee will met on January 29 to make its recommendations. The interns will be selected and placed by ASME’s business units by the end of February.
Upcoming Activities/What’s on the Horizon?

• VOLT will offer the fourth annual Cross-Sector Leadership Development Workshop April 20-22 in New York City. Invitations to candidates from all four sectors have been sent. The participant list will be finalized by the end of February.

• The 2017-2018 ECLIPSE interns will attend an orientation and leadership workshop, along with the current group of interns, April 23-25 in Washington, DC. They will also be invited to attend the Engineering Public Policy Symposium.

• VOLT will launch a new Communications Program, the VOLT Academy College of Leadership Communications, beginning in June 2017. The program will consists of four parts: (1) communication skills development for the Board and SVPs; (2) training volunteer trainers for communications skills development for the Society’s emerging volunteer leadership; (3) delivery of communications training by volunteer trainers at ASME events; and (4) delivery of communications training via distance and online learning. VOLT will issue an RFP for consultants to conduct parts 1 and 2 in the near future. The anticipated roll-out will be with BOG and SVP training at the Annual Meeting followed by a train-the-trainer workshop.

• VOLT will offer a Leadership Workshop at the Annual Meeting in June. The tentative topic for the workshop is “Program and Business Development Planning in ASME.”

IV. Group Pathways & Support (GPS)/Group Engagement & Transition Team (GETT) – Karen Ohland, Elio Manes

Quarterly Highlights

• A total of 176 group activity requests were processed through the GPS Requisition Tool during the months of December, January and February 2017.

• A total of $150,642 were received during calendar year 2016 in the form of voluntary contributions from individual members and credited to the segregated accounts of the corresponding groups (a total of $81,433 to sections and $69,209 to divisions).

Upcoming Activities/What’s on the Horizon?

• GPS is conducting an assessment of the nearly 300 division-level awards in an effort to assess the consolidation and/or automation of the various processes around honors/awards to improve efficiency and data collection.

• GPS is working with the Group Engagement & Alignment Task Force in submitting to the SMC, and eventually COFI and the BOG, on rules of engagement for groups, particularly with respect to the finances for Fundraising, Gifts, Honors & Awards, Sponsorships, and Travel Stipends.

• GPS is planning to conduct group volunteer training and orientation webinars during the week of March 27 and the week of April 24, 2017. GPS is also exploring the feasibility of holding an in-person training event on June 10 during the ASME Annual Meeting in Newport Beach, CA.
ASME Board of Governors
Agenda Item
Cover Memo

Date Submitted: March 3, 2017
BOG Meeting Date: March 20, 2017

To: Board of Governors
From: (Sector/Unit/Task Force/Other) Increasing Engagement of Students and Early Career Engineers Task Force
Presented by: Terry Shoup
Agenda Title: Task Force Report

Agenda Item Executive Summary: (Do not exceed the space provided)

Proposed motion for BOG Action: (if appropriate)

Attachments: See report attached.
Increasing Engagement of Student and Early Career Engineers in ASME

An ASME Presidential Task Force Report by

Terry Shoup, Chair
Katie Correll
Eric Ducharme
John Elter
Noha El-Ghobashy
Urmila Ghia
Hind Hajjar
Rick Marboe
Najib Metni
Jeff Patterson
Tatyana Polyak
MaryLynn Realf
Brandy Smith
Paul Stevenson
Jack Tuohy
Amos Winter

March 2, 2017
Executive Summary

This report is the outcome of the work of a task force appointed by ASME President Keith Roe in the fall of 2016. The charge to this group, led by Past President Terry Shoup, was to look for ways to increase the engagement of student and early career Engineers (ECE) in ASME. The work of the task force was conducted mainly by 24 teleconferences with participation from all members whenever possible. This written report details the findings and recommendations of the task force. The task force undertook five important efforts which are discussed in detail in this report.

The first effort was to review the dimensions of the issue of member engagement from the point of view of ASME and its unique membership demographics. This part of the study enabled us to understand the sociological aspects of the various generations who populate our membership roles. Key to this part of our work was an identification of the key generational characteristics of the member groups that constitute the target audiences: students and early career engineers. In addition to providing baseline demographic information about ASME, the task force concerned itself with the issues associated with 14 specific generational characteristics of both “millennials” (current ECE’s) and “Gen Z” (future students).

The second effort was to provide an annotated bibliography of recent relevant literature that can help us to understand better the dimensions of the generational engagement. It allowed us to see that we are not alone in desiring to address this important issue that will relate to the future leadership of our professional organization.

The third effort was to conduct a comprehensive survey among recently lapsed students and early career members. The purpose of the survey, conducted in late December of 2016, was to determine if the reasons expressed for leaving ASME were related to the generational characteristics identified in the reports reviewed in the first part of this document.

The fourth effort contains a list of 37 prioritized recommendations aligned with earlier findings, the generational characteristics and the reasons stated in the survey results. Each of the recommendations is linked to the ASME strategic plan, each is prioritized according to its ability to make a difference, and each is provided with a set of goals based upon a relevant set of metrics.

Finally, the fifth part of group effort report contains an overall summary of the way forward for the ASME leadership by describing the efforts needed within ASME and expressed in four general areas: culture, defining and delivering enhanced value, creating opportunity for ownership, and contemporizing its work processes.
About the work of the task force and the organization of this report:

This task force was appointed by ASME President Keith Roe in the fall of 2016. The charge to this group was to look for ways to increase the engagement of student, early career and engineers in ASME. The work of the task force was conducted mainly by 20 teleconferences with participation from all members whenever possible. This report details the findings and recommendations of the task force. It is organized into several parts as follows:

**Part I:** A summary of what is known about the generational characteristics of the member groups that constitute our students and early career engineers. This part of the document also provides baseline demographic information about ASME and how this information relates to these emerging groups. This part of the report uses a question and answer format to illuminate the issues associated with these future leaders of our Society. (pages 4 – 18)

**Part II:** A compilation of useful resources for further information about the generational groups who populate our student and early career ASME members. (pages 19 – 20)

**Part III:** The results of a survey conducted in December of 2016 of a large group of recently lapsed student and early career members to see if the general characteristics associated with Millennial and Generation Z persons found in Part I are valid as reasons why these people have left ASME. (pages 21 – 26)

**Part IV:** A compilation of over 36 ideas/recommendations that follow from the results found in parts I, II, and II above. Each of these ideas/recommendations are linked to the ASME strategic plan and each are provided with metrics and goals based on these metrics. (pages 27 – 55)

**Part V:** Final conclusions and a call to action. This section will include motions for the BOG to consider. (pages 56 – 58)

The members of the task force gratefully thank the President and the ASME leadership for this opportunity to contribute to a highly significant issue associated with the relevancy of our programs and the future leadership of our organization.
**Part I: Characteristics of student and early career engineers and the relevant demographics of ASME.**

**Introduction to Part I:**
It should be noted at the onset that the challenge of increasing engagement of younger members faced by ASME is not unlike the challenge that every major professional society faces as they look to the future viability and relevance of their organizations. Indeed, the work of other organizations has provided us with considerable insight as we frame the details of our task. Most notable among the work of others is a recent study done by the Association Laboratory, Inc\(^1\). Using the information in this useful document together with the charge given to us for our work we have made early progress toward achieving early success in our Task Force work.

The early insights made possible by Association Laboratory together with investigative work of the members of our Task Force have enabled us to answer several questions that are key to understanding the dimensions of our current situation. The answers to these key questions provide a foundation upon which to propose and evaluate potential solutions to the challenge we face. With this in mind, the purpose of this part of the report is to summarize the early conclusions that we know from our first stage of work. We have organized this part of our report into the key questions that must be answered as we undertake this work.

**Question#1: What is the demographic profile of our current ASME membership, and what can we learn from this information?**

**I. Composition**

1. As of 6/30/16, student and early-career members totaled 29,536, or nearly 28% of total members on file. (NOTE: the total membership of 106,440 at 6/30/16 is unusually low because of a change in policy, i.e., whereas prior to 2015, non-member conference attendees were automatically granted one year of free membership, we now require opt-in registration for the free membership, which has depressed the overall number.)

2. 59% of student members are based in North America and 26% in Asia; 17% are in India alone.

3. Nearly 82% of early-career members are based on North America. Next largest group is India with 372, or nearly 4%.

4. 26,758, or 25%, of members are 65 years or older.

**II. Membership by Region and 5-Year Trends by Age Group:**

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\(^1\) “Engaging Young Association Members -- A Strategic White Paper for the Association Industry” The Association Laboratory, Inc., ©2015.
Shown below are data provided by ASME staff on the current status of our membership. What this information clearly shows is:

**Figure 1.** Although our organization thinks of itself as a global/international one, the reality is that over 80% of our current members are from the US.

**Figure 2.** Our age distribution is highly bi-modal. On the lower end are the students. On the upper end is a diminishing sized group of older members who will eventually leave ASME.
**Figure 3.** Our younger members do not persist in the organization in large numbers after they graduate from college. This is a group on which we need to focus.

**Figure 4.** Our younger members are in the age ranges up to about age 30.
Question #2: *What can be said about the “generations” present in ASME and how do mechanical engineers differ (if at all) from the overall population of generational groups?*

A well-studied field of sociology relates to an understanding of the behavioral characteristics of various generations. Although the age boundaries for the various generations within the US are subject to slight differences among the various studies, the generations are generally divided into the five groups shown in the columns of Table 1 on the next page. The behavioral characteristics of each of the generations are generally thought to be defined by the experiences during the formative years of each of these groups.

Within the US, the oldest among us are from the GI generation and the Silent generation. Most of the members of ASME who are in this category are retired, are dues exempt, and still exert some influence on the organization.

Within the US, the two youngest generations are the Millennials and the Generation Z. Within ASME the Millennials are our Early Career Engineers and the Generation Z are the incoming student members.

For purposes of this study, the two youngest generations are of the most interest. These generations tend to have unique characteristics that make them considerably different from the generations described in the other three columns on Table 1. These characteristics are listed by number but the number does not imply priority. These characteristics are listed below. The numbering is used as an identification convenience but does not imply priority or degree of importance. In reading this list, we should keep in mind that every person is unique and not all millennials/Gen Z’s exhibit the exact same characteristics. Nevertheless, it is our responsibility to look at the general characteristics of these two generations with a view toward making sure that we addresses the most important needs of this key part of ASME’s future leadership.

1. They are more idealistic than earlier generations in that they want to change the world through their work.
2. They are sharing, impatient, entrepreneurial, and innovative.
3. They tend to be much less formal than the previous three generations.
4. They are more accepting of change than the previous generations.
5. They want to have fun and appreciate instant satisfaction.
6. They are more culturally competent and value diversity.
7. They use social media very effectively.
8. They are more global and independent than their predecessors.
9. They are attached to ideas but less attached to organizations.
10. They use digital technology more effectively than any of the earlier generations.
11. They tend to distrust authority and are put off by a lack of transparency in organizations.
12. They tend to have considerable college debt.
13. They are able to be good team players, but they also prefer to function as independent contributors to diverse and challenging missions.
14. They desire training, mentoring and career-pathing.
<table>
<thead>
<tr>
<th>Characteristics of Generations</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Birth Years</th>
<th>Current Ages</th>
<th>Number of people in US</th>
<th>Other names</th>
<th>Famous People</th>
<th>Historical Influencers</th>
<th>Characteristics</th>
<th>ASME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900-1924</td>
<td>92 - older</td>
<td>28 million and shrinking</td>
<td>GI Generation, The Greatest Generation</td>
<td>Walter Cronkite, Elizabeth Taylor</td>
<td>WWII, Korean War, Great Depression, the New Deal</td>
<td>“Waste not, want not” attitude, Conservative, Strive for financial security, Traditional family values, Sacrifice personal good for the common good, Patriotic, Want to feel needed, Patience, Strong team players, Loyal to company and to organizations, Superb interpersonal skills</td>
<td>The “Old Guard” Committee of Past Presidents</td>
</tr>
<tr>
<td>1925-1945</td>
<td>71 – 91</td>
<td>71 million</td>
<td>The “Me” generation</td>
<td>Bill Clinton, Oprah Winfrey</td>
<td>Vietnam War, Cold War, Space Travel, Assassinations of JFK, RFK, and MLK</td>
<td>Want to achieve the American Dream, Work long hours, Free spirited, Teamwork is critical to success, Relationships are important, Run local, state, and national governments, Believe in rules</td>
<td>Top-level Leadership, BOG</td>
</tr>
<tr>
<td>1946-1964</td>
<td>52 - 70</td>
<td>64 million</td>
<td>Gen X, Xers, Busters Post Boomers</td>
<td>Paul Ryan, Julia Roberts</td>
<td>End of the Cold War, Working moms, Latchkey Kids, Single parents</td>
<td>Independent &amp; Informal, Very self-reliant, Want work/life balance, Reject rules, Mistrust institutions, Entrepreneurial, Loyal to people, not to organizations, First generation not to do as well as their parents, Suspicious of Boomers and Boomer values</td>
<td>Operating unit Leadership, Emerging leaders</td>
</tr>
<tr>
<td>1994 - present</td>
<td>0 – 22</td>
<td></td>
<td></td>
<td></td>
<td>911 attacks -2001, 2008,</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1Different generational researchers sometimes define boundary years slightly differently.
2Not everyone in a generational group exhibits every majority characteristic of that group.
3Those persons born on or near to boundary years may exhibit a blend of characteristics from both generations.
The mechanical engineers who are Millennials and Generation Z have very similar characteristics to their counterparts in other disciplines in the entire US population. Although their scientific training and interests in technology may be more extensive than their counterparts in other professions, they exhibit the same basic sociological interests and behaviors as their generational colleagues. Thus it is safe to say that the numbered list of characteristics of these two generations would hold for our Early Career ASME members and mechanical engineering students.

**Question #3: How are Millennials and Generation Z people different in different parts of the world and how does the cost of ASME membership influence engagement?**

Since the characteristics of different generations are shaped heavily by the life experiences they have during their formative years, one would expect that generations could be strongly dependent on culture and on economic prosperity in different places in the world. While these differences do exist, the rapid advancement of digital technology and nearly instant internet news has brought similar life experiences to many people who would otherwise have been isolated from their peers in other countries during earlier times. For example, the experience of terrorism is becoming a global phenomenon which is impacting the formative experience of Millennials and Generation Z’s around the world. As another example, we see that global economies are more interrelated now than ever before. Thus the economic downturn of 2008 has been experienced, at least to some degree by every young person in almost every nation. This has caused Millennials and Generation Z’s to feel similar concerns about their future, regardless of whether they are in the US, India, Europe, or South America.

It is probably safe to say that economic prosperity has been the single differentiator that has yet to be normalized throughout the world as an influencer of generational culture. While salaries typically are linked to cost of living in a particular region of the world, ASME dues are not linked. Thus although our modest annual membership dues represent about 0.12% of the annual salary of a typical US mechanical engineer, to an average mechanical engineer working in India, our annual dues may represent almost 2% of his or her average annual salary. A table illustrating salary differences in different countries is shown below.

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Salary of a Mechanical Engineer</th>
<th>Dollar Equivalent of this salary</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>342,365Rs</td>
<td>$5,386</td>
<td><a href="http://www.payscale.com/research/IN/Job=Mechanical_Engineer/Salary">http://www.payscale.com/research/IN/Job=Mechanical_Engineer/Salary</a></td>
</tr>
</tbody>
</table>
To its credit, ASME has recognized that its dues represent a significant portion of the total annual salary for some of its international members. To assist these people ASME has established dues discounts for members living in areas where salaries do not match those of their counterparts in the U.S. Table 2b below shows the current discount rates for those engineers in various developing nations. In some cases the discount enables the dues to be more affordable. In other cases the salary differential may be as much as a factor of 16, and thus a discount of 50% (a factor of 2) may not be enough to enable these engineers to join ASME.

Table 2b. Countries eligible for various dues discounts.

<table>
<thead>
<tr>
<th>Countries eligible for 50% dues discount:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Countries eligible for 25% dues discount:</th>
</tr>
</thead>
</table>

Source: https://www.asme.org/about-asme/professional-membership/international-dues

Although not entirely related to the dollar value of membership, ASME seems to lose most of its student members during the year of transition between their student membership and their upgrade to full membership following graduation. This loss of members is also related to the fact that student engineers often have a robust experience of “belonging” with their peers while they are in a student section. They then experience a sudden loss of “belonging” when they transition to a local section since these local units may be much less active or may simply be poorly equipped to meet the needs of the new generation of professionals. To its credit, ASME has recognized the nature of the financial discontinuity by adjusting the dollar cost of transition from student membership to full membership by ramping-up the dues amount over the first 4 years after graduation. The ramp-up details are described in Table 2c below. While this ramp-up may lessen the financial shock of transition to full membership, it does nothing to encourage engagement of the new member with a local section, a technical division, or a national committee.

Table 2c. The ramp-up of dues for student members transitioning to full membership after graduation.

<table>
<thead>
<tr>
<th>Years following graduation</th>
<th>Percentage of Base Dues Amount</th>
<th>Current Dollar Amount in 2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Dues</td>
<td></td>
<td>$25/year</td>
</tr>
<tr>
<td>0 – 1 year</td>
<td>40%</td>
<td>$60/year</td>
</tr>
<tr>
<td>1 – 2 years</td>
<td>55%</td>
<td>$83/year</td>
</tr>
<tr>
<td>2 – 3 years</td>
<td>70%</td>
<td>$105/year</td>
</tr>
<tr>
<td>3 – 4 years</td>
<td>85%</td>
<td>$128/year</td>
</tr>
<tr>
<td>4 and onward years</td>
<td>100%</td>
<td>$151/year</td>
</tr>
</tbody>
</table>

Source: ASME Society Policy P-14.5
In spite of economic differences, the overall generational characteristics of our potential younger members are as indicated in the previous question. This may be best illustrated by the next figure which shows the results from a recent study of the relative importance of factors in considering job prospects among millennials around the world.

**Figure 5.** Relative importance of factors in considering job prospects among millennials around the world in 2015. (Source: https://www.statista.com/statistics/519222/important-factors-in-job-prospects-millennials-2015/)

**Question #4: What is the array of programs, events, and activities that ASME is currently using to enhance the engagement of Early Career Engineers and student engineers?**
Over the years, ASME has been a leader among professional societies in providing programs and events that relate to its Early Career Engineers and to its student engineers. These programs have been championed by various sectors and groups within our organization. Table 3 illustrates some of the current programs, and is shown on the next page.

Table 3. Examples of ASME programs and events to enhance the engagement of Early Career Engineers and student engineers.

<table>
<thead>
<tr>
<th>Target audience</th>
<th>Products &amp; Programs</th>
<th>Program / Product description</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students</strong></td>
<td>Engineering Festivals (E-fests)</td>
<td>Regional events serving as venues for technical and professional skill development via participation in design competitions, attending workshops, TED-style talks, technical presentations, networking and mentoring roundtables.</td>
<td>SECD</td>
</tr>
<tr>
<td></td>
<td>Human Powered Vehicle Challenge (HPVC) : East West International</td>
<td>Design competitions; part of E-fest program</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student Design Competition (SDC)</td>
<td>Design competition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innovative Additive Manufacturing 3D (IAM3D) Challenge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innovative Design Simulation Challenge (IDSC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ME Today e-newsletter</td>
<td>Online newsletter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Old Guard (OG) Competitions</td>
<td>Communication skill competition; part of E-fest program</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student leader training</td>
<td>Student leader training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student Section Enterprise</td>
<td>Student sections</td>
<td></td>
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<tr>
<td></td>
<td>Washington Internship for Students of Engineering (WISE)</td>
<td>Intersociety program to learn about interaction of technology and public policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Show</td>
<td>A global competition for hardware led ventures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E-mentoring platform</td>
<td>Online mentoring platform to find a mentor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>scholarships</td>
<td>Awards by ASME Groups: 35 in FY16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student competition</td>
<td>Conducted by ASME Groups: 27 events in FY16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student Section activities</td>
<td>Organized by ASME Groups: 55 events in FY16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social networking</td>
<td>Organized by ASME Groups: 19 events in FY16</td>
<td></td>
</tr>
<tr>
<td><strong>Students + ECEs</strong></td>
<td>FutureME videos</td>
<td>Career development content for ECEs and students: available on asme.org and youtube</td>
<td>SECD</td>
</tr>
<tr>
<td></td>
<td>FutureME Minitalks / Early Career Social meetup at technical conferences</td>
<td>Career development and networking program at major technical conferences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FutureME Program Grants</td>
<td>OIG sponsored grants to ASME units to conduct programs for helping with transition from campus to professional environment</td>
<td></td>
</tr>
<tr>
<td><strong>ECEs</strong></td>
<td>GDTP (Y14.5-1994): Geometric Dimensioning and Tolerancing Professional Certification</td>
<td>ASME GDTP Certification provides the means to recognize proficiency in the understanding and application of the geometric dimensioning and tolerancing (GD&amp;T) principles. The standard which provides the body of knowledge for this exam is the ASME Y14.5-1994 Standard. There are two certifications within this program, Technologist and Senior.</td>
<td>S&amp;C: Personnel Certification</td>
</tr>
<tr>
<td></td>
<td>QRO - Certification for Municipal Solid Waste Combustion Facilities Operators</td>
<td>The ASME QRO Certification Program covers operators of facilities that combust Municipal Solid Waste (MSW). The QRO Certification Program is based on the ASME QRO-1-2002 Standard for the Qualification and Certification of Resource Recovery Facility Operators. The program is intended for operators of facilities with or without heat recovery.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANDE – ASME NDE and QC Inspection Personnel Certification</td>
<td>ASME’s NDE/QC (ANDE) certifications document your knowledge NDE and QC knowledge.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Examples of Use of Codes and Standards for Students in Mechanical Engineering and Other Fields</td>
<td>Online material</td>
<td>S&amp;C</td>
</tr>
<tr>
<td></td>
<td>ASME Standards &amp; Certification – Example Problem(s)</td>
<td>Online material</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ABC courses</td>
<td>Training &amp; Development</td>
<td></td>
</tr>
</tbody>
</table>
Although many of these programs and events have had a strong positive impact on engaging our younger members, there has not been a single repository of information about these programs nor has there been a study of the cost/benefit ratio of their outcomes. It may be that centralizing these programs or at least coordination among these programs could have a positive impact on the intended audiences. An example of this might be to centralize all scholarship programs.

**Question #5:** _How does our array of programs and activities for younger engineers impact the international members of our organization?_

Although it is difficult to get highly accurate data about the potential of reaching younger mechanical engineers on an international scale, it does seem clear from the data that our recent efforts have only scratched the surface of this important market sector. It seems reasonable to assume that many of the programs and activities that appeal to our young domestic engineers and students would also appeal to their international counterparts if the programs could be delivered to international locations in a cost-effective way. An example of this is the recent expansion of the I-Show program to include international locations. More about this is discussed in characteristic #7 later in this report.

**Question #6:** _What are the challenges, success factors, and barriers to the engagement of young professionals in ASME?_

What follows is a report of the efforts from a sub-group that was asked to look at the challenges, success factors and barriers to the engagement of young professionals. We were specifically interested in knowing if the white paper report on the engagement by the Association Laboratory also pertained to professional societies like the ASME. We have concluded that indeed, the barriers, challenges and success factors were highly pertinent to the issue of young engineer engagement at ASME. A summary of these are shown in the material that follows.

It should also be noted that the possible impact of the lack of mentors in the workplace is another possible cause for low participation in ASME.

It is clear that ASME needs to develop strategies for attracting, engaging and retaining early career engineers, and in fact, the demographic data shows a significant sustained drop off in membership across the young engineering population in ages of professionals in the age group in their 30’s and early 40’s. The Task Forces needs to gather actual “voice of the customer” input and unravel the root cause of the low membership in this age group, and develop strategies and associated action plans for attracting, engaging and retaining participation. In other words, we need to address each of the challenges and barriers to engagement identified.

A summary of the Key Challenges and Barriers for Engagement* of Young Engineers now follows:

**Challenges:**

- ASME is resistant to the cultural change needed to attract, engage and retain young engineers.
• ASME is not providing young engineers with value propositions that meet their needs or capabilities.

• ASME is not communicating a clear value proposition regarding the benefits of participation.

• ASME does not sufficiently understand young engineers’ constraints to engagement.

• ASME is not creating pathways for engagement that attract and retain young engineers.

• ASME does not fully understand the influence of external factors on the desire and ability of young engineers to engage the Society.

Barriers:

• The ASME leadership team is not in agreement on the importance of membership and how to engage young engineers.

• There is a very competitive and complex market for gaining the attention and engagement of young engineers.

• ASME has an inward focus on legacy programs instead of an outward focus on the goals/needs of today’s young engineers.

• ASME spends insufficient time and energy in understanding the goals and needs of young engineers.

• ASME thinks more in terms of “Programs” instead of “Strategies” and therefore has a shortsighted view that limits success.

Some Key Success Factors:

• Be specific about students, early career, and young engineers as a target market and understand their needs and desired experiences.

• Allocate sufficient marketing investment to reach and educate young engineers about the value proposition and how it is relevant to their lives.

• Have better alignment between ASME’s sense of engagement and theirs, including but not limited to membership categories.

• Improve and communicate ASME’s offerings and engagement pathways to meet the needs and desires of young engineers.

Question #7: What is the market potential and what might we realistically hope to achieve if we are successful in addressing the issues we face regarding our younger members?
The following figure and summary information show that the potential for engagement is high if we can find cost-effective ways to reach this part of our constituent base.

**Figure 6.** Potential for engagement of our younger members.

**Question #8:** How can ASME’s social media presence be better tailored to reach the desired demographic of young professionals?

Without question, social media is one of the more important communication tools for reaching both Millennials and Generation Z’s. ASME has undertaken considerable change to its internet presence and has begun to make good progress in using social media methods to reach all of its members. What is becoming clear is that there are organizations in this field who are much better equipped to deploy social media content than ASME. For this reason, carefully crafted partnerships may be one of the best ways ASME can enhance its social media presence. It is the old adage, if you can’t beat them, join them. This approach does suggest that another task force might be needed to identify the best partners who are the purveyors of social media that could be most appropriate for ASME.

**Question #9:** How can the Task Force find ways to listen more carefully to the “voice of the customer” when it comes to Early Career Engineers and student engineers?

Our best thinking to answer this question is that we need to do some or all of the following:
1. We need to organize and operate focus groups at the ASME IMECHE meeting in the fall of each year to listen to the needs and preferences of both groups (Early Career Engineers and student engineers).
2. We need to organize and operate several on-line surveys of existing members to listen to the needs and preferences of both groups (Early Career Engineers and student engineers). This activity might be especially helpful if we look at both those we retain and those we lose after graduation.
3. We need to craft questions that will probe the particular things that are most useful to our younger members so that we can integrate these things into the final recommendations of the Task Force.
4. We need to encourage generational sensitivity training on the part of all members of ASME so that our younger members feel respected and listened to.

Question #10: What are the practices that other professional organizations have done to address the issues of engaging young professionals, and how might ASME use these ideas most effectively?

Since ASME is not alone in hoping to do a better job of engaging and retaining its younger members, we have looked at other professional organizations that have similar visions or that represent organizations that we would most like to emulate as a source for good ideas. Although it is not possible for this report to enumerate all of the practices that exist, the following information highlights some of the more interesting practices we have seen that are designed to attract and retain student and early career engineers in these professional societies.

**ANS Student Conference**
The ANS Student Sections Committee (SSC) annually holds a student conference.

The conference is the responsibility of the SSC. They are delegated much authority in organizing this conference. There is oversight of course, but that is it.

The SCC selects the site, organizes the event, develops the program, solicits keynote speakers, and raises funds to support the meeting and to subsidize travel and other out of pocket expenses of the students wishing to attend.

The conference is a huge success. The energy among attendees is readily evident. The conference has the engagement of experts to help attendees develop soft skills. This has been very well received. In particular communications experts train attendees in dealing with the media. Mock interviews were conducted. Many students listed this as the most significant part of the meeting for them personally.

One note of caution: a big part of the meeting is entertainment, partying, having fun together. The consumption of alcohol was a concern that needed to be addressed using guidelines that were strictly followed.

**AICHE**
AICHE attracts student participation by offering free membership and promoting the following:
- Networking opportunities
- Enhancing professional credentials
- Educational resources

In a general sense they market “all the tools you need to reach your goals” through access to a “job board”, career training in soft skills, training in safety and technical topics.

Networking is facilitated through an online community created by young professionals.

They offer home and auto insurance, financial advisory services as well as car buying services.

Another attraction is more than $50K in annual awards and scholarships.

Finally, their GOOGLE search advertisement includes an option for “students”.

**ASCE**

ASCE touted their student conferences which are held each spring. These conferences offer the standard fare of technical presentations, “social activities”, and awards banquet.

**IEEE**

IEEE promotes itself as “the world’s largest technical professional organization dedicated to advancing technology for the benefit of humanity”. Their Google link did not have an overt appeal to student and ECE but it did prominently display a Social Media section on the screen with links to Facebook, Twitter and LinkedIn.

The IEEE homepage contains the standard options promoting its activities and how to join. In addition, it prominently promotes the just completed Future Leaders Forum.

IEEE held its inaugural IEEE-USA Future Leaders Forum from July 30, 2016 through August 2, 2016 in New Orleans. It attracted 285 attendees that included both IEEE members as well as others from around the world. The event is being viewed as one of the “finest” the organization has produced. It will continue on an annual basis.

**NAYGN (North American Young Generation in Nuclear)**

This is not a professional society. It is comprised of members who are passionate about nuclear technology. NAYGN’s vision is to develop leaders to energize the future of the nuclear power industry. Its mission is to provide opportunities for a young generation of nuclear enthusiasts to develop leadership and professional skills, create life-long connections, engage and inform the public, and inspire today’s nuclear technology professionals to meet the challenges of the 21st century.

Membership was around 8,000 with about a quarter of the members being very active. They are typically organized around local sections associated with a nuclear generating station. They are solidly supported by their companies. The elements that are common between the ANS Student Conference and NAYGN are

- Members are given responsibility and authority
- Members are supported by their employer
• Industry supports their activities

A summary of what we have learned from other professional societies
A distillation of the societies investigated yields some common elements that seem to represent a consensus of approaches to recruiting and keeping younger members. However, a “consensus” approach does not necessarily mean an “effective” approach.

Among the success characteristics identified thus far are:

1. Responsibility and authority for activities.
2. Instruction in soft skills
3. Opportunity to engage peers both through social media and face to face in International interactions.

Question #11: What then are the next steps that we should undertake?

Based on what we now know, the Task Force believes itself to be in a position to undertake the next phase of its work. In particular we are ready to look for the following ideas:

1. What are the things that we could do that would be most cost-effective in enhancing our engagement of young engineers in ASME?
2. What are the things that we are now doing that are ineffective or possibly even counter-productive that we should stop doing if we want to make optimum use of our limited energy and financial resources in reaching out to our younger members?
3. What are the cultural attitudes and norms within our organization that need to be changed if we are to make our organization more welcoming to younger members? (No doubt this step will also be reflected in the work of the HPB Task Force which is working on a very similar issue.)

As we propose ideas we should keep in mind considerations of:

1. The cost, time and energy required for new idea implementation.
2. The degree to which we are able to make changes.
3. The degree to which any changes are consistent with our strategic objectives for ASME.
4. The willingness of our leadership to address difficult issues.
5. The ways we can measure success of new programs and new cultural behaviors.
Part II: A compilation of useful resource documents for further information

For those wishing further information about the generational groups who populate our student and early career engineers, the following annotated bibliography is provided. It contains the most important references consulted in the initial phases of our Task Force work:

This book is the original work that defines the characteristics of various generations in the U.S. The basic theory of this book is that each generation belongs to one of four types, and that these types repeat sequentially in a fixed pattern. The book suggests that by understanding the characteristics of the various types of generations, we can understand how to relate to these groups in more effective ways.

Although this book is now 16 years old, it was the initial description of the early characteristics of the millennial generation and the events and early influences that formed the life-long characteristics of this emerging generation. It sets the stage for later works that describe the characteristics of millennials in the professional workplace.

“Millennials in Adulthood - Detached from Institutions, Networked with Friends,” a report by the Pew Research Center in 2014.
http://www.pewsocialtrends.org/2014/03/07/millennials-in-adulthood/
Findings in this report are based primarily on data from Pew Research Center surveys. Much of the analysis comes from a Pew Research telephone survey conducted in February of 2014 using a national sample of 1,821 adults, including 617 Millennial adults. It also draws on other Pew Research Center surveys conducted between 1990 and 2014.

“Engaging Young Association Members - A Strategic White Paper for the Association Industry,” by the Association Laboratory Inc., 2015. This white paper is online at: http://www.associationlaboratory.com/pdf/Engaging_Young_Association_Members.pdf
This white paper was prepared by the Association Laboratory, Inc. and involved the collaboration of an assembled group of 35 young association executives from a range of industries to identify the challenges and opportunities for engaging younger members in trade and professional organizations. It provides an excellent summary of challenges, success factors, and barriers to the engagement of young professionals in professional associations and organizations.

Skift is a relatively new company, launched in August 2012, with the ambition of becoming a key business resource to the business travel industry. This 35 page report focuses on providing
industry stakeholders with ideas about how to implement event technologies that are best aligned with Millennials’ generational preferences.

“The Ultimate Guide to Connecting With And Recruiting Younger Members,” by Wild Apricot, a Canadian Web-based company that markets software to assist organizations in managing and growing their membership base. The article is online at: 
http://www.wildapricot.com/articles/guide-to-connecting-recruiting-younger-members
This particular article is actually a summary of 10 other articles that focus on information, insights, and various ideas that lead to better understanding of Millennials and how they can become more connected to professional organizations.

This is the result of the 5th annual survey done by Deloitte which this year focused on Millennials’ values and ambitions, drivers of job satisfaction, and their increasing representation on senior management teams. It is a survey of over 7,700 respondents from 29 different countries who work in companies that have over 100 employees.

“Four Strategies To Attract And Keep Your Best Millennial Talent,” by the Forbes Nonprofit Council, August 23, 2016. This article is online at: 
This short article describes what can be done to attract and retain millennials in non-profit organizations. It could just as easily have been written about how to attract and retain volunteers in professional organizations like ASME. It offers the following ideas: 1) Give Meaningful (Engagement) Work 2) Offer Flexibility; 3) Support Their Personal Growth; and 4) Market the Good of Your (Organization) Company.

“Millennials: Not Attached to Employers or Institutions.” Gallup Poll of Millennials, BUSINESS JOURNAL, SEPTEMBER 20, 2016, online at: 
http://www.gallup.com/businessjournal/195677/millennials-not-attached-employers-institutions.aspx?g_source=MILLENNIALS&g_medium=topic&g_campaign=tiles
To quote: “The reality is that millennials view certain institutions differently than their predecessors do, and those views have shaped their decisions to engage -- or not to engage -- with those institutions. With millennials projected to dominate the workforce in the very near future, organizations and institutions that proactively seek to engage millennials and win their commitment will come out on top.”
Part III: The results of a survey conducted in December of 2016 of a large group of recently lapsed student and early career members.

Introduction
It seemed reasonable to see why our student and early career members joined ASME in the first place and then to see if there were common reasons that these people decided to drop their membership. Our capable staff crafted a survey and sent it to 28,140 Undergraduate Students, Graduate Students and Early Career Engineers who lapsed their membership in the past 3 years. Quite surprisingly 1,204 of these people responded with details about their perceptions and aspirations for their relationship with ASME. This response rate of over 4% is regarded as a very good rate of return for this type of survey. The distribution of the returns in terms of the numbers of the various groups is shown in Table 4 below:

Table 4. Distribution of those responding to the lapsed member survey.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of responses</th>
<th>Percent of the total return</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE’s (under age 35; less than 10 years job experience)</td>
<td>353</td>
<td>29%</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>226</td>
<td>19%</td>
</tr>
<tr>
<td>Undergraduate Students</td>
<td>625</td>
<td>52%</td>
</tr>
<tr>
<td>Total</td>
<td>1,204</td>
<td>100%</td>
</tr>
</tbody>
</table>

We were also pleased to see that the geographical breakdown of the responses has good representation in those areas where ASME has important components of its membership. This is illustrated in Figure 7 below:

![Geographical breakdown of the total responses to the survey](image)

Let us look at each of the three distinct groups and their responses to the two key questions:
1. What were your main reasons for joining ASME?
2. What were your main reasons for cancelling ASME membership?
Key Findings: ECEs – main reasons for joining ASME

- Access to up-to-date technical/scientific information and research and publications and professional journals were cited as the main reasons for membership in ASME by the lapsed Early Career Engineers.
- Training and professional development, networking and job hunting were also frequently cited as important to ECEs.

<table>
<thead>
<tr>
<th>Main reasons for membership in ASME - lapsed ECEs</th>
<th>Bar - %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to publications and professional journals</td>
<td>39%</td>
</tr>
<tr>
<td>Access to up-to-date technical/scientific information and research</td>
<td>35%</td>
</tr>
<tr>
<td>Training &amp; professional development opportunities</td>
<td>34%</td>
</tr>
<tr>
<td>Networking</td>
<td>33%</td>
</tr>
<tr>
<td>Job hunting</td>
<td>31%</td>
</tr>
<tr>
<td>ASME Certifications</td>
<td>26%</td>
</tr>
<tr>
<td>Membership benefits</td>
<td>23%</td>
</tr>
<tr>
<td>Attending conferences</td>
<td>17%</td>
</tr>
<tr>
<td>ASME programs</td>
<td>13%</td>
</tr>
<tr>
<td>My employer reimbursed me for all, or part of my membership...</td>
<td>14%</td>
</tr>
<tr>
<td>Issues related to the Engineering For Global Development</td>
<td>5%</td>
</tr>
<tr>
<td>PDH credits</td>
<td>5%</td>
</tr>
<tr>
<td>ASME grants</td>
<td>0%</td>
</tr>
<tr>
<td>Opportunities to present my research papers</td>
<td>5%</td>
</tr>
<tr>
<td>Opportunities to publish my research</td>
<td>4%</td>
</tr>
</tbody>
</table>

Q. Thinking back to your membership in ASME, what were the main reasons for your membership? Check all that apply

Key Findings: ECEs – main reasons for canceling ASME membership

- Cost was named as the main reason for canceling ASME membership by 73% of lapsed ECEs - as a group ECEs are more concerned about cost than Graduate and Undergraduate Students.

<table>
<thead>
<tr>
<th>Main reasons for canceling ASME membership – ECEs</th>
<th>Bar - %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>73%</td>
</tr>
<tr>
<td>Lack of activities in local student chapter</td>
<td>30%</td>
</tr>
<tr>
<td>Lack of active local section</td>
<td>28%</td>
</tr>
<tr>
<td>Irrelevant information</td>
<td>16%</td>
</tr>
<tr>
<td>Changed my profession</td>
<td>9%</td>
</tr>
<tr>
<td>Too conservative</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
</tbody>
</table>

Q. What were the main reasons for canceling your membership in ASME?

Figure 8. Key findings for Early Career Engineers.
Key Findings: Graduate Students – main reasons for joining ASME

- Similar to ECEs, Graduate Students cited access to up-to-date technical/scientific information and research and publications and professional journals as the main reasons for membership in ASME.
- Networking, attending conferences, student activities, job-hunting and professor's encouragement were also frequently cited as important to Graduate Students.
- Notably, financial assistance from school was ranked as the least important reason.

Q. Thinking back to your membership in ASME, what were the main reasons for your membership? Check all that apply.

Key Findings: Graduate Students – main reasons for canceling ASME membership

- Once again, cost was named as the main reason for canceling ASME membership.

Q. What were the main reasons for canceling your membership in ASME?
Key Findings: Undergraduate Students – main reasons for joining ASME

- Student section activities were cited by the lapsed Undergraduate Students as the main reason for their membership in ASME
- That was closely followed by access to up-to-date technical/scientific information and research
- Access to publications and publications and professional journals and participation in ASME competitions were also important to the lapsed Undergraduate Students
- Similar to the Graduate Students, financial assistance from school was ranked as the least important reason

<table>
<thead>
<tr>
<th>Main reasons for ASME membership - lapsed Undergraduate Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student section activities</td>
</tr>
<tr>
<td>Access to up-to-date technical/scientific information and research</td>
</tr>
<tr>
<td>Access to publications and professional journals</td>
</tr>
<tr>
<td>Participation in ASME competitions</td>
</tr>
<tr>
<td>My professor encouraged me to be a member</td>
</tr>
<tr>
<td>Job hunting</td>
</tr>
<tr>
<td>Attending conferences</td>
</tr>
<tr>
<td>ASME section activates</td>
</tr>
<tr>
<td>Issues related to Engineering For Global Development</td>
</tr>
<tr>
<td>Student leader training</td>
</tr>
<tr>
<td>Networking</td>
</tr>
<tr>
<td>My school provided financial assistance</td>
</tr>
</tbody>
</table>

Q. Thinking back to your membership in ASME, what were the main reasons for your membership? Check all that apply

Key Findings: Undergraduate Students – main reasons for canceling ASME membership

- While cost remains the main reason cited by the Undergraduate Students – they appear to be slightly less concerned as a group with the cost than Graduate Students and ECEs

<table>
<thead>
<tr>
<th>Reasons for canceling ASME membership – Undergraduate Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
</tr>
<tr>
<td>Lack of activities in local student chapter</td>
</tr>
<tr>
<td>Lack of active local section</td>
</tr>
<tr>
<td>Changed my profession</td>
</tr>
<tr>
<td>Irrelevant information</td>
</tr>
<tr>
<td>Too conservative</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

Q. Thinking back to your membership in ASME, what were the main reasons for your membership? Check all that apply
What we have learned from this survey:

**Main reasons for ASME membership:**
- Access to up-to-date technical/scientific information and research and publications and professional journals were named as the main reasons for membership in ASME by the lapsed Early Career Engineers and Graduate Students
  - It was particularly important to the international respondents

- While student section activities were cited by the lapsed Undergraduate Students as the main reason for their membership in ASME, it was closely followed by access to up-to-date technical/scientific information and research.
  - Competitions were also a draw for the Undergraduate Students

- When looking at the notable regional differences, issues related to career-development, such as training, professional development, networking and job-hunting were very important to the respondents from the U.S. and Canada, particularly ECEs and Graduate Students
  - Notably, PDH credits were most important to those who reside in Asia-Pacific
  - ASME Certifications and member benefits were named as the essential reasons for membership by those residing in South and Latin America

**About membership in other Professional Societies**
- It is useful to note that the majority of respondents (60%) have been members of a professional society other than ASME in the past 10 years
  - SAE and IEEE were most often mentioned as other professional societies to which respondents belong to across all categories of respondents
  - Most of the respondents said that they have been members of the other societies for three years, or less – very few more than 5 years. ECEs were most likely to cancel/not-renew their memberships
  - Respondents from EMEA, as well as Graduate Students were most likely to have membership in other societies

- Access to information about up-to-date technical/scientific research and innovations was named as the most important reason for joining an engineering society by the majority of respondents across all three categories
  - Overall, respondents appear to cite access to ASME’s publications and professional journals as reason for their membership in ASME more frequently than a reason to join a professional society per se

**Main reasons for cancelling ASME membership**
- Cost was cited as a main reason for canceling membership across all categories
  - Overall, ECEs were most cost conscious as a group. This is not surprising because it is this group who see the ramping up of their dues to 2x, 3x, 4x, and 5x during the first, second, third and 4th years after leaving the status of student member.
Students and ECEs from Asia-Pacific appear to be less price-conscious than the rest of the respondents. However, they are more likely to be dissatisfied with the lack of local activities and active local sections.

At the same time, respondents from the U.S. and Canada are more likely to be reimbursed for their membership (14% of ECEs mentioned it among their reasons for being a members)

“Other” reasons for canceling AMSE included low value and issues related to membership renewal and submitting payment.

- Lack of local activity and a lack of a strong local ASME presence seems to be the number two reason for cancelling ASME membership in each of the three groups. Thus it would appear that things done by ASME leadership to strengthen local presence would result in retaining more of our younger members.
- Surprisingly, very few respondents cited a lack of digital experience as an issue for their engagement.

Some interesting individual comments resulted when respondents were asked what can we do to retain/bring back the lapsed ECEs and Students.

- “I want to be part of this prestigious society in long run. Currently big issue for members like me is to catch a job to meet my financial needs. So inclusion in job search program/Portal or to make job hunt easy for fresh engineers like me will be a highly grateful act. As then we will be able to spend time to keep our self in touch with society and only then we will be able to bear the cost of ASME member ship.”

- “I didn’t’ cancel!!! I tried renewing for months but the website wouldn't let me. I have reached out in various ways for support and haven't been contacted so I moved on.”

- “Have more PDH resources - either through face to face meetings or online classes. Seminars aren't that useful because they are limited to a specific day and time. Have more education available on ASME codes (rather than just info on how to buy a copy). Improve the website - many broken links, mentions of sub-committees that are either no longer active or no longer exist.

- “More tasks to empower women in engineering.”

- “Add value to my career other than just a placeholder on a resume.”

While there is much more that could be said about the results of this important survey, these pages give a good summary of the most important findings. For those interested in drilling deeper into the results of the survey, a more detailed summary is available.

Our thanks to the ASME staff people who assisted us with this survey. Of particular note is Jeff Patterson and Svetlana Shaknes.
Part IV: Ideas/Recommendations to encourage the increased engagement of our ECE and Student Members in ASME

The Student/ECE Task Force has pooled a rich collection of source material through which we have developed a shared understanding of the attitudes, behaviors and priorities of Millennials, as well as the particular challenges ASME faces in engaging with this diverse and increasingly global cohort. After synthesizing and debating the implications of the data, we have developed a variety of ideas for possible action ranging from small but significant process improvements to large sweeping initiatives. We acknowledge that some of these ideas are by no means new, and some may already be in early stages of development by staff and volunteers. Nonetheless, we believe the Task Force’s input will serve as a useful context for prioritizing and/or formalizing the implementation of those deemed most likely to produce a favorable -- and quantifiable – benefit to ASME.

Before we describe our ideas and recommendations, we would be remiss if we failed to acknowledge the forward-thinking progress that ASME has already made in addressing the needs of early career engineers and student engineers. Among these are the “Opportunities Portal” of the E4C program, the Eclipse Internship Program, the I-Show competition, the newly established E-Fest gatherings, our cutting-edge Keynote Lectures, and our VOLT workshops to name but a few! It is our opinion that ASME is, in fact, a leader among professional organizations in having the foresight to address the issues of its next generation of leaders. Thus it is our hope that the outcomes of our Task Force will be ideas and recommendations can enable our already forward-thinking organization to leap ahead of its peer organizations and take additional steps to secure a bright future for the leadership of our organization in the days ahead.

We recommend that the Task Force review these ideas with the senior leadership and the senior staff for the purpose of selecting for development and implementation those that have the greatest potential for benefit to the future of ASME.

Since we seek to link our ideas to the fundamental characteristics we have already articulated for the emerging generations of our membership, we will organize these ideas around the 14 characteristic areas described in the earlier part of this report. Our task force has recommended priorities and timing for each of the ideas using the scheme described in the two tables.
<table>
<thead>
<tr>
<th>Priority Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent</td>
<td>The most desirable and important of our recommendations. These will provide an optimum return on time and energy invested and should be considered before any lower priority ideas are tried.</td>
</tr>
<tr>
<td>High</td>
<td>Highly desirable and impacting large numbers of potential members. Provides a very good return on the energy and resources invested. This category of recommendation is highly needed. These items are those things that “really move the needle.”</td>
</tr>
<tr>
<td>Medium</td>
<td>Desirable and may impact significant numbers of people. May provide a good return on investment. As time and resources are available, this category should be given consideration.</td>
</tr>
<tr>
<td>Low</td>
<td>Desirable and useful but may not impact large numbers of people or may not give a good return on the investment of time and resources that are required. Thus, if these can be implemented easily and with minimal resources, they may be given consideration as an experiment. Otherwise, these ideas should be set aside for possible future implementation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timing Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short range</td>
<td>Needs to be started immediately and should provide a good return within the first year or so.</td>
</tr>
<tr>
<td>Long Range</td>
<td>Needs to be undertaken progressively, and may take quite some time to reach full implementation. These ideas may require some time before the full positive impacts are seen.</td>
</tr>
</tbody>
</table>
**Characteristic Area:**

1. Millennials are more idealistic than earlier generations and they want to change the world through their work.

**How this area fits into the ASME Strategic Plan:**

*This characteristic and the recommendations it suggests link very well with the ASME mission which describes “applying engineering knowledge for improving the quality of life.” It also relates to the ASME Credo which is to “set the standard for the benefit of humanity.”*

### Idea: 1.1 Humanitarian Service Projects

| Description: | ASME should partner with organizations like Engineers Without Borders or Habitat for Humanity, to run “experiential/service” trips so that ECE’s and student engineers can go to places where they can use their engineering skills on projects that contribute to promoting a better standard of living in third world countries. ASME should amplify its promotion of the “Opportunities Portal” on Engineering for Change (E4C) which profiles volunteer positions, fellowships and career opportunities in global development. ASME should encourage more of its members to join E4C. ASME should draw attention to Humanitarian projects and Humanitarian Engineering programs in academic institutions which are attracting minority and diverse students in large numbers: [https://www.engineeringforchange.org/global-development-academic-programs/](https://www.engineeringforchange.org/global-development-academic-programs/) |
| Category: | A-To start something new or to enhance existing programs |
| Metrics: | ● The number of visitors to the E4C Opportunities Portal.  
● The number of projects sponsored by ASME, co-sponsored by ASME or have ASME member participants.  
● The number of college students in Mechanical Engineering who are aware that ASME engages in humanitarian service projects.  
● The number of students and ASME members who are aware of the “Opportunities Portal.” |
| Goals: | ● Increase the number of visitors to the E4C Opportunities Portal by 50%.  
● Launch 2 new ASME-sponsored projects per year.  
● A 10% increase the number ME students (or ASME student members) who report that they are aware that ASME engages in humanitarian service projects. |
| Priority: | Medium |
| Timing: | Long Range |
### Idea: 1.2 Design Competitions for Enhancing the Quality of Life in the World.

**Description:** ASME should look carefully at the design competitions it promotes and give a priority to projects that address changes to improve the quality of life in the real world. These competitions should not be limited to just the developing world but should result in real concepts that can be useful.

**Category:** A-To start something new or to enhance existing programs

**Metrics:**
- Percentage of design competitions that relate to quality of life in the world.

**Goals:**
- At least 40% of our competitions will include at least one project that relates to quality of life in the world by the close of 2017.

**Priority:** Medium

**Timing:** Short range

### Idea: 1.3 Grants Program for Global Development/Humanitarian Projects

**Description:** Because millennials and GenZ’s are more idealistic than earlier generations in that they want to change the world through their work, ASME should consider grants in support of global development/humanitarian projects that have demonstrated impact for the communities they’re trying to serve, in addition to the benefit of a service learning opportunity for the students. ASME should develop and start deploying a communications plan for this program by the end of 2017.

**Category:** A-To start something new or to enhance existing programs

**Metrics:**
- The number of grants and the amount of funds devoted to the grants program.

**Goals:**
- The actual goals should be based on a market study

**Priority:** Medium

**Timing:** Long Range
Characteristic Area:

2. Millennials are sharing, impatient, entrepreneurial, and innovative.

How this area fits into the ASME Strategic Plan:

This characteristic and the ideas suggested relate well to the spirit of the ASME strategic action that suggests we will be “the technology innovation partner to execute leadership in key customer segments.”

<table>
<thead>
<tr>
<th>Idea: 2.1 ASME Rapid Response to Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Offer a “hot-line” concept for rapid communications to address important issues in real time. The current GPS tool is “robotic” in its interface and can take 24 hrs or more to get a response to a request. (This same topic is being addressed by the Group Engagement Task force with the recognition that we need a more seamless and “personal” touch.)</td>
</tr>
<tr>
<td>Category: A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| Metrics: ● The start of this program and the number of requests handled satisfactorily per month.  
  ● The number of members who are aware that the “hot-line” exists as measured by a member response questionnaire. |
| Goals: ● At least 80% requests are handled in two or less interactions. The Hot-Line to be in full operation by the close of 2017.  
  ● At least 50% of ASME members will indicate that they are aware of the “hot line.” |
| Priority: Urgent |
| Timing: Short range |

<table>
<thead>
<tr>
<th>Idea: 2.2 Expand the ISHOW Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: The ISHOW concept has been a very positive program to encourage entrepreneurship. Perhaps ASME should develop an additional entrepreneurial forum to bring together innovators with venture capital people. Such a program could be self-supporting once it develops an established reputation. ASME.org will contain easy-to-use links to find details of these programs.</td>
</tr>
<tr>
<td>Category: A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| Metrics: ● The number of forums in which entrepreneurship is engaged. The number of participants in these forums.  
  ● The number of participants that would recommend the forum to their colleagues (as measured by a participant survey at the end of the forum). |
| Goals: ● Four such programs each year in different locations.  
  ● More than 50% of participants satisfied with the experience. |
| Priority: Medium |
| Timing: Short range |
**Characteristic Area:**

3. Millennials tend to be much less formal than the previous three generations.

**How this area fits into the ASME Strategic Plan:**

*Although there is nothing specific about informality in the new ASME Strategic Plan, The notion of welcoming input and putting our members at ease during our meetings is a value that continues to pervade the ASME culture.*

<table>
<thead>
<tr>
<th>Idea:</th>
<th>3.1 Meeting Comfort for Millennials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>ASME should consider dress codes that are “less formal” than we’ve typically endorsed. Millennials DO enjoy dressing up on occasion, such as a formal sit-down awards dinner, but are less inclined to do so for technical presentations/meetings. OUR older generational members tend to wear a suit and tie to EVERYTHING. Let’s tone it down. Encourage our board and other senior members to dress down on occasion. Encourage business casual at the IMECE and other business meetings.</td>
</tr>
<tr>
<td>Category:</td>
<td>C-To change or modify our culture and traditions.</td>
</tr>
<tr>
<td>Metrics:</td>
<td>● Include “dress code” guidelines for all ASME general membership events.</td>
</tr>
<tr>
<td>Goals:</td>
<td>● 100% published guidelines.</td>
</tr>
<tr>
<td>Priority:</td>
<td><strong>Low</strong></td>
</tr>
<tr>
<td>Timing:</td>
<td><strong>Short range</strong></td>
</tr>
</tbody>
</table>
Characteristic Area:
4. Millennials are more accepting of change than the previous generations.

How this area fits into the ASME Strategic Plan:
This characteristic relates to the Core value which suggests we will “respect and document engineering history while continually embracing change.”

<table>
<thead>
<tr>
<th>Idea:</th>
<th>4.1 Seek Professional Assistance in Implementing Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>While the members of this taskforce have learned much from the research we have completed, we do understand that we are not experts at the sociological issues associated with generations. For this reason, we recommend that ASME hire a professional cultural change consultant to advise it on changes that need to be made to encourage the engagement of its younger members.</td>
</tr>
<tr>
<td>Category:</td>
<td>C-To change or modify our culture and traditions.</td>
</tr>
</tbody>
</table>
| Metrics: | ● The number of ASME leaders who have engaged in learning/training about implementing change for different generations.  
● The number of actionable recommendations from the consultant.  
● The number of different aspects of ASME that have been reviewed for cultural/generational relevancy with the consultant. |
| Goals: | ● A consultant has been hired by the end of 2017-18.  
● At least 50% of ASME leaders have engaged in learning/training about implementing change across generations.  
● Other goals to be determined in consultation with the consultant. |
| Priority: | Urgent |
| Timing: | Short range |
Characteristic Area:
5. Millennials want to have fun and appreciate instant satisfaction.

How this area fits into the ASME Strategic Plan:
This characteristic is why the core value of “promote the technical and societal contribution of engineers” is a good first-step for the notion of recognition.

<table>
<thead>
<tr>
<th>Idea:</th>
<th>5.1 Expand the E-Fest Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>E-Fests are moving ASME away from the traditional conference model and instead creating a &quot;festival&quot; feel that provides an immersive, electric experience that will connect and inspire a generation of change-makers. This is an example of a recent positive trend within ASME meeting planning that should be expanded to other ASME venues.</td>
</tr>
<tr>
<td>Category:</td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| Metrics: | ● The number of people participating at E-fest events.  
● The number of people that would recommend E-fest to others as measured by an exit survey. |
| Goals: | ● 3,000 participants each year at the E-fests.  
● The number of participants at the E-fest events will increase by 20% each year.  
● At least 80% of E-fest participants report that they would recommend E-fest to their colleagues. |
| Priority: | Urgent |
| Timing: | Short range |

<table>
<thead>
<tr>
<th>Idea:</th>
<th>5.2 Create Enhanced “Fun” at ASME Meetings and Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Because millennials set a high priority on having “fun,” ASME should include millennials in meeting planning. These early career engineers should be polled to determine what they regard as “fun” activities associated with meetings. Clearly what is fun for older generations may not be as highly valued by those who are younger and have not yet established networks of old friends.</td>
</tr>
<tr>
<td>Category:</td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| Metrics: | ● The number of participants who report that the event that they participated in was “Fun” as measured by an end of event questionnaire.  
● The number of millennials on meeting organizing committees. |
| Goals: | ● A minimum of 4 “Fun” events per year planned and operated by millennials.  
● At least 40% of participants will report that they had fun at the events that were planning with millennials on the organizing committee. |
| Priority: | Medium |
| Timing: | Short range |
Characteristic Area:
6. Millennials are more culturally competent and value diversity.

How this area fits into the ASME Strategic Plan:
This characteristic relates well to the Core value which states we will “Embrace diversity and respect the dignity and culture of all people.”

<table>
<thead>
<tr>
<th>Idea:</th>
<th>6.1 Recognize the Strength That Comes Through Diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Millennials are more inclusive than previous generations, and look for opportunities with diversity in both content and culture. They are less inclined to support a cause which is perceived as exclusive or one-dimensional. While ASME does not track ethnicity or nationality (just current location) of its membership, data shows that ASME membership is predominantly white American male. Strategically targeting under-represented minorities, both within the U.S. and abroad, will help us attract millennials with similar diversity and a greater appreciation of cultural and racial differences. Such targeting may require dedicated staff and volunteer resources focused on this issue and developing programs geared towards culturally and racially diverse engagement.</td>
</tr>
</tbody>
</table>
| Category: | A-To start something new or to enhance existing programs  
C-To change or modify our culture and traditions. |
| Metrics: | - Number of committees, task forces and working groups with diverse membership  
- Number of operating guides incorporating diversity clauses.  
- Number of units seeking expertise and guidance from the Diversity and Inclusion Strategy Committee.  
- Existence of a way to measure/evaluate diversity of a team/unit/committee. |
| Goals: | - 100% of units/committees receiving funding from ASME will report on how they are addressing diversity in their unit/committee.  
- 100% of operating guides will address diversity or show how they incorporate the ASME Diversity and Inclusion Policy.  
- At least 50% of all of the units/committees/task forces will report that they are aware of the Diversity and Inclusion Strategy Committee and the expertise that is available within that group. |

Note: Diversity to be defined broadly, spanning across age, gender, culture, race, ethnicity, etc. We may begin by including our representatives in ASME's international offices and regional ECE&S advisors, as they can connect us with related activities in their regions.

Priority: High
Timing: Short range
Characteristic Area:

7. Millennials use social media very effectively.

How this area fits into the ASME Strategic Plan:

This characteristic can relate to the strategic action that suggests ASME “use under-
tapped assets to leverage value as a technology innovation partner.” It also relates to
the strategic action where ASME proposes to “develop deep expertise in and focus on
content creation on better management of technology development and deployment
across the technology development curve.”

Description:

ASMEs existing social media presence is split between several staff-run accounts
on various platforms and a plethora of volunteer-run accounts. This has lead to a fracturing of the audience and reducing the impact of any articles or media posted to the platforms.

We propose an effort to strengthen and unify the existing ASME social media presence to more effectively serve our existing audience with the following measures;

1. In order to discourage the fracturing of the audience, establish a pipeline whereby volunteers can submit material for publication to the staff member in charge of the relevant accounts.
2. Generate readership by establishing a regular publication calendar of media in varying forms (Article, video...etc) all to be housed on the ASME website, with links published across multiple platforms (viewership data to be collected from ASME website hits).
   a. Create templates for submission types (video profile, invention article...etc) that can be filled out and submitted by members or volunteers.
   b. Repost relevant engineering and science articles from other news sources.
   c. Repeat all publications across multiple platforms for maximum impact (Twitter, facebook, instagram...etc).

Sample Content: Leading professional societies may collaborate to create online authoritative reviews of important science topics addressed to the public, for example, the recent ASME science panel, “what we know: the reality, the risks and the response to climate change,” with an introductory video narrated by the president of the American Meteorological Society.

Panel-like discussion or interviews with knowledgeable individuals on scientific issues where major authorities do not yet agree.

| Idea: 7.1 Leverage ASME’s Presence on Existing Social Media Sites |
| Description: |

| Category: C-To change or modify our culture and traditions. |
| Metrics: |

- The number of visits and reviews submitted.
- The number of posts to social media outlets.
<table>
<thead>
<tr>
<th>Idea:</th>
<th>7.2 Enhance the Depth and Use of Social Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>As Millennials use social media very frequently and well, ASME should liberalize its staff social-media usage policy to vastly increase our ability to communicate with this vital cohort of volunteers/members.</td>
</tr>
<tr>
<td>Category:</td>
<td>C-To change or modify our culture and traditions.</td>
</tr>
</tbody>
</table>
| Metrics: |  - The establishment of a new social media policy and the use of social media by members.  
  - A metric will need to be established to measure the usage of our social media presence. |
| Goals: |  - A new social media policy will be in place by the end of 2017.  
  - Engagement with ASME via social media will increase by at least 210% per year for the next three years.  
  - At least 50% of our members will report an awareness of the ASME social media policy. |
| Priority: | High |
| Timing: | Short range |

<table>
<thead>
<tr>
<th>Idea:</th>
<th>7.3 Include our Younger Members in Social Media Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Because millennials use social media more effectively than any of the earlier generations, ASME should make sure to include significant numbers of millennials in its planning and implementation teams as it considers its best use of social media and improvements to its website. (We are aware that ASME is currently drafting a revised social media policy.)</td>
</tr>
<tr>
<td>Category:</td>
<td>C-To change or modify our culture and traditions.</td>
</tr>
<tr>
<td>Metrics:</td>
<td>Percentage of millennials on the planning and implementation committee for social media use within ASME.</td>
</tr>
</tbody>
</table>
| Goals: |  - At least 50% of the planning and implementation committee members will be millennials.  
  - At least 75% of Committee members will report feeling they had an impact on the planning and implementation efforts. |
<p>| Priority: | High |
| Timing: | Short range |</p>
<table>
<thead>
<tr>
<th>Idea:</th>
<th><strong>7.4 Video Highlights of Innovation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Since millennials have a strong affinity for sharing, innovation, entrepreneurship, and the use of recent technologies, it would seem worthwhile for ASME to use You-Tube videos to highlight engineering innovations of its members around the world. The E-Fests program also presents an exciting opportunity to profile innovations and innovators on the stage and create a culture of celebration of what engineers have and continue to accomplish. ASME should organize these videos so that users can find them easily. ASME should develop an easy-to-use submission process so that ECEs can be encouraged to post their innovations to the ASME news source.</td>
</tr>
<tr>
<td><strong>Category:</strong></td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
<tr>
<td><strong>Metrics:</strong></td>
<td></td>
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<tr>
<td></td>
<td>● The number of YouTube videos produced each year by ASME units in which innovation, entrepreneurship and use of technology is addressed/highlighted.</td>
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<tr>
<td></td>
<td>● The number of ASME student chapters who post videos in the area of innovation, entrepreneurship and use of technology.</td>
</tr>
<tr>
<td><strong>Goals:</strong></td>
<td></td>
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<tr>
<td></td>
<td>● At least 6 videos per year are produced and ASME has a link to the videos from ASME.org.</td>
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<tr>
<td></td>
<td>● 50% of the student chapters have posted videos by 2018.</td>
</tr>
<tr>
<td><strong>Priority:</strong></td>
<td>High</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>Short range</td>
</tr>
</tbody>
</table>
8. Millennials are more global and independent than their predecessors.

**How this area fits into the ASME Strategic Plan:**

This characteristic captures some of what our vision is pointing to when it states that “ASME aims to be the essential resource for mechanical engineers and other technical professionals throughout the world…”

<table>
<thead>
<tr>
<th>Idea:</th>
<th>8.1 Optimize the Engagement Time for Millennial Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>ASME should expect that the engagements with Millennials will need to be of short and more intense duration. Long term commitment is a “bridge too far” as millennials are establishing careers and managing personal work/life balance expectations. Trust building is imperative. This may require the use of 24 to 72 hour strike forces.</td>
</tr>
<tr>
<td><strong>Category:</strong></td>
<td>C-To change or modify our culture and traditions.</td>
</tr>
</tbody>
</table>
| **Metrics:** | ● The number of short-term task forces used rather than long term committees.  
● The number of millennials asked to serve on short-term task forces.  
● The level of satisfaction of millennials who serve on short-term task forces as measured by a membership survey. |
| **Goals:** | ● Increase the use of task-forces by 10% and decrease the use of permanent committees by 10% starting in 2017.  
● Increase the use of millennials on task-forces by at least 10% with at least one millennial on every new task force appointed starting in 2017. |
| **Priority:** | Urgent |
| **Timing:** | Short range |
### Characteristic Area:

9. Millennials are attached to ideas but less attached to organizations.

### How this area fits into the ASME Strategic Plan:

*This characteristic captures much of what we are proposing when we say that “ASME’s mission is to serve diverse global communities...”*

<table>
<thead>
<tr>
<th>Idea</th>
<th>9.1 Discover What Issues are Most Important to our Younger Members</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Ensure ASME’s continued relevance by establishing a mechanism that takes the pulse of the student and ECE cohorts and delivers relevant subject matter through ASME conduits.</td>
</tr>
<tr>
<td><strong>Category:</strong></td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
<tr>
<td><strong>Metrics:</strong></td>
<td>Track identification of new functional interests and the number of ideas associate with each.</td>
</tr>
<tr>
<td><strong>Goals:</strong></td>
<td>Annual pulse taking and report to BOG with trend identification</td>
</tr>
<tr>
<td><strong>Priority:</strong></td>
<td>Urgent</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>Short range</td>
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</tbody>
</table>

This idea also relates to characteristic 11.

<table>
<thead>
<tr>
<th>Idea</th>
<th>9.2 Facilitate a Student / ECE position on ASME group executive committees.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>ASME should facilitate each ASME group (divisions, sections, technical chapters, research committees) to designate one executive committee position to ensure that student / early career engineer activities and interests are included in their products / programs /events. This would be ideally filled with an ECE.</td>
</tr>
<tr>
<td><strong>Category:</strong></td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| **Metrics:** | • The number of ASME group executive committee members that are ECEs.  
• Increased student and ECE focused activities incorporated into technical conferences. |
| **Goals:** | • 50% of ASME divisions, technical chapters and sections have at least one ECE on the executive committee by the end of FY18.  
• Technical divisions recruit at least 2 new ECEs per technical committee by the end of FY18.  
• New products / programs /events will have inclusion of student / ECE components be one of the evaluation factors.  
• ASME conduct new leader development training along the line of the former Leadership Training Conference in order to identify and develop the next generation of leaders. This should include sessions on what Millennials and Gen Z digital engineers want in content and delivery. Demonstrate some of these delivery methods as part of the conduct of the conference.  
• Provide this content for further delivery on-line. |
<p>| <strong>Priority:</strong> | |
| <strong>Timing:</strong> | |</p>
<table>
<thead>
<tr>
<th>Priority:</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Timing:</td>
<td>Short range</td>
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</table>

| Idea: 9.3 Facilitate ability of ECEs to turn their proposed solutions into reality. |
| Description: ASME should sponsor an annual Start up Fair where startups can promote their products and services in an Exhibit environment. Hold the Fair near a major city to facilitate attendance by the business community namely venture capitalists, law firms, and other entities that may be seeking to latch on to a potentially profitable venture. Many of the universities are including these types of fairs in their activities – ASME can look for partnerships to co-sponsor these types of events. |
| Category: A-To start something new or to enhance existing programs |
| Metrics: |
| • Measure attendance as a function of exhibitors and the business community participation. |
| • The number of ASME members participating in the Start-up Fair. |
| • The number of university partnerships to co-organize and co-fund the events. |
| Goals: |
| • The first start-up fair will be held by June 2018. And will feature 30 exhibitors and 50 outside participants. |
| • 2 deals emanating from the Forum |

This idea also relates to characteristics 2, 3, and 13.

<table>
<thead>
<tr>
<th>Priority:</th>
<th>Medium</th>
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<tbody>
<tr>
<td>Timing:</td>
<td>Long range</td>
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</table>

| Idea: 9.4 Underpin and expand ECE’s knowledge base and connections |
| Description: ASME should offer a lecture series in various disciplines necessary for successful startups. Topics can be related to finance, legal, operations. These tend to be generic topics and should have wide interest among the ECEs. |
| Category: A-To start something new or to enhance existing programs |
| Metrics: |
| • Measure enrollment in each lecture series and measure student satisfaction and incorporate recommendations into future offerings. |
| • The number of participants who would recommend the event to their colleagues. |
| • The number of events/discussions etc held. |
| • The number of millennials (or entrepreneurs) involved in organizing the events. |
| Goals: |
| • The enrollment of 200 students and entrepreneurs for lectures per year. |
| • A 50% increase in the number of discussions/symposiums/trainings/etc that are done in the area of “Start-ups.” |

This idea also relates to characteristics 2, 3, and 13.
<table>
<thead>
<tr>
<th>Idea:</th>
<th><strong>9.5 Facilitate access of ECEs to subject matter experts and mentors.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>ASME should facilitate interactions (electronic and face to face) that connect ECEs with experienced engineers that are willing to provide the guidance once available “down the hall”. This may be a brief encounter to get pointed in the right direction or it may actually be a business opportunity to provide consulting services.</td>
</tr>
<tr>
<td><strong>Category:</strong></td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| **Metrics:** | • The number of connections between “experienced” and early career engineers. The number of members that report that they know about the platform. Number of “experienced” engineers registered on the platform.  
• The diversity of topics that are the subject of the interactions.  
• The number of in-experienced engineers who report that they had success in finding a connection that was helpful.  
• The number of in-experienced engineers that report that the interface/platform was easy to navigate.  
• The numbers of hits on the platform/site. Number of non-members who get or give guidance/advice through the platform/site.  
• The number of “long term” connections made via the platform. |
| **Goals:** | • Interaction growth rate of 20% per year.  
• The platform/site will be functional by the end of 2017.  
• At least 75% of users will report that the site was easy to navigate and that they found the information/advice/guidance that they were looking for.  
• At least 25% of those who indicate that they found the guidance that they needed will report that they remained in contact with the person that gave them the guidance six months after the initial interaction.  
• At least 10% of users will access the platform at least three times in a 12 month period. |

This idea also relates to characteristics 2, 3, and 13.

<table>
<thead>
<tr>
<th>Priority:</th>
<th><strong>Medium</strong></th>
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</thead>
<tbody>
<tr>
<td>Timing:</td>
<td><strong>Short range</strong></td>
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</tbody>
</table>
Characteristic Area:

10. Millennials use technology more effectively than any of the earlier generations.

How this area fits into the ASME Strategic Plan:

This characteristic gives excellent clues about the tools and techniques ASME could use to fulfill its goal to “enhance relevance and impact among global constituents by being a leader in advancing engineering technology.”

<table>
<thead>
<tr>
<th>Idea:</th>
<th>10.1 Enhance the use of People Networking Apps at ASME Meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Because millennials find it more comfortable to use digital technology (often more comfortable than face-to-face interactions), ASME should look for ways to enhance its opening receptions from traditional cocktail receptions to events that connect people with similar interests. This might involve the use of mobile apps like MeetingMatch or Whova to allow meeting attendees to find people with similar interests. It is recommended that ASME have a help desk at meeting registration areas to assist participants in the use of people networking apps in place at the meeting.</td>
</tr>
<tr>
<td>Category:</td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
<tr>
<td>Metrics:</td>
<td>● The use of people networking mobile apps at meetings and events.</td>
</tr>
<tr>
<td>Goals:</td>
<td>● At least one mobile app used at every conference/major meeting in 2017-18.  ● At least 20% of the attendees at conferences and major meetings using mobile networking apps by the end of 2017.</td>
</tr>
<tr>
<td>Priority:</td>
<td>High</td>
</tr>
<tr>
<td>Timing:</td>
<td>Short range</td>
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</table>

<table>
<thead>
<tr>
<th>Idea:</th>
<th>10.2 Enhance the Engineering Toolbox to Include Software based tools.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Since some of our millennial members are choosing to start their own companies or to pursue independent engineering entrepreneurial pathways, this item is aimed at having our online Engineering Toolbox include software-based tools for the use of this type of millennial who would not otherwise be able to afford this type of access. This expansion of our service to attract new members will require out of the box thinking and may necessitate careful negotiations with the leading software companies that provide analysis tools for complex engineering problem-solving (eg. Comsol/Fluent) Other tools can be developed with an open source type of community development effort, as with other open source approaches that provide value to engineers. The tools could be branded by ASME somewhere along the lines as we do our codes today.</td>
</tr>
<tr>
<td>Category:</td>
<td>A-To start something transformative that will provide value to young engineers.</td>
</tr>
<tr>
<td>Metrics:</td>
<td>● The number of young engineers that use and contribute to the advanced toolset made available through collaboration within and between ASME members.</td>
</tr>
</tbody>
</table>
### Goals:
- Transform the way young engineers experience their participation in ASME as measured by satisfaction surveys.

### Priority: High

### Timing: Long range

### Idea: **10.3 Enhance the use of Mobile Question Apps at ASME Keynotes**

#### Description:
ASME should encourage more use of mobile devices at its meetings. For example at its keynote events ASME should utilize Apps to allow greater millennial audience participation with questions at these events. ASME should evaluate event Apps to determine which ones are regarded as most useful to our participants. The best Apps should be used for all ASME events/meetings where millennials and Gen Z participants are desired. It is recommended that ASME appoint a task force predominantly of millennials to make recommendations on the best Apps to use.

#### Category: A-To start something new or to enhance existing programs

#### Metrics:
- The number of opportunities participants have to use their mobile devices at ASME meetings and events.
- The number of meeting participants using mobile devices to enhance their event experience.
- The number of advertisers paying to display their ads at the bottom of the APP page.
- The number of sponsors for the meetings/events that are supporting the APP development and/or purchase.

#### Goals:
- At least one opportunity at every conference and major meeting.
- A report of currently available Apps for meetings/events will be completed by March 2017.
- An App will be used for the ASME Annual Meeting that incorporates the findings of the report.
- At least 50% of ASME meeting participants will access the meeting information via their mobile devices.
- Wireless access will be available to all participants at ASME meetings/events.
- A significant part of the cost of the APP will be supported through sponsors and/or advertisers.
- At least 80% of those using the mobile device APP will report that it enhanced their interactions at and with the meeting/event.

#### Priority: Low

#### Timing: Long range
Characteristic Area:

11. Millennials tend to distrust authority and are put off by a lack of transparency in organizations.

How this area fits into the ASME Strategic Plan:

*This characteristic actually relates to the first of our core values because millennials equate transparency and openness with “integrity and ethical conduct.”*

<table>
<thead>
<tr>
<th>Idea:</th>
<th>11.1 Pathways for Communication with our Younger Members</th>
</tr>
</thead>
</table>
| Description: | Students and Early Career Engineers need to feel that their voice is being heard within ASME and that they are receiving up-to-date information. There need to be both formal and informal pathways established to allow the voice of the millennials to be heard in decisions that are made by ASME. The informal method should be “twitter-like” and the formal method should be a live chat feed at Board of Governor “open sessions”.
| Category: | C-To change or modify our culture and traditions. |
| Metrics: | • The number of twitter-like mentions. Track the number of questions received via twitter-like media during the open session of the BOG meeting.  
• The number of questions addressed at the open session of the BOG meeting.  
• The amount of time spent on the agenda addressing questions submitted via twitter during the BOG meeting.  
• The time required to answer a question submitted via twitter.  
• The amount of time to post the questions and answers that were submitted during the BOG open meeting. Note: some questions may be deemed inappropriate for posting. |
| Goals: | • Receive 50 twitter mentions per month and responses should be within 24 hrs and be substantive, not just “your comment has been received”  
• At least 15 minutes of the open meeting is spent on addressing questions received via Twitter (or index card) during the BOG open meeting (or submitted prior to the meeting).  
• Have questions and answers submitted to the BOG open meeting posted within two days of the BOG open meeting. Note: some questions may be deemed inappropriate for posting. |
| This idea also relates to section 7 (use of social media) |
| Priority: | High |
| Timing: | Short range |
### Idea: 11.2 Seek Greater Input from Millennials in Leadership Decisions

**Description:** As ASME seeks to encourage its younger members to have ownership in its plans and actions, the ASME leadership will have representation on its planning and action groups from those who are our future leaders. This idea is based on the notion that people will support what they have had a hand in creating. While input to decision-making may not always include voting rights in a particular group or decision process, it should be structured to include engagement of our younger members in the discussions and work that will impact their leadership of ASME in the years to come. Bylaws and operating guides should be reviewed by an appointed working group to determine if there should be changes made that would give our younger members more traditional ways to contribute to the group i.e. voting rights, etc. As an example of how this might work for the BOG and the ASME Presidential team, a small student & ECE advisory panel could be appointed by the President each year and used as a sounding board for ideas and policies that the BOG is considering during that year. This group could include a small number of current and past Eclipse interns and should probably have a balance of men and women, a balance of US and international members, and should include at least one energetic student member. The group could be as small as 6 people and quarterly meetings could be by teleconference to allow the cost to remain low but input to remain high. If such an advisory group is successful for the BOG, other Sectors and units in ASME may want to have their own student and ECE advisory panel.

**Category:** C-To change or modify our culture and traditions.

**Metrics:**
- The number of millennials on specific (to be determined) planning and action groups.
- The number of millennials who report that they feel that they have a voice in contributing to ASME in significant ways.
- The number of bylaws reviewed and evaluated for possible changes to enable more traditional influence on the work and decisions of ASME units.

**Goals:**
- Key groups will be selected by March 2017. The makeup of these key groups a will be at least 20% millennials.
- 80% of the Millennials serving on these key committees will report that the feel that they have contributed to and/or have a voice the work/decisions of the key group that they are involved with.
- 100% of the bylaws and operating guides of the ASME units (those that have bylaws) will be reviewed by the end of 2017.

**Priority:** Urgent

**Timing:** Short range

### Idea: 11.3 Enhance Transparency in the BOG and in other Leadership Groups

**Description:** As ASME seeks to maximize its transparency as much as is practical, the Board of Governors and other leadership groups within ASME will move to minimize the number and length of executive sessions it holds. To be sure, the BOG needs
to have limited times when it can debate issues in settings where it can be fully open and even critical without fear of criticism, retribution, or spreading misinformation. The bylaws and laws will be evaluated to determine which things must be in executive sessions. Members will be encouraged to attend and give their inputs in BOG and other leadership meetings. A communications plan will be designed and implemented to educate the membership on what the BOG is and what they do within ASME.

<table>
<thead>
<tr>
<th>Category:</th>
<th>B-To stop doing something or minimize something</th>
</tr>
</thead>
</table>
| Metrics: |  ● Percent time of BOG meetings spent in executive session.  
● The number of ASME members who are aware of the BOG and its important role in ASME.  
● Does the communications plan exist and is this plan implemented according to schedule? |
| Goals: |  ● Executive/closed sessions will be no more than 10% of the time of the regular (non-retreat) meetings of the BOG.  
● The topics that require executive session will be clearly defined and communicated to the membership by 2017  
● At least 40% of the ASME membership will indicate that they are aware of the BOG and how it functions.  
● At least 20% of the ASME membership will indicate that they understand the role of the BOG in ASME.  
● A communications plan will be implemented by the end of 2017. |
| Priority: | Medium |
| Timing: | Short range |

**Idea: 11.4 Broadcast BOG Sessions Live and Online**

**Description:** Broadcast our BOG “open sessions” live online so that interested parties NOT in attendance can “tune” in. Limit the number of “closed sessions”.

<table>
<thead>
<tr>
<th>Category:</th>
<th>A-To start something new or to enhance existing programs</th>
</tr>
</thead>
</table>
| Metrics: |  ● The number of BOG meetings that are streamed live online.  
● The percent time of BOG meetings spent in executive session.  
● The number of non-BOG members watching the stream and attending the BOG open meetings.  
● The number of ASME members who are aware of the BOG and its leadership role in ASME |
| Goals: |  ● 100% broadcast of all open sessions of the BOG by the ASME 2017 Annual meeting.  
● At least 1% of ASME membership will watch at least some of the BOG meeting live stream or attend the meeting in person.  
● At least 1% of ASME members will report that they know what the BOG is and what they do. |
| Priority: | Low |
| Timing: | Short range |
**Characteristic Area:**

12. Millennials tend to have considerable college debt.

**How this area fits into the ASME Strategic Plan:**

*By being sensitive to the cost of goods and services, ASME can demonstrate its commitment to the core value of respect and dignity for all people.*

**Idea:** 12.1 Meeting Affordability for ECEs

<table>
<thead>
<tr>
<th>Description:</th>
<th>As ASME seeks to make participation in its regular meetings more affordable, it should consider providing two different levels of hotels at these meeting locations. For example, one housing venue might be a traditional 5-star hotel and the other might be a hotel that offers accommodations that are within the price range of the ASME per diem. This work may also include a study done by ASME meetings staff to determine the business model that would make this self-sustaining i.e. that it was worth the time of the meetings staff to negotiate the room block.</th>
</tr>
</thead>
</table>
| Category: | A-To start something new or to enhance existing programs  
B-To stop doing something or minimize something |
| Metrics: | ● An increase in number of ECE and student members traveling to conferences.  
● The number of ASME meeting participants that book their rooms in the room block for the hotels where a room block has been negotiated.  
● A plan for providing hotel information for more affordable hotels is in place. |
| Goals: | ● By the 2018 Annual meeting (or as soon as practically possible), a less expensive sister-hotel(s) will be part of the ASME meetings contract negotiations.  
● A report from the ASME meetings staff with recommendations will be submitted by the end of 2017-18. |
<p>| Priority: | <strong>Urgent</strong> |
| Timing: | <strong>Short range</strong> |</p>
<table>
<thead>
<tr>
<th>Idea:</th>
<th><strong>12.2 Flexible Membership Dues and Dues Incentives for ECE Engagement</strong></th>
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</thead>
<tbody>
<tr>
<td>Description:</td>
<td>As ASME seeks to make membership more affordable to those who have less financial resources, it may be time to link membership dues to the age of members. For example, a 20 year-old would pay $20/year for dues, while an 80-year old would pay $80 per year. It may also be time to link membership dues to the percentage of total salary for those working in international locations. This would require new technological tools to collect, analyze and process the data. A study should be done to benchmark the fees that Early Career Engineers pay for other organizations/access/subscriptions to determine the “right” fee structure for ASME membership. Also as ASME seeks to incentivize engagement with its younger members, it may be useful to experiment with allowing the student level of dues to remain as $25 per year for those Early Career Engineers who choose to engage as a active leader in a local unit, a technical division or a national committee. Examples of engagement of this type might include serving as a member of a unit executive committee, serving as a task force leader (at the local, or national level) participating as a content provider (author of a paper, a poster session, or service on a code committee). While it may be difficult to track which ECEs are eligible for this dues discount, it would certainly provide an incentive for their engagement during the years when we are most vulnerable to lose them.</td>
</tr>
<tr>
<td>Category:</td>
<td>C-To change or modify our culture and traditions.</td>
</tr>
</tbody>
</table>
| Metrics: | ● The number of ECE and student members that remain ASME members.  
Consecutive years of membership as a function of age.  
● The number of members who report that their ASME membership benefits are worth the cost.  
● The number of members who report that they benefit from being an ASME member. |
| Goals: | ● Report of benchmarking and recommendations for cost structure will be completed by the end of 2017-18.  
● The year over year retention rate for members who joined when they were millennials will increase by 30% each year in the first three years of the new cost structure.  
● At least 80% of ASME members will report that their membership is of good value to them. |
| Priority: | High |
| Timing: | Short range |

<table>
<thead>
<tr>
<th>Idea:</th>
<th><strong>12.3 Reduce ASME Overhead Expense Rate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>As ASME seeks to respond to the need to bring its expenses into better alignment with its revenues (and thus demonstrate solidarity with the frugality required of its ECE and Student members), it may want to consider ramping down its rental footprint in Manhattan and ramp up both its virtual presence and/or its physical presence in less expensive business locations where rents and salaries are lower. Millennials typically don’t care where the organization is located as long as they can get the services they need in a timely manner. Increasingly this means online service and service from physical locations that have moderate rental and salary</td>
</tr>
</tbody>
</table>
costs. ASME should compare its overhead rate with that of other professional engineering societies like IEEE, ASCE, etc.

| Category: | A-To start something new or to enhance existing programs  
| B-To stop doing something or minimize something  |
| Metrics: | ● The amount of money spent for rental space for headquarters in New York.  
| | ● The average ASME staff salary.  
| | ● The overhead percentage rate.  |
| Goals: | ● Make more visible ASME’s office already in New Jersey, Washington, D.C. and other locations.  
| | ● Make ASME’s virtual presence more visible.  
| | ● A report breaking down what contributes to the ASME overhead with recommendations for how to decrease these expenses will be completed by the end of 2017-18.  
| | ● Overhead rate (space rental and staff salary) will compare favorably with that of other professional societies by the end of 2018.  |
| Priority: | Medium  |
| Timing: | Long range  |

**Idea: 12.4 Address Negative Perceptions of Leadership Related Expenses**

**Description:** As is the case with all institutions, ASME must necessarily manage its budget to ensure that resources are directed in a responsible manner consistent with its mission. A subtle element of this obligation is to ensure that ASME stakeholders are confident that this obligation is being responsibly fulfilled. As students and ECEs struggle to attend ASME functions, the perception of expenditures by leaders of our organization may be seen as insensitive to their circumstances. Since the BOG is the most visible of our leadership groups, it must set the standard for expenditures for retreats, and business meetings so that its venues, meals and related travel expenses for meetings are no different in expenditures from those of other leadership groups within the organization. Venues for retreats and meetings should be thoughtfully chosen and meetings carefully planned so that they do not create a perception that our leaders have special privileges or “perks” that would not be available to our millennial and early career members. Overall this comment can be generalized to all organizational groups within our organization.

| Category: | C-To change or modify our culture and traditions.  |
| Metrics: | ● Annual accounting of all leadership related expenses  
<p>| | ● Annual reporting of leadership related travel expenditures for all leadership groups within ASME – Especially the BOG.  |
| Goals: | ● Provide metrics and set goals at the 2017 Summer meeting  |
| Priority: | Medium  |
| Timing: | Short range  |</p>
<table>
<thead>
<tr>
<th>Idea:</th>
<th><strong>12.5 Start a “Miles for Millennials” Program</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>As ASME seeks to remove the financial barriers for participation by its early career members, it should consider starting a “miles for millennials” program whereby senior members can contribute frequent flier miles so that ECE and student members can obtain grants for airline travel to ASME meetings. This program would only be available to those who would otherwise not have ASME travel assistance. Those millennials traveling on miles from this program should be asked to contribute to a unit of ASME. This would help recruit millennials to ASME units, thus giving them opportunities to contribute to ASME in significant ways.</td>
</tr>
<tr>
<td><strong>Category:</strong></td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| **Metrics:** | ● The number of miles actually donated to this program over every six months period.  
● The number of early career engineers millennials who are able to utilize this program.  
● The number of applicants for the miles for millennials program. |
| **Goals:** | ● Travel support for at least 10 millennials each year starting in 2018.  
● At least 5 of the granted requests will be from millennials who have not previously attended an ASME event/meeting as professional.  
● At least one of the millennials (per year) funded in this way will ultimately join an ASME unit committee. |
| **Priority:** | Low |
| **Timing:** | Long range |
Characteristic Area:

13. Millennials are able to be good team players, but they also prefer to function as independent contributors to diverse and challenging missions.

Although we are not making recommendations regarding this characteristic, the idea of developing techniques to make optimum use of millennial talent on operating teams might be an interesting topic for a future VOLT workshop session. (See idea 14.1 below)

Characteristic Area:


How this area fits into the ASME Strategic Plan:

This characteristic is highly consistent with ASME’s core value of “promoting the benefits of continuing education...”

<table>
<thead>
<tr>
<th>Idea:</th>
<th>14.1 Reinforce the Connection between Student Sections and ASME particularly at the Local Section level.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>The last few years have resulted in less connectivity between Student Sections and local sections. Yet our survey results show that the second most likely reason for an early career engineer to leave ASME is due to a lack of engagement with a local section. Thus it is recommended that local sections be given additional support and training to allow them to reach out to student members who become new ECE members. In addition, the “robotic” nature of the GPS tool is acceptable for established senior sections with consistency of leadership, but the continuously changing/transitioning of a student section’s leadership requires a more dynamic and engaged interface. Dedicated POC’s on both the staff and volunteer side for these critical constituents should be reestablished and given adequate resources to facilitate engagement and a sense of “belonging” that will lead to future volunteer leaders within the organization. This seems well aligned with the mission of the Student and Early Career Development Sector. In addition, recommendations coming out of the Group Engagement TF established by the SMC are intended to improve the connection between local sections and the greater organization which could lead to healthier groups more able and willing to engage with each other at the local level.</td>
</tr>
<tr>
<td>Category:</td>
<td>A-To start something new or to enhance existing programs</td>
</tr>
</tbody>
</table>
| Metrics: | • The number of student questions/issues addressed by staff and volunteer resources.  
• The Time between initial contact and resolution of issue/question.  
• The Number of new student sections established  
• The number of student members transitioning to active professional volunteers post graduation |
Goals:
• Number of student section questions/issues addressed in less than 48 hrs.
• Establish/resurrect 5 new student sections/year in the US, and an additional 5 abroad/year.
• Gain 500 additional professional members/year from past student members.

Priority: **Urgent**
Timing: **Short range**

### Idea: 14.2 Career Enhancing Seminars

**Description:** ASME will increase the number of career enhancing seminars at its technical and non-technical meetings. Millennials will be on organizing committees for technical and non-technical meetings sponsored by ASME so that their needs in the area of career enhancing seminars can be identified and implemented. ASME will conduct surveys to determine the topics that should be addressed in the career enhancing seminars.

**Category:** A-To start something new or to enhance existing programs

**Metrics:**
- The number of career enhancing seminars conducted at ASME sponsored meetings (technical, contests, tours, section meetings, etc).
- The number of ASME members in the millennial age range involved in conference organizing committees (and the like).
- The number of topics identified by the surveys of our early career members that are addressed by subsequent career enhancing seminars.

**Goals:**
- By the end of 2017, all meetings/events funded by ASME will include at least one career-enhancing session.
- At least 20% of the organizing committee for ASME conferences/events/meetings will be millennials.
- At least one of the topics identified by the survey that was suggested by millennials will be implemented into ASME meetings each year.

Priority: **High**
Timing: **Short range**

### Idea: 14.3 Career Management Workshops & Seminars

**Description:** As Millennials desire training, mentoring and career-pathing -- and employers desire work-ready new hires with practical skills -- ASME will offer career enhancing education/workshops/seminars that will give the members skills to “manage their career” so that they can better navigate their career paths. ASME
will use the literature in this area to design the workshop/seminars. This literature along with input from the researchers from this area will help ASME to incorporate this new emphasis in the offerings. This will require ASME to radically rethink the approach to mentoring and volunteer-led competitions to meet the complementary needs of work-ready skills and practical skills (note that we may want to define “practical skills”).

Category: A-To start something new or to enhance existing programs

Metrics:
- The number of seminars/workshop/trainings that are offered that are focused on career pathing.
- The number of seminars/workshops/training that incorporate the findings of the literature in the design of the workshop desired outcomes.
- The number of seminars that teach “practical skills” (note that we need to define “practical skills” - There is literature that has identified some of these skills).

Goals:
- At least 12 workshop/training sessions each year.
- Participation by at least 240 members in these workshop/training sessions each year.
- 10% of ASME members will report that they receive some of their training in “practical skills” through engagement in ASME activities.
- At least 40% of the ASME participants in the e-portfolio (see above) will earn CEU’s in the area of “practical skills” and “career management” through engagement in ASME activities.

Priority: High
Timing: Short range

Idea: 14.4 Regional Needs Career Training and Networking

Description: Because millennials and GenZ’s desire training, mentoring and career-pathing, Professional and Senior Sections, student regional chairs and advisors of ASME will create opportunities for networking and mentoring between students, ECE’s and ASME professional members. These opportunities will include projects and trainings that consider the specific regional needs of the professional market as well as humanitarian needs. ASME will support more local events such as the newly created E-festival (SPDC+ HPV+IAM3D challenge).

Category: A-To start something new or to enhance existing programs

Metrics:
- The number of projects/trainings that are designed to address local needs.
- The number of projects/trainings that address humanitarian needs.
- The number of local engineers that are on the organizing committees for projects/trainings.

Goals:
- At least 12 projects/trainings each year held at the local level.
- At least 1,000 persons served each year by these projects/trainings at the local level. At least 10% of the “badges” earned in the ASME member’s e-portfolio will be from engagement in service projects organized by ASME members/staff. At least one activity at ASME events will be designed to meet a need of the community around the location of that
<table>
<thead>
<tr>
<th>Priority:</th>
<th>Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing:</td>
<td>Long range</td>
</tr>
</tbody>
</table>

### Idea: 14.5 Enhance Leadership Internship Opportunities

**Description:** The ECLIPSE Intern program has been very successful, and is limited in terms of the number of people that can be included in the program. ASME needs to find ways to expand this valuable program to reach more of our ECE members (this may include having different levels of interns with a range of responsibilities and a range of funding). ECE members should be encouraged to engage further in ASME and be mentored in important units of our organization. Interns should have an opportunity to give meaningful input to the units and committees on which they serve. The roles and expectations of the interns in these units should be clearly defined and articulated to the interns and the units in which they serve. Interns should be given a clear way to impact the committee deliberations (this may require changes in the bylaws of the committees/units) of the units in which they serve.

**Category:** A-To start something new or to enhance existing programs

**Metrics:**
- The number of interns in the ECLIPSE Program.
- Rating of satisfaction with the ECLIPSE program by the interns and the units in which they work.
- Clarity of the expectations of the interns (and their mentors) and the units in which they work as measured by a survey of the interns.
- Ratings of the interns on their perception of the impact that they have made on the units in which they serve.

**Goals:**
- Double the number of participants in the ECLIPSE program by 2020.
- 80% satisfaction level of interns as measured by an exit survey.
- At least 90% of the ECLIPSE interns will report that they thought that they made an impact on the unit in which they served or on ASME in general.
- At least 90% of the ECLIPSE interns will report that they felt that they could voice their opinions and/or that their opinions were respected/welcomed/etc.
Part V: Final conclusions and a call to action.

The Task Force has examined the characteristics of early-career engineers and students, and the membership demographics within ASME. We have focused on geographic locations of the members, their age groups, and also on historical data. In parallel, we have reviewed available literature to understand the characteristics of various generations, detailing those of millennials and the Generation-Z group, and collected ASME activities relevant to early-career engineers and students both domestically and abroad. This has helped us to identify challenges and barriers for ASME in engagement of early-career engineers and students throughout the world.

We have also discussed tactics used by other professional societies viewed as “best practices.” In addition, our staff support conducted a survey to determine the main reasons why these two groups of members join ASME in the first place, and the reasons why they do not continue their ASME membership. The results of this survey were very telling.

Equipped with all of this valuable information, the Task Force has developed ideas and recommendations for increasing engagement of early-career engineers and students within ASME, and has linked the ideas to the characteristics identified in Part I of the report. Each idea is linked to the ASME strategic plan, and is provided with metrics and goals.

We summarize here those recommendations which were thus placed in the Urgent Priority and Short-Range Timing category:

<table>
<thead>
<tr>
<th>Idea/Recommendation</th>
<th>Priority Ranking</th>
<th>Timeliness Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 ASME Rapid Response to Issues</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>4.1 Seek Professional Assistance in Implementing Change</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>5.1 Expand the E-Fest Concept</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>7.1 Leverage ASME’s Presence on Existing Social Media Sites</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>8.1 Optimize the Engagement Time for Millennial Interactions</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>9.1 Discover What Issues are Most Important to our Younger Members</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>11.2 Seek Greater Input from Younger Members in Leadership Decisions</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>12.1 Meeting Affordability for ECEs</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>12.2 Flexible Membership Dues and Dues Incentives for ECE Engagement</td>
<td>Urgent</td>
<td>Short</td>
</tr>
<tr>
<td>14.1 Reinforce the Connection between Student Sections and ASME particularly at the Local Section level.</td>
<td>Urgent</td>
<td>Short</td>
</tr>
</tbody>
</table>
The Task Force respectfully recommends that a motion be made before the Board by the March 19th meeting, as follows:

**DRAFT**-Moved that the Board discuss these ten urgent recommendations, and vote to begin a detailed plan for implementation immediately, with the goal of full implementation within the next 6 months. It is also moved that the Board request a progress report at each subsequent Board Meeting, outlining the status of implementation and any early outcomes.

We also respectfully request that ALL of the remaining recommendations be revisited at each subsequent Board Meeting, and considered by the Board for future implementation.

We list these here in two priority sets. The first set includes all the **High Priority** ranked ideas/recommendations; the second set lists the remaining ideas/recommendations, some of them ranked for implementation in a Short-Range timeline.

<table>
<thead>
<tr>
<th>Idea/Recommendation</th>
<th>Priority Ranking</th>
<th>Timeliness Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Recognize the Strength That Comes Through Diversity</td>
<td>High</td>
<td>Short</td>
</tr>
<tr>
<td>7.2 Enhance the Depth and Use of Social Media</td>
<td>High</td>
<td>Short</td>
</tr>
<tr>
<td>7.3 Include our Younger Members in Social Media Planning</td>
<td>High</td>
<td>Short</td>
</tr>
<tr>
<td>7.4 Video Highlights of Innovation</td>
<td>High</td>
<td>Short</td>
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<tr>
<td>9.2 Facilitate a Student / ECE position on ASME group executive committees.</td>
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<tr>
<td>10.1 Enhance the use of People Networking Apps at ASME Meetings</td>
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<tr>
<td>11.1 Pathways for Communication with our Younger Members</td>
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<tr>
<td>14.2 Career Enhancing Seminars</td>
<td>High</td>
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<tr>
<td>14.3 Career Management Workshops &amp; Seminars</td>
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<tr>
<td>10.2 Enhance the Engineering Toolbox to Include Software-based tools.</td>
<td>High</td>
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<tr>
<td>Idea/Recommendation</td>
<td>Priority Ranking</td>
<td>Timeliness Rank</td>
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<tr>
<td>1.2 Design Competitions for Enhancing the Quality of Life in the World.</td>
<td>Medium</td>
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<tr>
<td>2.2 Expand the ISHOW Concept</td>
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<tr>
<td>5.2 Create Enhanced “Fun” at ASME Meetings and Events</td>
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<tr>
<td>9.5 Facilitate access of ECEs to subject matter experts and mentors.</td>
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<tr>
<td>11.3 Enhance Transparency in the BOG and in other Leadership Groups</td>
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<tr>
<td>12.4 Address Negative Perceptions of Leadership Related Expenses</td>
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<tr>
<td>1.1 Humanitarian Service Projects</td>
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<tr>
<td>1.3 Grants Program for Global Development/Humanitarian Projects</td>
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<tr>
<td>9.3 Facilitate ability of ECEs to turn their proposed solutions into reality.</td>
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<td>Long</td>
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<tr>
<td>9.4 Underpin and expand ECE’s knowledge base and connections</td>
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<tr>
<td>12.3 Reduce ASME Overhead Expense Rate</td>
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<tr>
<td>14.4 Regional Needs Career Training and Networking</td>
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<tr>
<td>14.5 Enhance Leadership Internship Opportunities</td>
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<tr>
<td>3.1 Meeting Comfort for Millennials</td>
<td>Low</td>
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<tr>
<td>11.4 Broadcast BOG Sessions Live and Online</td>
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<tr>
<td>10.3 Enhance the use of Mobile Question Apps at ASME Keynotes</td>
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<tr>
<td>12.5 Start a “Miles for Millennials” Program</td>
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</table>

Once again, we greatly appreciate the opportunity to work on this topic, and identify the many opportunities for ASME to deliver its strategy, through increasing relevance to our future leaders, and as a leading content creator and provider of technology and professional development for the engineering community.

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