

IEEE Engineering for the Americas & Africa (EftAA)
raising the quality of life



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work in progress as of 30 January 2018

Abstract

IEEE Engineering for the Americas & Africa (EftAA) will build upon the 2004 Organization of American States' (OAS) [Engineering for the Americas](#) (EftA) initiative whose overarching concept was “to build engineering capacity... that creates [local] workforce capabilities... [so that a country can] compete in today’s global economy.” OAS-EftA’s initiative was exceptionally well-crafted. However, OAS-EftA remains a conceptual model that has not identified a center of gravity, secured funding, involved industry, or academia, even though there continues to be encouragement from governments, academia, and industry for its principles.

IEEE EftAA will secure funding from various sources, and, will engage and organize IEEE’s vast human resources to create, deploy, evaluate, and fully operationalize sustainable capacity building and capacity development initiatives, which will raise the quality of life and enable countries in the Americas and Africa to effectively compete in today’s global economy.

Sponsors of IEEE EftAA

- IEEE Region 9 (Latin America & Caribbean Region)
- IEEE Education Society
- IEEE Colombia Section
- IEEE Peru Section
- IEEE Andes Council
- **ICACIT** (Institute of Quality and Accreditation for Computing, Engineering, and Technology Programs), Peru
- Department of Electrical & Computer Engineering, National Distance Education University of Spain (UNED)

Introduction

Solving impossible problems that face the world is a matter of engineering!

The **IEEE Engineering for the Americas and Africa (EftAA)** initiative believes, as stated in the OAS-EftA concept, that “the overarching goal of [this initiative] is to build engineering capacity, based on quality education that creates workforce capabilities for the solution of local needs and that opens the way for [developing and developed countries] to compete in today’s global economy more effectively.” IEEE EftAA will **operationalize** (and adapt) the concepts of the OAS’s EftA by employing the human and financial resources of the IEEE. IEEE EftAA will gather together its experts to lead this initiative forward and implement a functional structure with meaningful effective and meaningful sustain capacity building and capacity development processes.

IEEE EftAA will contribute to creating holistic and entrepreneurial skills in engineering, enabling mobility, and fostering partnerships between industry, government, academia, and professional associations to achieve educational, economic, and social impacts.

IEEE EftAA will accomplish this by creating a model for the IEEE Local Operating Unit of the Future, which will possess the capability of: being adapted to local environments/cultures/demands, providing, and sustaining needed processes, structures, products, services – provide tools to enable countries to effectively compete in today’s global economy and raise their quality of life!

Putting a Stake in the Ground: Our Launch Point

The OAS-EftA’s concepts and the IEEE-EftAA initiative contain comprehensive Plans For Action. Implementing those plans will flow from this document and from related documents. These documents and EftAA’s Plan For Action sets a stake-in-the-ground – provides a starting point.

The overarching concepts and objects of EftAA will serve as guidelines by which to create an IEEE Local Operating Unit of the Future – an IEEE operating unit that can develop and deploying sustainable processes which can, in turn, develop, deploy, and maintain specific products and services that are needed in various geographical areas. And these processes will serve as models for the establishment of a sustainable and meaningful local IEEE OU (Operating unit) – the local OUs adapt the various components of the models to determine what products and services they will need to support local IEEE members and the wider local community.

Many of these products and services will be similar from place-to-place. However, there will also be a need to vary components of the local model from one locality to another. The basic OU could provide technical meetings, distinguished lecturers, and mentors to local engineers, scientists, and universities to enhance local expertise. But the specific needs will vary from place-to-place. For example, one OU could be best served by providing knowledge and wisdom in solar energy development and maintenance, while another locality may be best served by providing support and guidance as local universities seek to evolve to become fully accredited.

It is critically important to tailor a Plan For Action in various locations and be aware of: *a.)* the local culture, *b.)* the nature of government (the political realities on-the-ground), and *c.)* other items listed in the “The Challenges” section below.

In many instances, the EftAA Plan For Action is quite general/broad and could even be characterized as ‘vague’! In those instances, the answer to the question: ‘Can you be more specific about your Plan For Action, item *x* is

There continues to be encouragement from governments, academia, and industry for OAS-EftA’s principles, however, identifying a center of gravity, securing funding, involving industry and academia has not gained any traction.

vague?’, is: ‘Yes, it is vague, but it’s a strategy that the local *centers-of-gravity* will determine the as they create their Plan For Action’!

Our Plan For Action: Deep Diving

There are many components that can be leveraged to create a meaningful and effective IEEE EftAA program; the original 2004 EftA plan provides an excellent starting point as we move forward. But as we move forward we must realize that IEEE EftAA is not simply a matter of, for example, creating an accreditation program, or a nation-wide professional development mechanism, or creating a number of chapters within various IEEE Societies; it is a matter of creating, deploying and managing effective and sustained capacity building and capacity development programs that include: accreditation, professional development, mentorships, entrepreneurial activities, consultants’ networks, university programs, and, other meaningful products and services that are effective and sustainable.

There must be a ‘*center of gravity*’ composed of leaders who can attract stakeholders, provide leadership, and create cooperation among the constituents.

Key Tenets of EftAA (adopted from OAS EftA concepts)

1. Educational Innovation: To encourage the innovation and reform of engineering education and the implementation of new educational techniques that involve the productive sector as a key partner, motivator and collaborator in shaping educational improvements and activities that are relevant to market needs as well as foster a culture of lifelong learning [[OAS’s Purpose, Key Strategies, Goals for EftA](#)].
2. Accreditation and Quality Assurance: To foster activities leading to an understanding to the importance, establishment or enhancement of quality assurance, methods of accreditation, and integration of national, regional and hemispheric systems [[OAS’s Purpose, Key Strategies, Goals for EftA](#)].
3. Job Creation: To engage with Industry to create an ongoing real-world experience for students, stimulate employment through internships and coops, and drive a sustained Industry-Academia interaction around producing appropriate outcomes [[OAS’s Purpose, Key Strategies, Goals for EftA](#)].

Capacity building must also be a component of the key strategy! Capacity building:

“means building professional capacity, which generates better professionals, then professionals can identify and solve local problems, as a result, they will not need to migrate, if professionals don’t migrate, their countries will not lose their main resource, this means that countries will not lose competitiveness.” [[Enrique E. Alvarez, EftA Goal Chain, 2005](#)].

EftAA Goals:

- Promote improvement in the quality of engineering education to internationally recognized standards.
- Increase capacity in developing countries by increasing the number of qualified engineers in the region.
- Foster partnerships involving universities, government, industry, professional associations, and the engineering community for participation in national innovation processes.
- Encourage the development of extension services and the enhancement of engineering accreditation and quality assurance mechanisms.

- Contribute towards the harmonization of engineering degrees for increased mobility, development of shared curricula, and inter-institutional collaboration,
- Facilitate the creation of more jobs to expand opportunity, raise overall living standards, and impact the alleviation of poverty.
- Collaborate to obtain and sustain government commitment to improve engineering and technology education.
- Balance the size of various committees and working groups such that there is an appropriate number of people actively involved to be able to work effectively on the task.

Our Challenges

- Functioning under the concept of ‘democracy’: The concepts of ‘democracy’ underpins the structure and **function** of IEEE and its operating units. For the concepts of IEEE EftAA to be functional the local environment must be such that the people understand how ‘democracy’ functions and it is also critical that their government operates under the concepts inherent in ‘democracy.’ The challenge will be, and has been, to attempt to operate in countries where the government is not a functionally ‘democracy’ and where the citizens do not understand how ‘democracy’ functions.
 - Team work vs. group work is also a confounding issue. EftAA operates under the proposition that those who participate in this initiative appreciate that ‘team work’ is a critical concept for EftAA to be successful. There are many IEEE members who reside in countries where ‘team work’ is not a familiar or accepted concept.
 - What is volunteerism: ‘Volunteerism’ in many countries is not present in their ‘culture’ and in some countries ‘volunteerism’ is an activity that is frowned-upon by the government.
- Understanding the difference between capacity ‘development’ and capacity ‘building’: Capacity ‘development’ is a process whereby people, organizations, and society unleash, strengthen, create, adapt, and maintain capacity over time. Capacity development is different from capacity ‘building.’ Capacity building is an internal process that is driven by players outside that country. Capacity development is primarily the responsibility of partner countries with donors playing a supportive role. Note: at a practical level the differences between the labels ‘building’ and ‘development’ may not play a factor during the early stages of this initiative.
- Understanding capacity building and capacity development challenges in developing countries: There are as many differences as there are similarities in what ‘capacity can be built’ from country to country! Enlisting/providing expert advisors/mentors on sustainable capacity requirements to match various country’s specific needs will be a non-trivial task. Collaborating with UNESCO and their Engineering Initiatives Program, UPADI, WFEO, and identifying specific government departments whose mission is capacity building will also be a non-trivial task. The goal is to provide expert advice on sustainable capacity requirements to match country-specific needs; what will improve the quality of life!
- Understanding how EftAA countries will move forward as they become more self-sufficient: The goals of EftAA are excellent for bringing developing countries to a ‘certain point’. But EftAA desires to look beyond that ‘certain point’ and set the stage for sustained capacity development. EftAA looks beyond assisting developing countries, it looks toward further evolving those countries as they ‘develop’!
- One-size does not fit all: While there will many similarities in what constitutes sustained capacity building, there will also be significant differences in the Plans For Action in the various countries. This will create a situation where applying the results from the Pilot Sites as a one-size-fits-all template for

Countries should be empowered to create and implement their own capacity building policies that are best suited to their situation. Care must be taken not to create a country that is materially, intellectually, or psychologically dependent upon another country.

all countries will not be a reasonable expectation—each country will require an individualization in their Plan For Action.

- Existing national engineering organizations: There *appears* to be national engineering organizations in LAC countries and in African countries. During the accreditation development processes, assessing the functionality of those national organizations, and in-dealing with those national engineering organizations is critical.
- On-hand professional advice and follow-up activities: The regional nature of the project provides a sufficient critical mass of countries to warrant the development of a pool of specialist technical expertise and service providers who can provide follow-on services. EftAA must insure that the pool of specialists can bring their expertise and provide services such that ‘they can fly on their own’!
- Operationalized capacity building/development: Aiding with establishing nation-wide institutions to address various issues, and goes beyond simple capacity building/development and is problematic. While capacity building/development contributes to the creation of national institutions and activities, these activities alone cannot necessarily ensure a functional institutionalization of a meaningful and effective program(s). EftAA is, therefore, focusing on establishing what can be termed an "operational framework" - the creation of an environment in which functioning professional institutions (e.g., IEEE, universities) are able to effectively interact with their government and the private sector to jointly insure capacity development/building This will also necessarily require the active engagement of the financial community.
- Substantial involvement of the private sector: A key focus is to augment foundational knowledge building and the design of national governance structures with more industry oriented activities that aim to address industry-specific institutional, legal, financial, and capacity barriers. The project should contain an integral learning-by-doing approach to enhance the capacity development and management skills of local private sector stakeholders.
- Assessing the long-term impact of management training initiatives is more challenging due to the long-term nature of development and interactions among the various facets of EftAA and events in the country and world.
- When EftAA goes away: Given the reliance on external donors for funding in EftAA’s Plan For Action, there will be strategic and financial resource implications for policy makers in transitional and developing economies to maintain long-term meaningful capacity development/building.
- Funding for salary/stipends: It is highly problematic to expect the amount of work/effort that unpaid leaders can be expected to perform without compensation compared with the amount of work/effort that would flow from compensated workers. However, there are funding sources that allow salaries/stipends to be paid (e.g., USAID, various industry grant programs).
- Structure and Function of IEEE Sections and Chapters: The current structure and function of IEEE Sections and Chapters has not recognized the changing landscape and needs of IEEE members.

A Gathering of Exceptional Leaders

The IEEE Region 9 (Latin America and the Caribbean) Director, Norberto Lerendegui and the Region 9 Board of Governors formally endorsed this initiative at their 2015 Annual Meeting and formed an *ad hoc* EftA Committee. The members of the **Steering Committee** are:

- **Rob Reilly** (USA), 2015-2016 IEEE Board of Directors (Division VI Director),
- **Teofilo Ramos** (Mexico), 2018-19 IEEE Region 9 Director,
- **Hamadou Saliah-Hassane** (Canada), Professor, University of Quebec at Montreal,
- **Enrique Alvarez** (Peru), Director, ICACIT; former IEEE Region 9 Director,
- **Manuel Castro** (Spain), Professor, Spain National Distance Education University.

Since this initiative has expanded beyond IEEE Region 9 (Latin America and the Caribbean), stakeholders in Africa (or with interests in Africa) have come on-board or have been contacted and have expressed a willingness to become involved in this initiative. They will become part of EftAA as we move forward:

- **Lorena Garcia** (Colombia), IEEE Region 9 Secretary,
- **Pedro Duran** (Peru), IEEE Andes Council Chair (Bolivia, Colombia, Peru, Ecuador, and Venezuela),
- **Daniel Sanchez** (Peru), Region 9 Accreditation Activities Committee
- **Alfonso Gamma Perez** (Colombia), Colombia Education Society Chair
- **Jacques Safari** (Democratic Republic of the Congo),
- **TBD** (Chad)

The IEEE has the expertise, the knowledge, the resources, and the leadership that can facilitate sustained capacity building and development efforts!

Our First Order of Business: the Steering Committee

To move forward in 2016 and beyond we must examine the activities and potential activities of OAS-EftA since its 2004 inception and apply what we have learned from the IEEE in Ireland Project (see Appendix) and what we learn from the 2016 and the 2012 IEEE MGA Member Segmentation Survey (see Appendix). Our first activity of the **Steering Committee** will be to:

- Review the [2004 Plan of Action](#); [Lima Declaration](#); [OAS's Purpose, Key Strategies, Goals for EftA](#),
- Review the Plan of Action employed by the IEEE Peru Section to develop ICACIT, which is: for national accreditation, to develop local operating units of professional organizations to bring together and sustain local efforts for professional development, collegial networking, *etc.*
- Identify first wave goals, second wave goals, key stakeholders (*e.g.*, US Department of State, Organization of American States, African Union, USAID, major professional organizations (*e.g.*, ASME, ASCE, NSPE)), and,
- Identify champions. For any phase of IEEE EftAA to be successful it is imperative that champions to provide wisdom and guidance for various components be active and that the *center of gravity* has a personal relationship with them.

More specifically, the **IEEE-EftAA Steering Committee** will design a road map regarding **how** to move forward:

- Establish meaningful contact with an official(s) at UNASUR, the Union of South American Nations (Unión de Naciones Suramericanas) and CARICOM (Caribbean Communities), Latin America & Caribbean Consortium of Engineering Institutions (LACCEI), and the Caribbean Accreditation Council for Engineering and Technology (CACET),
- Identify key stakeholders who will establish the *center of gravity* for EftAA,
- Identify/enlist industry and academic partners,

- Establish appropriate local and regional mid-management leadership structures, functions, and processes,
- Support local *center of gravity* to marshal a cadre of boots-on-the-ground,
- Design mechanisms to deliver and support professional development, continuing education, courses, and facilitate collegial gatherings in Spanish, Portuguese, English, and French.
- Based upon the IEEE in Ireland Project (see Appendix) and the IEEE MGA 2016 and the IEEE MGA 2012 Member Segmentation Study (see Appendix), develop an **action plan for the Pilot Site Phase** for stakeholders, define leadership roles and advisory roles and determine what each stakeholder's capability is, what they can contribute. Stakeholders must have a meaningful and definable role.
 - Identify and understand the **capacity building challenges in the Pilot Site** countries,
 - Define and implement **activities** that will **support sustained capacity development** in the Pilot Site model (*e.g.*, professional development activities, consultants' network, mentorship group, student activities, ongoing Senior Member elevation initiatives, entrepreneurial networks, continuing 'soft skill' presentations, leadership development initiatives),
 - Promote the use-of and innovative research-in Online laboratories and collaborative tools for undergraduate and graduate education and research,
 - Establish a national/regional **accreditation structure** in concert with IEEE Educational Activities Board, following the ICACIT and CACET models,
- Enlist a current or former **ABET evaluator** who is knowledgeable in sustaining/maintaining the skills of those who will be accreditation evaluators,
- Under the leadership of the IEEE's **National Society Agreement Committee**, establish a meaningful relationship with national societies where IEEE EftAA will initiate Pilot Site activity in Phase I (see: <http://www.ieee.org/about/corporate/agreements/regional.html>),
- Promote **language-centric professional journals** (*e.g.*, Spanish, Portuguese, French), using IEEE RITA to highlight non-English speaking professionals,
- Develop a model for **entrepreneurial as well as consultant activities** and create local committees that will be an integral part of those local initiatives,
- Expand the meaningfulness and effectiveness of an **IEEE local operating unit** to provide products and services (*e.g.*, accreditation structure, certification mechanism, Distinguished Lecture Programs, technical expert forums, industry summits, develop/sustain professional chapters and student branches, consultant's networks, entrepreneur's networks),
- Draft **grant applications** for various sources (*e.g.*, IEEE New Initiatives, USAID), and,
- Identify several **Pilot Sites** to serve as a proof-of-concept to demonstrate the viability of the Plan For Action.
 - Identify the needs of each pilot site,
 - Evaluate the value propositions for the components of the pilot site, each pilot site may have similar components and, will probably have components based on their divergent situations.

Life as a Pilot Site

On one hand, it could be unmanageable to allow many Pilot Sites. However, with highly engaged local management (a local dynamic and functional *center of gravity*), we might be able to accommodate a moderate number of participants. This will require direct active involvement on the part of strongly committed leaders. This will, at least initially, require some funding support from the Pilot Site Sections. The essential point

regarding the number of IEEE Sections that can be involved as Pilot Sites depends upon the center of gravity (local leadership) in each IEEE Section (or geographical area where there is no IEEE Section or Sub Section) that will drive our EftAA initiative forward!

The IEEE Peru Section will be involved as they have an excellent operating model that we can benefit from. The IEEE Colombia Section will also be a Pilot Site as they have a very active membership base. We will also be deploying a Pilot Site project in Haiti as that country is most-in-need of our support and will provide us with the most basic development lessons for EftAA initiatives.

To be very clear, the number of Pilot Sites will be determined by the level of involvement that an IEEE Section can muster (*i.e.*, primarily human resources in-country, secondarily financial contribution).

Criteria to be a Pilot Site

Each Pilot Site must identify (at least) one person to serve as the center of gravity for that Pilot Site activity. This person(s) must be a respected local leader who can lead, cajole, exhort the leaders of local activity. This person should realize that direct involvement in local EftAA-related activity(ies) may divert the *center of gravity's* attention away from the overall Pilot Site activities, thus he/she must be capable of enlisting and overseeing operations within the Pilot Site without becoming involved in the day-to-day functions. If possible, funding should be made available for this person(s) use. We recognize that for some Pilot Sites funding is not available. If the Pilot Site is served by an IEEE Section or Sub-Section, endorsement by the Section/Sub-Section Chair is needed; if not, then endorsement by the Region Director is needed. It is critical that the local center of gravity develop of meaningful working relationship with his/her countries national engineering organization(s) and national accrediting agency and with the local IEEE members.

Each site **must** meaningfully contribute to EftAA's value proposition!

As we move forward we will conduct a needs assessment of potential Pilot Sites. For those Sections/areas that have the potential to support a Pilot Sites, we will:

1. Identify and impanel a committee that will serve as the local center of gravity to drive activity,
2. Review the United Nations Development Plan (see attachments) checklists to determine needs, examine and utilize the 2012 & 2016 MGA Member Segmentation Surveys, and the IEEE in Ireland activities summaries,
3. Survey the IEEE members in Pilot Site Sections to determine their needs,
4. Create a model for the IEEE Local Operating Unit of the Future based upon the needs assessment of the Pilot Site,
5. Collaborate or create a national engineering organization (*e.g.*, ICACYT, CACET), and,
6. Evolve a plan for interaction with relevant federal government officials.

In Phase I, we will follow the Plan For Action developed by the Steering Committee, we will:

- a. Evolve the [OAS's Purpose, Key Strategies, and Goals for EftA](#) statement into an IEEE EftAA Plan For Action by: 1.) reviewing the purpose, key strategies, and goals, 2.) review past EftA activity and accomplishments, 3.) identifying first wave goals, second wave goals, and, 4.) outlining strategies and tactics to accomplish the various goals,
- b. Apply the findings from the 2012 and 2016 IEEE-MGA Member Segmentation Survey results to identify prospective activities to include in the Plan For Action,
- c. Promote the use-of and innovative research-on Online laboratories and collaborative tools for undergraduate and graduate education and research,
- d. Based upon the findings of our *IEEE in Ireland* project (see Appendix), identify meaningful services and programs that will raise the quality of local professionals and raise the quality of

life in each area, we will create a plan to initiate similar services and programs in various Pilot Site areas (*i.e.*, in LAC countries, and in African countries),

7. Identify a person to be the center of gravity to contact various corporations, others that could support EftA, and enlist financial support and/or in-kind support from industry and governments,
8. Determine if IEEE HKN student honor society chapters can be formed on various local campuses,
- e. Identify key stakeholders (and others (*e.g.*, USAID)) who can meaningfully contribute value; a consortium of capacity building providers to work toward a common goal,
- f. Develop a shared understanding of the roles, capabilities and relationships of/among the stakeholders who must become the center of gravity for IEEE EftAA,
- g. Employ meaningful assessment tools (*i.e.*, IEEE Section Vitality Standards, ABET Standards),
- h. Evaluate progress based upon IEEE Section Vitality Standards and upon ABET standards, and,
- i. Apply for funding to bring key stakeholders together to review past performance, review documents, identify stakeholders who can provide critical and sustained leadership, and then:
 - a. Identify a person to be the center of gravity to apply for:
 - i. an IEEE [New Initiative Proposal](#) grant. These grants typically require US\$100,000 or more for a 12-month period. IEEE [Seed Funds](#) are also available for projects up to \$40,000,
 - ii. a [USAID grant](#) like the proposal to the IEEE New Initiative Proposal, and,
- j. Identify a person to be the center of gravity to contact other professional organizations/groups and seek their involvement, funding, or, in-kind support.

Assessment of progress will be based upon IEEE Section Vitality Standards and guided toward ABET standards...

In Phase II, we will:

- k. Organize *Pilot Site* implementation in several countries. These *Pilot Sites* will operate with the consent of the local IEEE Section (or Region where no Section exists). Working with IEEE EftAA leaders, the *Pilot Site* will secure commitments from local IEEE officials, industry, and government leaders to actively support the implementation of the IEEE EftAA's Plan For Action in their country. Each *Pilot Site* will establish an effective relationship with their national engineering organization (*e.g.*, ICAYT) that will collaborate with local IEEE officials, EftAA leaders and other stakeholders; they will:
 1. Liaise with government, industry, and various professional organization,
 2. Sponsor nationwide professional events,
 3. Link IEEE Section/Chapter functions with each national organization,
 4. Create funding source(s) to support paid staff at national office,
- l. Review/assess progress of EftAA based upon IEEE Section Vitality Standards and upon ABET standards.

In Phase III, we will:

- m. Review the activities, adjust as needed and proceed to roll-out the IEEE EftAA initiative on a wider phased basis.

- [Moving Towards International Engineering Program Recognition and Accreditation for Latin America and the Caribbean](#), Maria Petrie, Director Latin American and Caribbean Consortium of Engineering Institutions, June 2005.
- [Engineering for the Americas](#), Reginald Vachon, Chair, International Activities Committee, American Association of Engineering Societies (AAES), June 2013
- [Transforming our world: the 2030 Agenda for Sustainable Development](#), the 17 goals set forth by the United Nations. This document is important as EftAA will be operating in parts of the world that have wide-ranging sustainability issues.
- [Capacity Development: A UNDP Primer](#), United Nations Development Program (UNDP), 2009. Note: even though this is a 2009 publication, it presents a wider view of capacity building, which is what EftAA is focused toward. This primer addresses the basic elements of the UNDP approach to capacity development. It provides a simple, cogent, and accessible illustration of the UNDP Capacity Development Approach for the benefit of development practitioners both within and beyond the UN development system – a real-world guide to real-world applications to strengthen and contribute to national capacities for development.
- **IEEE in Ireland Project:** This initiative began in 2014. It was driven by a desire for a well-defined structure in Ireland through which to provide activities that are valuable to local IEEE members. This opportunity in Ireland is providing an excellent Pilot Site to identify what the structure and function of the IEEE Local Operating Unit of the Future should be; these local IEEE Operating Units will be a key facilitator of globalization.
 - [IEEE in Ireland Working Group document 1](#)
 - [IEEE in Ireland Working Group document 2](#)
- **Caribbean Accreditation Council for Engineering and Technology (CACET)**
 - [CACET's Strategic Plan](#)
 - [CACET Accreditation Manual](#)
 - [CACET Training Manual](#)
 - [CACET Charter and Operation Manual](#)
 - [CACET Strategic Plan](#)
- **Institute of Quality and Accreditation for Computing, Engineering, and Technology Programs (ICACIT)** forthcoming
- **2016 and 2012 IEEE-MGA Member Segmentation Survey:** which identified the services and activities that local IEEE members desire. Areas of high importance to members but in which they rated their satisfaction lower are professional networking, continuing education, and career resources. Students had a similar list but added that they'd like more awards and scholarship opportunities, the chance to get involved with humanitarian projects, and videos of conference highlights.
 - [PowerPoint presentation about the segmentation survey](#)