



Challenge Today.
Change Tomorrow.

2019 *Annual Report*



A Message to Our Community

IEEE and its volunteers and members have a long history of passionately embracing the most pressing challenges of the day and finding ways to change tomorrow for the better. This spirit has never been more urgent as we face the global threat posed by COVID-19.

We would like to express our heartfelt thanks to all IEEE volunteers and members supporting efforts to contain this crisis—connecting the world, powering communities and seeking vital treatments and cures.

As an organization, IEEE actively responded to this global threat with speed, agility and resourcefulness. To protect our volunteers, members and staff, IEEE shifted its operations, activities and global engagement to digital and virtual forums.

IEEE remains true to our mission of advancing technology for humanity, and we will sustain this mission and our engagement across our organization as together we overcome this crisis and move confidently into the future.

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Challenge Today. **Change Tomorrow.**

IEEE is the place where you will discover opportunities to embrace today's technology challenges and find ways to change tomorrow for the better.

We offer an open environment for the technology community to share information that helps keep technologists informed and educated on critical, game-changing innovations in the emerging fields of artificial intelligence, quantum computing, sustainable energy and much more.

As the world evolves, so does IEEE.

Through an open, responsive and agile approach, we are fostering an environment of collaboration and engagement in support of our members. By championing emerging technologies and embracing key challenges, IEEE members have an impact on the world today and ultimately make it an even better, more prosperous place tomorrow.





▲ Above: Stephen P. Welby (left) and José M. F. Moura

Message from the **IEEE President and the Executive Director**

IEEE is an international, volunteer-driven, not-for-profit organization with a membership comprised of over 400,000 engineers, computer scientists and technologists, operating in over 160 countries, all organized around the mission of advancing technology for the benefit of humanity. Our areas of interest cover the spectrum, from electrical and electronic engineering, computer engineering and computer science to biomedical engineering and information and communication technologies, among others.

As a large and complex organization supporting the technical and professional needs of our members, our professions and the public, IEEE recognizes both the acceleration of technological innovation and the challenges this brings. After all, our members are driving much of today's exponential technological growth. As an example of the power of the technologies in our areas of interest, we witnessed the speed

with which hundreds of thousands of universities, schools, companies and other organizations switched to remote modes of operation, supported by video conferencing and other interactive forms of teleworking technology, in response to the threat posed by COVID-19.

Over the first two decades of this 21st century, we have witnessed a technology convergence that included the dominance of data arising from the physical, the social and the business worlds; massive computing capability due to the miniaturization of chips and other components; progress in algorithms and processing methodologies; and the integration of disparate technologies on the wondrous device, the smartphone. Our world is interconnected, "smart" and mobile. We aspire to "intelligent" infrastructure, "intelligent" transportation, smart homes and smart everything.

As our members continue to drive ever-faster technological change, it is essential that our professional society remains relevant, that it remain as innovative and agile as our members are, and that it continues to evolve to meet the challenges of the increasingly dynamic world around us – one that will undoubtedly become more complex, more competitive and flatter as the speed of technological advancement increases.

Over the past year, IEEE made significant progress on important issues such as improving how IEEE engages and remains relevant to technologists across the broad diversity of technical, geographic, professional, social and other interests throughout their professional lives. Our efforts focused on exploring different concepts for how to engage with a significantly expanded audience, an exploration of new membership models and new member personas, and a consideration of the types of infrastructure, product offerings and revenue models needed to support an expansion of IEEE's reach.

For example, a new IEEE mobile app was launched to provide access to all our activities and offer members and non-members new ways to network and engage. We also developed and implemented a strategy to promote open science and open access, launching new open access journals, further developing repositories for data and code, and designing new models to provide access to our publications.

We addressed head-on the essential fact that IEEE is a diverse, inclusive and transparent organization, with a policy of open meetings and discussions. As an organization, we are committed to balanced operation budgets, which we have achieved two years in a row, and reduced corporate overhead. Moving ahead, the Board approved a transition to a new financial system that will enable IEEE to manage our financial resources efficiently and to provide the best possible service to our members and our technology communities.

We are a diverse community, not just because of geography, technical interests and professional sector, but also in gender and career stage from young to seasoned professionals. IEEE strives to be

a broad-based and inclusive professional organization. We are much richer when we recognize and embrace this diversity. In 2019, the Board approved a new statement for incorporation in the IEEE Policies expressing our commitment to a diverse and inclusive organization.

IEEE is at its finest when we bring together the rich diversity of our global community of professionals to help solve the problems facing civilization. It is incredibly powerful to have such a range of researchers, engineers, technologists and computer scientists, from academia, government and industry, working together, across diverse disciplines with different perspectives and unique ideas, to discuss opportunities for advancements.

IEEE remains dedicated to serving our global membership by expanding our communities of technical professionals, supporting the development and dissemination of research and technology and advancing humanity through our technical work. With a focus on maintaining IEEE as a more transparent, diverse and inclusive organization, our efforts will ensure IEEE's readiness and significant role in leading the next technological revolution.

We live in sobering times and are experiencing formidable challenges. Technological innovation is a critical driver to face these threats and to bring improvements in our quality of life and economic prosperity, and the professions of engineering, computer science, bioengineering and technology are both who we are and are central to this innovation. Every day around the globe, IEEE members strive to advance the development of the technologies that help to improve the human condition and meet the challenges of our changing world.

Sincerely,



José M. F. Moura 2019 IEEE President & CEO



Stephen P. Welby IEEE Executive Director & COO

IEEE by the Numbers

2019

IEEE Xplore[®] Digital Library

5,000,000+
Total Documents

184,913,449 Total Usage*

178,995

New Conference Articles
(out of 3,607,604)

82,494

New Journal Articles
(out of 1,279,197)

6,551

Magazine Articles
(out of 160,959)

110

Standards Approved
for Publication out of

1,100+ **825**
Active Under Development

419,007

Total Members
Top 5 Countries for Members



124,442

Student Members
Top 5 Countries for Student Members



Ten Regions Worldwide

Sections	Student Branches	Chapters
342	3,422	2,490

1,969

IEEE Sponsored Conferences
in 103 Countries

547,000

Conference Attendees

IEEE Society Memberships

5,027 IEEE Aerospace and Electronic Systems Society	2,859 IEEE Magnetics Society
9,516 IEEE Antennas and Propagation Society	10,935 IEEE Microwave Theory and Techniques Society
1,706 IEEE Broadcast Technology Society	4,256 IEEE Nuclear and Plasma Sciences Society
10,621 IEEE Circuits and Systems Society	1,890 IEEE Oceanic Engineering Society
27,484 IEEE Communications Society	6,732 IEEE Photonics Society
8,067 IEEE Computational Intelligence Society	40,022 IEEE Power & Energy Society
49,115 IEEE Computer Society	10,880 IEEE Power Electronics Society
2,595 IEEE Consumer Electronics Society	845 IEEE Product Safety Engineering Society
8,565 IEEE Control Systems Society	619 IEEE Professional Communication Society
2,046 IEEE Dielectrics and Electrical Insulation Society	1,671 IEEE Reliability Society
3,381 IEEE Education Society	15,598 IEEE Robotics and Automation Society
3,637 IEEE Electromagnetic Compatibility Society	18,730 IEEE Signal Processing Society
10,281 IEEE Electron Devices Society	1,755 IEEE Society on Social Implications of Technology
2,518 IEEE Electronics Packaging Society	10,546 IEEE Solid-State Circuits Society
10,172 IEEE Engineering in Medicine and Biology Society	5,494 IEEE Systems, Man, and Cybernetics Society
4,584 IEEE Geoscience and Remote Sensing Society	3,077 IEEE Technology and Engineering Management Society
8,116 IEEE Industrial Electronics Society	2,287 IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society
15,090 IEEE Industry Applications Society	5,282 IEEE Vehicular Technology Society
3,311 IEEE Information Theory Society	
3,933 IEEE Instrumentation and Measurement Society	
2,209 IEEE Intelligent Transportation Systems Society	
	335,452 Total Society Memberships

50% of IEEE Members
Belonged to One or More Societies in 2019

*PDF downloads and HTML views

IEEE Shapes the Future

In 2019, IEEE volunteers and members around the world collaborated to create transformative technologies. IEEE delivered insightful research and impactful contributions to broad audiences, championing the next generation of technologies that will benefit society in the years ahead.

The World's Most Successful Technology Companies & Leading Universities Subscribe to the IEEE Xplore Digital Library

29 out of Top 30

Semiconductor
Companies

14 out of Top 15

Aerospace & Defense
Companies

8 out of Top 10

Telecom Companies and
Auto & Truck Manufacturers

97 out of Top 100

Engineering & Technology
Universities Worldwide

Sources: 2019 *Forbes* Global 2000; *US News and World Report*, Top Engineering Graduate Schools of 2020, ranked in 2019; *Times Higher Education*, Subject Ranking 2018–19: Engineering & Technology

IEEE Impacts Industry & Academia

Our presence expands across a range of different technologies including:

- ▲ **Aerospace & Defense**
- ▲ **Artificial Intelligence**
- ▲ **Automotive Engineering**
- ▲ **Autonomous Vehicles**
- ▲ **Biomedical Engineering**
- ▲ **Biometrics**
- ▲ **Circuits & Systems**
- ▲ **Communications**
- ▲ **Computer Hardware**
- ▲ **Computer Software**
- ▲ **Cybersecurity**
- ▲ **Electronics**
- ▲ **Energy**
- ▲ **Engineering**
- ▲ **Imaging**
- ▲ **Information Technology**
- ▲ **Internet of Things (IoT)**
- ▲ **Medical Devices**
- ▲ **Nanotechnology**
- ▲ **Optics**
- ▲ **Petroleum & Gas**
- ▲ **Power Electronics**
- ▲ **Power Systems**
- ▲ **Robotics & Automation**
- ▲ **Semiconductors**
- ▲ **Smart Grid**
- ▲ **Sustainable Energy**
- ▲ **Wireless Broadband**

Setting the Course for Devices of the Future

IEEE Future Directions released two critical technology roadmaps in 2019 designed to help inform industry about how to overcome challenges and embrace opportunities. This includes integrating advanced technologies such as 5G and the Internet of Things into electronic devices and systems. The roadmaps, which are free to access, are:

- ▲ *The Heterogeneous Integration Roadmap* provides a comprehensive, strategic forecast for the electronics industry.
<https://eps.ieee.org/HIR-2019>
- ▲ *The International Roadmap for Devices and Systems* was updated to address the continuous changes in the electronics industry. The roadmap provides a clear outline for a more coordinated approach to the development of electronic devices and systems within the fields of mobile, Internet of Things, communications networks, automotive and computing.
<https://irds.ieee.org>

IEEE Future Directions Looks Toward Tomorrow

IEEE Future Directions provides IEEE volunteers and members with a forum to contribute fresh ideas to advance the latest technologies. Focus areas include:



IEEE Conferences Deliver Cutting-Edge Research

IEEE sponsors more than 1,900 annual conferences and events worldwide, producing groundbreaking conference publications in various technology areas recognized by academia and industry. They range from larger conferences that have been taking place for 50 years to smaller events highlighting up-and-coming technologies. Below is a small sampling of events held in 2019:

2019 Optical Fiber Communications Conference and Exhibition (OFC)

Location: San Diego, CA

Fields of Interest: Communication, Networking and Broadcast Technologies, Photonics and Electrooptics

2019 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

Location: Long Beach, CA

Fields of Interest: Back-end Image Processing, Learning/Recognition and Utilization

2019 IEEE Nuclear and Space Radiation Effects Conference (NSREC)

Location: San Antonio, TX

Fields of Interest: Aerospace Components, Circuits, Devices and Systems, Nuclear Engineering, Photonics and Electrooptics



Our Volunteers
Drive Us Forward



IEEE is an inspiring community, constantly pursuing innovation and excellence for the benefit of all people, everywhere. In 2019, IEEE made vital contributions to the global advancement of technology.

- ▲ **Top Left:** Participants in a workshop held in Guayaquil, Ecuador, learn hands-on training at a nearby funded project.
- Bottom Left:** Volunteers with the IEEE SIGHT Southern Alberta (Canada) Section and students from the University of Calgary partnered with IEEE Peru members to install a solar system.
- Top Right:** Team members from the IEEE Pontifical Catholic University of Valparaiso (PUCV) SIGHT group conducted an IEEE SIGHT-funded project "Illumination of the Parque Escuela 36" in Valparaiso, Chile

Inspiring Future Leaders



IEEE Young Professionals are Highly Engaged:

50% Engaged with IEEE | **232** Groups | **130** Events with **7,300** Attendees

Future Leaders Explore Career Development Opportunities

IEEE is dedicated to helping young professionals advance and stay relevant in their careers and affect change in their organizations. The 2019 IEEE-USA EVO (Evolution of You) Leadership Conference in Pittsburgh, PA provided a broad range of speakers to inspire future leaders.

Inspiring Entrepreneurs

IEEE Entrepreneurship hosted and/or sponsored numerous entrepreneurial opportunities for young professionals. These events included:



- ▲ The Slingshot Entrepreneurial Competition at the Singapore Week of Innovation and Technology (SWITCH) tech festival featured judges from IEEE N3XT® — events designed to bring together technology entrepreneurs to promote innovation — identifying candidates who aligned with the IEEE core mission of fostering technology for the benefit of humanity. The competition included 2,400 startups from 120 countries.
- ▲ The IEEE N3XT Keynote at SWITCH featured a conversation with Tony Fadell, iPod inventor, Nest founder and Future Shape principal.



Samantha Snabes

"Serving as the chair, IEEE Entrepreneurship, has been a fantastic opportunity. In this role, I had the honor of traveling to multiple events internal and external to IEEE across the world to speak about IEEE, and to learn how we can stay relevant."

IEEE Member | 2018 - 2019 IEEE Entrepreneurship Steering Committee Chair
Austin, TX



▲ Above: 2019 Women in Engineering International Leadership Summit attendees in Beijing, China

▲ Right: Volunteers and past WIE International Leadership Conference Chair Nita Patel (center)

▲ Below: 2019 'Evolution of You' conference attendees





▲ Above: IEEE helped to advance technology innovation and entrepreneurship by hosting an intensive, one-week workshop in Uganda aimed at helping local technologists launch their own startups and bring their innovations to market.

Volunteers are Making an Impact

IEEE in Africa Strategy

In 2019, IEEE volunteers continued to support engineering education and workforce development in Africa as part of the IEEE in Africa Strategy. IEEE launched a virtual events program providing access to technical information from IEEE conferences and workshops, creating greater efficiencies and opportunities in Africa by eliminating the need to travel long distances. The program, focused on the goal of building engineering capacity in underserved African nations, now serves over 1,000 African technologists annually.



David Oyedokun

"Two years after joining IEEE, I realized that it provided a space for me to reach my goals. I was able to challenge myself to provide solutions to improve conditions around the world and help change the course of tomorrow."

IEEE Member | July 2019 - December 2020 IEEE South Africa Section Chair



▲ Left to Right: Dr. L. Siwale, Dean of the School of Engineering; Professor Thomas Kweku Taylor and Dr. Joseph Mutale meet in Zambia for the Copperbelt University Power Lab Hand Over ceremony.

IEEE Members Lead Collaboration Efforts Around the World

With more than 400,000 members globally, one of the key benefits of IEEE membership is making connections and forging partnerships with others with the common goal of advancing technology for humanity.



César A. Gallegos Chavez

"After 23 years of membership, with several years as an active volunteer, IEEE is not only part of my career, but part of my life. This community continues to inspire and is made effervescent by the combination of young students and experienced professionals."

IEEE Senior Member | 2019 - 2020 Peru Section Chair



Paulina Y. Chan

"I am very proud to be among over 4,000 members and 61 life members of the IEEE Hong Kong Section. We continue to establish multidisciplinary partnerships and prioritize recruitment in students, young professionals, women and life members."

IEEE Senior Member | 2019 IEEE Women In Engineering Chair, Hong Kong Section
2020 IEEE Hong Kong Section Chair



Puneet Mishra

"One cannot find a better place than IEEE to network with the finest of minds across the globe, who are eager to collaborate and work together for professional enhancement, and making themselves ready for the future."

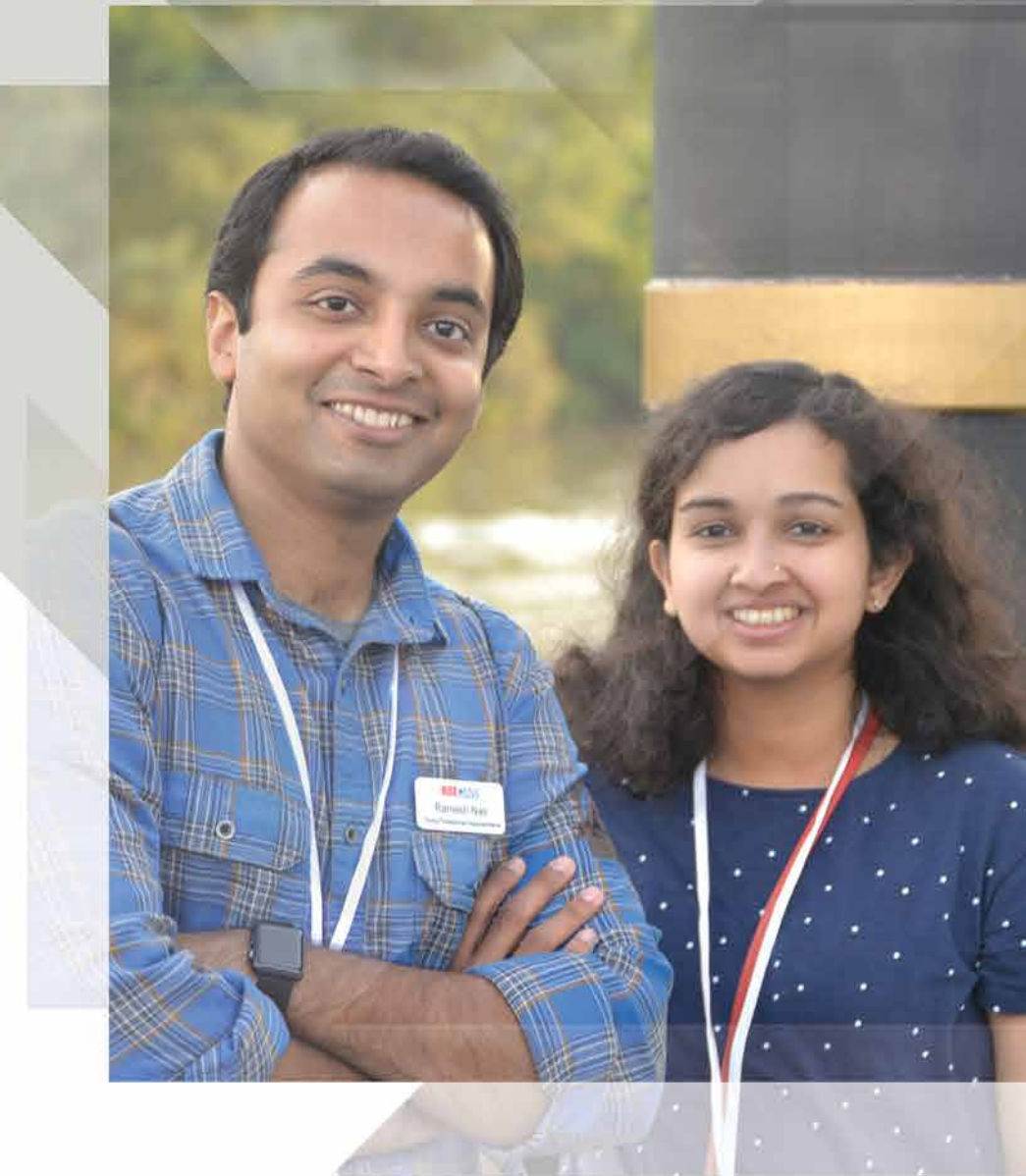
IEEE Senior Member | 2019 Bangalore Section Chair-Elect
IEEE India Council Secretary

▲ Bottom Left: 2019 IEEE Day participants
Bottom Right: IEEE Smart Village Energy Entrepreneurs and program ambassadors at the Power Africa conference, held in Cape Town, South Africa





Evolution of the
Member Experience









As part of an ongoing effort to engage broadly and communicate more effectively with both existing and potential members, IEEE instituted an engagement infrastructure to serve as a catalyst for networking and collaboration. These efforts have the potential to solve challenges and turn innovative ideas into reality.

- ▲ **Top Left:** Members of the IEEE Universidad Centroamericana José Simeón Cañas Student Branch SIGHT Group working on an electrical installation in a local school in their area
- Bottom Left:** One of the founding members of the SIGHT group formed in 2019 at the Jomo Kenyatta University of Agriculture and Technology IEEE Student Branch in Kenya
- Top Right:** 2019 'Evolution of You' conference attendees

The IEEE App: A Global Gateway to IEEE

Launched in 2019, the IEEE app allows users to discover everything IEEE offers. Through the IEEE app, users can see, read, personalize and choose how to engage and connect to all things IEEE, as well as network globally.

-  Create a personalized experience
-  Get geo- and interest-based recommendations
-  Schedule, manage or join meetups virtually
-  Read and download IEEE magazines
-  Stay up to date with the latest news
-  Locate IEEE members by location, interests and affiliations



THE IEEE APP:

Let's stay connected...

IEEE volunteers and members can download the IEEE app to enhance their IEEE membership experience and uncover additional ways to interact with IEEE. Download at the App Store or Google Play.



Discover, Connect, Collaborate

IEEE Collabratec is an online community offering a one-stop experience for technology professionals to interact with each other and stay abreast of the latest developments in their technical fields. Key IEEE Collabratec milestones reached in 2019 include:

220,000
Total Registrants

80,000
IEEE Member Registrants

6,400
Non-Members on IEEE Collabratec
Converted to IEEE Members



IEEE Provides Options to Support Entrepreneurship

IEEE launched a program in collaboration with Amazon Web Services (AWS) to help members grow their entrepreneurial ventures. The AWS Activate program provided IEEE Entrepreneurship Community members with access to cloud computing resources, including \$10,000 in AWS promotional credit, one year of AWS business support and access to self-paced labs for training.

Cutting-Edge Learning Network

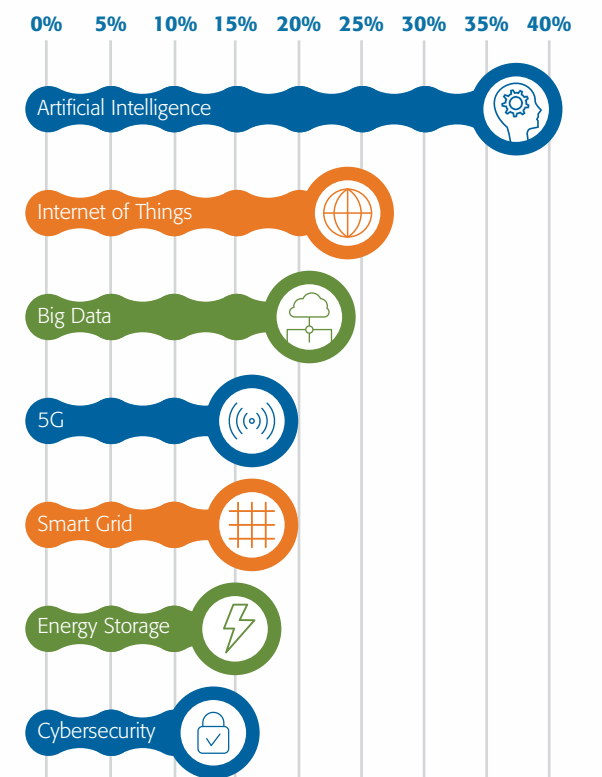
The IEEE Learning Network (ILN) is a learning management system designed to provide technologists around the world with an easy and convenient way to find continuing education resources across IEEE. ILN provides the latest in continuing education in engineering, technology and more, ensuring technologists stay relevant in their fast-changing industries.



By the End
of 2019

700+ Courses
19 Content Partners

Topics of Most Interest*



*Source: 2019 Continuing Education Pricing Study (Results from survey of a random sample of 4,000 Higher Grade IEEE members)



Diverse Membership with a
Common Mission



IEEE is committed to diversity and inclusion, ensuring that its members can contribute to their wide-ranging fields of interest in an equitable manner. IEEE members come from many demographics and geographies across the globe, representing academia, industry and other organizations. Their contributions and cooperation this year continued to make IEEE an even stronger organization and advanced our mission.

▲ **Top Left:** 2020 IEEE President Toshio Fukuda (center) with attendees at an IEEE WIE International Leadership Summit held in Beijing, China
Bottom Left: Attendees of the 2019 Rising Stars Conference
Top Right: Attendees at an IEEE WIE International Leadership Summit held in Bangalore, India

New Diversity Statement Encourages Inclusion for All

IEEE is dedicated to maintaining a culture that is diverse, inclusive and respectful, welcoming all who make contributions in their technical field of interest. In 2019, IEEE adopted a new diversity statement that was added into the IEEE Policies.

IEEE's mission to foster technological innovation and excellence to benefit humanity requires the talents and perspectives of people with different personal, cultural and disciplinary backgrounds. IEEE is committed to advancing diversity in the technical profession, and to promoting an inclusive and equitable culture in its activities and programs that welcomes, engages and rewards those who contribute to the field without regard to race, religion, gender, disability, age, national origin, sexual orientation, gender identity or gender expression.

An update to the IEEE Code of Ethics was also proposed to further these efforts.

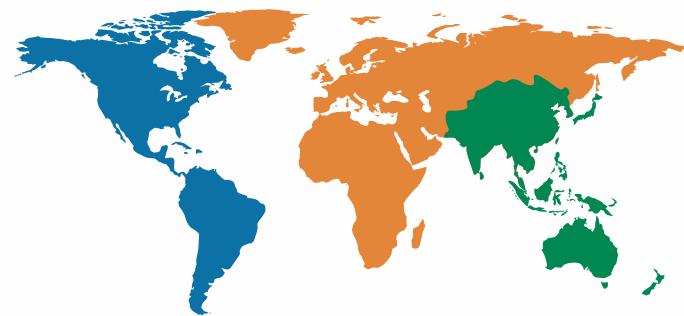


Andrea Goldsmith

"My volunteer work in IEEE aspires to attract and retain a diverse community of engineers, critical for the profession to thrive. IEEE has the global influence and reach to accomplish this goal."

IEEE Fellow | 2019 - 2020 IEEE Ad Hoc Committee on Diversity, Inclusion and Professional Ethics Chair
2017 - 2020 IEEE Technical Activities Board Committee on Diversity and Inclusion Chair

IEEE'S Global Community



- ▲ **50%**
Are from Canada, Latin America or the United States
- ▲ **18%**
Are from Europe, the Middle East or Africa
- ▲ **31%**
Are from Asia or the Pacific Region

71% of Members are Higher-Grade



▲ Above: 2019 Women in Engineering International Leadership Conference attendees



IEEE WIE Conferences Help Women Get Ahead in Tech

In cooperation with IEEE Entrepreneurship, IEEE Women in Engineering (WIE), a global network of IEEE members and volunteers dedicated to promoting women engineers and scientists, hosted a Singapore Networking Night in which an IEEE panel of speakers from diverse backgrounds discussed the critical factors in achieving leadership roles in technology.

Technologists from across the globe attended this year's IEEE Women in Engineering International Leadership Conference in Austin, Texas, including executives from influential organizations. The theme focused on increasing the number of women in middle-to senior-level positions.

IEEE WIE International Leadership Conference



35
Countries



70+
Speakers



Lisa Lazareck-Asunta

"Volunteering with IEEE has been an immeasurable enrichment of my life. I work with exceptional women and men from across the globe that believe in the power of women and the power of WIE to make a difference in gender equality."

IEEE Senior Member | 2019 - 2020 IEEE Women In Engineering Committee Chair



*New Options for Researchers
and Authors in Support of*

Open Science



The Open Science movement enables wider access to research, allowing authors to disseminate their findings to the technical community and spark innovations more than ever. IEEE embraces these new opportunities by providing researchers and authors with a larger variety of publishing options, allowing them to make their research more widely available. To help authors gain maximum exposure for their groundbreaking research, IEEE launched new open access publishing options and tools to meet the needs of authors and researchers throughout their careers.



Expanded Open Access Portfolio Provides Authors with Enhanced Options

New offerings in 2019 provided authors with increased flexibility and options for open access publishing. These included:

New Open Access Journals:

IEEE's publishing program continues to grow and evolve for both subscription journals and open access titles. IEEE launched new gold, fully open access journals spanning a wide range of technologies including telecommunications, computing, biomedical engineering, automotive technology, signal processing, industry applications power and energy and more. The new journals began accepting submissions in the fall of 2019 and published their first articles in early 2020.

TechRxiv.org:

This preprint server for engineering, computer science and technology research allows authors to post early and fully open versions of their articles, prior to peer review and prior to being published. This allows them to share early results and respond to comments and recommendations for improvement. This tool is open to all researchers, regardless of where they plan to publish their work.

The two new tools join two other current tools, Code Ocean, a cloud-based platform that allows authors to publish code or algorithms associated with research articles and link to IEEE Xplore; and IEEE Dataport, which provides authors with the ability to publish large data sets associated with their research.

TechRxiv™
Powered by IEEE

IEEE Xplore Digital Library Hits 5 Million Documents

The IEEE Xplore digital library, one of the world's largest collections of technical literature in engineering, computer science and related technologies, reached a new milestone in 2019 with 5 million documents now available in its vast repository.

The Library Publishes:

250,000 | **20,000+**
New Articles Each Year | New Articles Each Month

The Collection Includes Content From:

200 | **1,900** | **1,100+** | **400** | **4,000**
IEEE Journals & Magazines | Annual Conferences | Active Technology Standards | eLearning Courses | ebooks

IEEE Xplore®
Digital Library

CELEBRATING
5M
DOCUMENTS
AND COUNTING...

IEEE Journals Excel in Citation Rankings

Released in June 2019, the 2018 Journal Citation Reports (JCR) study revealed that IEEE journals continue to maintain rankings at the top of their fields. Top journals by Impact Factor include:

- ▲ **Top 20** Journals in Electrical and Electronic Engineering
- ▲ **Top 4** Journals in Automation and Control Systems
- ▲ **Top 3** Journals in Cybernetics
- ▲ **Top 4** Journals in Hardware and Architecture
- ▲ **Top 5** Journals in Information Systems

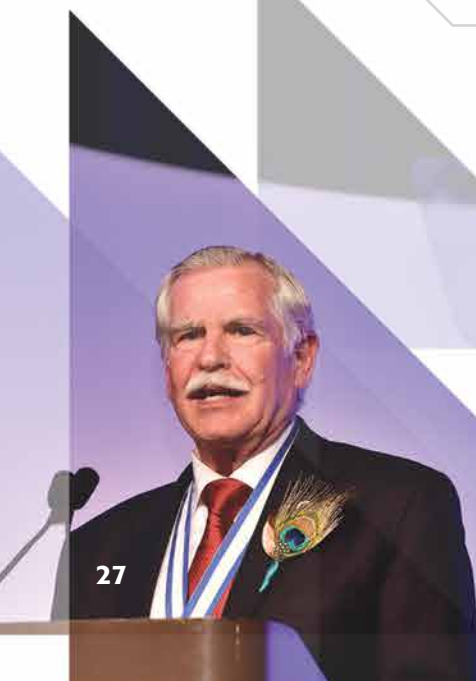
- ▲ **18 of top 20** Journals in Telecommunications
- ▲ **3 of top 4** Journals in Artificial Intelligence and Journals in Software Engineering
- ▲ **2 of top 4** Journals in Interdisciplinary Applications and Journals in Remote Sensing
- ▲ **3 of top 5** Journals in Imaging Science and Photographic Technology, Journals in Theory and Methods and Journals in Transportation Science and Technology

- ▲ **#1** Journal in Industrial Engineering
- ▲ **#1** Journal in Instruments and Instrumentation
- ▲ **#2** Journal in Robotics

Today's innovators deliver new technologies at an ever-increasing pace, and IEEE is also by far the most-cited publisher in new patents. (Source: 1790 Analytics LLC, 2019 report)



Honoring Technology
Trailblazers



IEEE is actively shaping the future of technology— and the world—by tirelessly advancing innovation and technological excellence. In 2019, IEEE honored leaders and members whose achievements sparked radical transformation and made our planet a better place to live.

▲ **Top Left:** The 2019 IEEE medal and recognition recipients at the Honors Ceremony Gala
Bottom Left: IEEE Medal of Honor recipient Kurt E. Petersen
Top Right: IEEE Life Fellow George Schmidt at the controls of the Apollo Block II System.
 Photo Credit: Draper



IEEE Celebrates 50th Anniversary of Lunar Landing

IEEE commemorated the 50th anniversary of the Apollo 11 moon landing by celebrating the role IEEE members played in advancing the space program.

IEEE raised awareness through the *Space Exploration, Technology and Our Lives: From Deep Space to the Ocean's Depths* campaign, which featured IEEE technical experts discussing how space technology laid the groundwork for future scientific developments. It also featured perspectives from IEEE Life Fellow George Schmidt, who worked on systems testing in Apollo 11's test lab and holds a leadership position in the IEEE Aerospace and Electronics Systems Society.

Another IEEE campaign conducted by the IEEE History Center, The Footsteps Project, told personal stories of IEEE members and the engineering achievements that led to the first moonwalk.



▲ **Right:** 2020 IEEE President Toshio Fukuda (left) with IEEE volunteers Ed Kruzins, David Cooke and David Burger at the unveiling of the milestone plaque for the Parkes Radio Telescope. Photo Credit: *Parkes Champion Post*

IEEE Dedicated 4 of its 14 Milestones to Achievements Directly Related to the Lunar Landing

▲ 1946 New Jersey

Detection of Radar Signals Reflected from the Moon

▲ 1982 Ottawa, Canada

Human Rescue Enabled by Space Technology

▲ 1969 Santa Clara Valley

LURE Lunar Ranging Experiment

▲ 1969 New South Wales, Australia

*Parkes Radio Telescope
(First IEEE Milestone Dedication in Australia)*

IEEE President's Award Honors Katherine Johnson: Mathematician Whose Work Made Manned Space Flight Possible

The 2019 IEEE President's Award, which recognizes individuals whose careers have exhibited distinguished leadership and contributions to the public, was presented to Katherine Johnson. Johnson was featured in the award-winning film *Hidden Figures* for her fundamental computational contributions to the success of America's first and subsequent manned space flights, including Apollo 11.



▲ **Right:** Katherine Johnson checking her manual calculations at her desk at the Langley Research Center. Photo Credit: NASA

IEEE Celebrates Achievements

Kurt E. Petersen Receives IEEE Medal of Honor

IEEE Life Fellow Kurt E. Petersen received IEEE's highest recognition, the IEEE Medal of Honor, sponsored by the IEEE Foundation. Petersen was honored for his leadership in the development of innovative technologies in the field of microelectromechanical systems (MEMS). His foundational work made possible such innovations as autonomous driving, precision surgical techniques and advanced smartphone applications. Petersen received his award at the 2019 IEEE Vision, Innovation, and Challenges Summit (VIC Summit) and Honors Ceremony held in San Diego.

The Inaugural IEEE Theodore W. Hissey Outstanding Young Professional Award

This award was presented to IEEE member Mario Milicevic for his contributions to error correction and quantum cryptography, engineering education and the IEEE member experience.



▲ **Right:** Ted Hissey (left), the award's namesake, stands with Mario Milicevic, the first recipient of the inaugural IEEE Theodore W. Hissey Outstanding Young Professional Award, at the 2019 IEEE Honors Ceremony.
Bottom Left: IEEE Medal of Honor recipient Kurt E. Petersen
Bottom Right: IEEE VIC Summit speaker Kayne McGladrey, IEEE Member, talks about cybersecurity best practices.



▲ **Above:** Katherine Johnson's daughters Joylette Goble Hyllick (left) and Katherine Goble Moore received the IEEE President's Award on behalf of their mother, once known as a human computer.

200th IEEE Milestone Awarded

1972 Redwood City, California

Raychem, now part of nVent, received the 200th IEEE Milestone ever to be awarded for its technology that helps prevent pipes from freezing and consequently bursting. In 1972, Raychem began manufacturing a cable that automatically adjusted the temperature around pipes based on their surface temperature. The conductive polymer in this cable revolutionized the temperature maintenance of process piping, which has had major applications in refineries and chemical plants, and made freeze protection of water pipes simple and energy efficient.

▲ **Right:** IEEE Fellow Chet Sandberg (left) and inventor and patent holder Jock Walker with the electric self-regulating polymer trace heater IEEE Milestone plaque at the nVENT Thermal factory in Redwood City, California. Photo Credit: nVent





Advancing Technology for
Humanity



IEEE and its members are dedicated to forging a global community and fostering technological innovation in a direction that benefits humanity—today and into the future.

- ▲ **Top Left:** Volunteers from the IEEE Malaysia Section implemented a project funded by the IEEE Humanitarian Activities Committee to provide clean water to the isolated community of Kampung Sungai Tiang, Royal Belum State Park, Perak.
- Bottom Left:** Team members from the IEEE Uganda Section SIGHT group implemented a project to install a solar energy system.
- Top Right:** Student from the IEEE Federal University of Santa Maria student branch attending the IEEE Power and Energy Society and IEEE Humanitarian Activities Committee Lighting for Humanity event.



▲ Above: Team members from the IEEE Uganda Section SIGHT group implemented a project to install a solar energy system to facilitate the healthcare services at the Mukujju Health Center IV.

IEEE SIGHT Helps Save Lives at Ugandan Health Center

The IEEE Uganda Section SIGHT (Special Interest Group on Humanitarian Technology) Group received funding to install solar technology that provides a dependable and sustainable source of power at the Mukujju Health Center IV. This reliable energy is helping to ensure that all medical equipment functions efficiently and that the lights stay on throughout the night, thus reducing the risk of maternal and infant deaths during childbirth.

IEEE Program Assists Local Communities

Engineering Projects In Community Service (EPICS in IEEE) hosted the EPICS Expos, with hundreds of business leaders and students in attendance. IEEE is having an impact by providing assistance to address the housing shortage in local communities, monitoring and improving community gardens, assisting canines with amputated limbs and providing an early warning system for communities prone to flooding. EPICS in IEEE is a donor-supported, IEEE Foundation Signature Program.

IEEE MOVE Assists Victims of Natural Disasters

In the wake of devastating tornadoes, IEEE's Mobile Outreach Vehicle (MOVE) was deployed to Beauregard, Alabama, where volunteers provided critical communications infrastructure and support to a federal resource center and to American Red Cross responders working in the affected community. The MOVE vehicle also traveled to the outer banks of North Carolina to assist the Red Cross with communications infrastructure for the delivery of food and emergency supplies following Hurricane Dorian.

▲ Left: IEEE MOVE volunteer Grayson Randall

IEEE SIGHT™
Special Interest Groups on Humanitarian Technology

EPICS in IEEE™
Engineering Projects In Community Service



IEEE Delves into the Ethics of AI

IEEE engaged in multiple efforts to ensure that AI affects society in a positive way, including:

- ▲ IEEE gathered with other global leaders to debate the challenges faced in today's AI-enabled world at the Tallinn Digital Summit (TDS). More than 40 experts addressed areas such as smart cities, law enforcement and healthcare, while also touching on the complex legal and ethical aspects of the technology. IEEE Executive Director Steve Welby led the IEEE delegation and addressed the topic: How to Foster Public Trust in Intelligent Technologies and Systems. All told, the summit brought together more than 200 experts from 23 countries.
- ▲ The publication of *Ethically Aligned Design, First Edition: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems (EAD)*, a comprehensive body of work that sets out high-level ethical principles, key issues and practical recommendations.
- ▲ EAD data was included in the U.S. Defense Innovation Board's recommendations to the U.S. Department of Defense on the ethical use of AI.
- ▲ The release of *AI: A Global Survey*, an IEEE-USA research effort providing valuable insights into how 26 nations across the globe are using laws and regulations to encourage, promote, integrate and control emerging AI technologies.

▲ Below: IEEE Executive Director and Chief Operating Officer Stephen Welby speaks at the 2019 Tallinn Digital Summit held in Estonia. Photo credit: Aron Urb





Elevating
Engagement



IEEE volunteers and members are passionate about advancing technological innovation to inspire change and make the world a better place for everyone. In 2019, IEEE continued to engage with the global community and increase the leadership role we play.

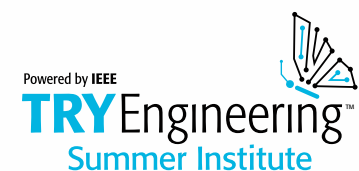
- ▲ **Top Left:** Attendees from the IEEE Power and Energy Society and IEEE Humanitarian Activities Committee Lighting for Humanity
- Bottom Left:** IEEE Day participants
- Top Right:** TryEngineering Summer Institute student enjoying the opportunity to try Vaughn College of Aeronautics and Technology's flight simulator. The TryEngineering Summer Institute was held at three locations across the United States in 2019.



▲ Above: TryEngineering Summer Institute students at Texas A&M University got a chance to tour Johnson Space Center and meet an engineer that worked on the Apollo Mission.

TryEngineering Lets Students Explore the World of Engineering

TryEngineering Summer Institute is an engineering summer program for high school students held at three universities across the United States. Students learn new skills and engage in hands-on projects that explore how engineers can solve real-world problems.

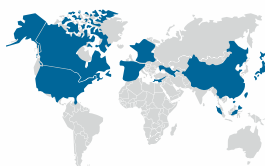


78% Increased Registration from the Previous Year

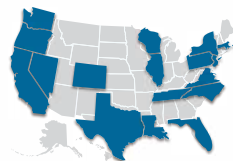


Participants Traveled From

10 Countries



17 US States



The TryEngineering Together program gets youth from under-resourced communities excited about STEM and engineering. The program provides an online eMentoring platform where employees from sponsoring companies can mentor students and share their expertise and passion within the K-12 community. After participating in the program, students noted an increased interest in engineering.



205 Students

11 Classes

3,675 Letters Exchanged

200+ eMentors

▲ Right: IEEEXtreme 13.0 participant



IEEEXtreme Experiences Growth

IEEEXtreme is a global challenge in which thousands of teams of IEEE student members—advised and proctored by an IEEE member—compete in a 24-hour event to solve a set of real-world programming problems. The 2019 top prize went to the team from The University of Illinois at Urbana–Champaign.

IEEEXtreme Highlights

4,138 Teams

809 Universities

73 Countries

▲ Below: IEEEXtreme 13.0 participants





Celebrates 10th Anniversary

IEEE Day, which honors the first time in history engineers worldwide gathered to share their technical ideas in 1884, celebrated its 10th anniversary this year. Global events included technical talks, humanitarian projects and field trips.

IEEE Day
Highlights
Included

877

Total Events

400+

Ambassadors Globally

Over the past decade, IEEE Day events have multiplied by **MORE THAN 10x**

80 Events in 2010



877 Events in 2019



Below: IEEE Day participants



Right: A child puts together rocket ships using toilet paper rolls during Discover Engineering Family Day.

IEEE Makes Engineering Fun for the Whole Family

Discover Engineering Family Day introduces students ages 4 to 12 to the wonder of engineering and the importance of technological literacy. This year, more than 8,000 teachers, parents and children participated in the IEEE-sponsored event at the National Building Museum in Washington as a kick-off to 2019 Engineers Week. IEEE-USA staff and volunteers interacted with hundreds of children to create and launch small rockets designed to illustrate Newton's Law of Gravity and celebrate the anniversary of the Apollo space program.



Maïke Luiken

"My involvement in IEEE started as a student branch member at the University of Manitoba. Working together with students and for students as an IEEE branch counselor and mentor, as IEEE regional student activities committee chair, has been one of my most rewarding experiences."

IEEE Senior Member | 2018 - 2019 IEEE Canada President



Maciej Borówka

"Involvement in IEEE Student Activities is an amazing adventure that brings along many challenges, and a huge dose of satisfaction. It personally allowed me to grow on many levels, as a team leader, strategist, problem solver, team player and use newly acquired skills in my professional life."

IEEE Member | 2019 - 2020 Region 8 Student Activities Vice Chair, Poland



2019 IEEE Board of Directors

▲ Back Row from left

John P. Verboncoeur, Keith A. Moore, Robert S. Fish, Sergio Benedetto, John W. Walz, Gregg L. Vaughn, Manuel Castro, Bruno Meyer

▲ 2nd Row from left

Theodore W. Hissey, Magdalena Salazar-Palma, Teofilo J. Ramos, Maïke Luiken, David A. Koehler, Robert C. Shapiro, Renuka P. Jindal, David B. Durocher

▲ 3rd Row from left

Stephen P. Welby, Alejandro "Alex" Acero, Akinori Nishihara, Babak Beheshti, Thomas M. Coughlin, K.J. Ray Liu, Francis B. Grosz

▲ Front Row from left

Ljijana Trajkovic, Hulya Kirkici, Joseph V. Lillie, James A. Jefferies, José M. F. Moura, Toshio Fukuda, Kathleen A. Kramer



IEEE Management Council

▲ Back Row from left

Jamie Moesch, Cecelia Jankowski, Chris Brantley, Thomas R. Siegert, Karen L. Hawkins, Michael Forster

▲ Front Row from left

Sophia A. Muirhead, Konstantinos Karachalios, Donna Hourican, Stephen Welby, Mary Ward-Callan, Cherif Amirat

MESSAGE FROM THE TREASURER

I am pleased to present the audited financial reports of IEEE. These reports indicate that the overall financial health of the organization remains strong, with total assets of \$785.1 million exceeding total liabilities of \$252.9 million as of December 31, 2019.

The IEEE Statement of Activities reflects total revenues for 2019 of \$557.7 million, an increase of \$21.9 million, or 4.1%, from 2018. Some of the key contributors that drove the revenue increase include:

- The overall growth of IEEE *Xplore* and IEEE Open Access:
 - Global IEEE *Xplore* usage in 2019 rose to 184.8 million, an increase of 22% from 2018
 - Average IEEE *Xplore* monthly usage in 2019 climbed to 15.4 million, compared to 12.4 million in 2018
 - Revenue from IEEE Open Access experienced significant growth, reaching \$28.2 million, a 93% increase over 2018 revenue of \$14.6 million
- Growth in the overall number of conference events as well as increased participation by authors, attendees and exhibitors
- Enhancements to IEEE *Xplore* contributed to increased usage of the IEEE/IET Electronic Library (IEL) and IEEE Open Access. Key enhancements include:
 - Improved content search engine
 - New research productivity features such as multi-PDF downloading and full-issue downloads
 - Conversion of high traffic pages to mobile-friendly designs
 - Improved indexing of IEEE content in external search venues such as Google and Google Scholar
 - New content from Oxford University Press

In 2019, IEEE had total operating expenses of \$508.6 million. This represents an increase of \$4.9 million, or 1%, from 2018. A key contributor was higher conference expenses due to year-over-year growth in the total number of events held.

The net effect of the organization's 2019 revenue and expenses resulted in a change in net assets from operations of \$49.1 million for 2019. This reflects year-over-year surpluses generated from the following:

- Increased revenues
- Operating efficiencies
- Expenses reductions in selling and supporting services

Non-operating activities generated \$73 million in net gain from investments (net interest and dividends), \$1.8 million in gain on sale of land and building and \$0.7 million in income tax benefit related to IEEE GlobalSpec. These gains were offset by \$1.6 million in pension-related losses.

Overall, IEEE Net Assets increased \$123.1 million to \$532.2 million from the 2018 year-end balance of \$409.1 million.

Grant Thornton LLP, the independent auditors for IEEE, met with the IEEE Audit Committee to discuss the scope and results of the financial statement audit, to review the adequacy of IEEE's internal accounting controls and to examine the quality of IEEE's financial reporting prior to issuing its opinion on the financial statements. IEEE received an unmodified opinion from Grant Thornton LLP in the Report of Independent Certified Public Accountants.

IEEE is tax exempt under Section 501(c)(3) of the Internal Revenue Code. IEEE GlobalSpec is a for-profit corporation and is required to pay applicable federal and state income taxes. The IEEE Foundation is a separately incorporated related organization of IEEE; accordingly, its audited financial statements are not included in the accompanying documents.

I submit these financial statements with confidence that IEEE continues to be a financially sound organization.



Joseph V. Lillie
2019 IEEE Treasurer

REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

To the Board of Directors of: **The Institute of Electrical and Electronics Engineers, Incorporated**

We have audited the accompanying consolidated financial statements of The Institute of Electrical and Electronics Engineers, Incorporated (the "Institute"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, and the related consolidated statements of activities and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's responsibility for the consolidated financial statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Institute's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of The Institute of Electrical and Electronics Engineers, Incorporated as of December 31, 2019 and 2018, the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Iselin, New Jersey
May 5, 2020

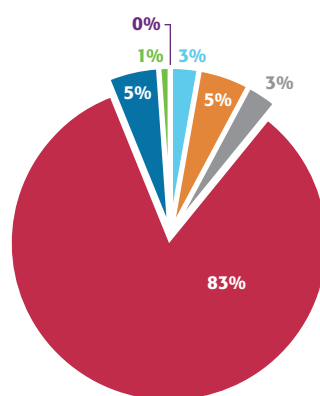
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

As of December 31, 2019 and 2018

ASSETS	2019	2018
CURRENT ASSETS		
Cash and cash equivalents	\$ 22,122,700	\$ 18,106,600
Accounts receivable, less allowance for doubtful accounts of \$1,648,200 in 2019 and \$2,244,300 in 2018	41,699,100	35,917,200
Prepaid expenses and other assets	19,710,300	18,692,700
Investments, at fair value	649,984,400	523,963,700
Investments - other	2,537,000	3,460,400
Total current assets	736,053,500	600,140,600
NONCURRENT ASSETS		
Land, buildings, and equipment, net	39,415,300	42,984,300
Goodwill	2,289,700	2,289,700
Intangible assets	7,228,300	12,915,600
Deferred tax assets	145,500	-
Total assets	\$ 785,132,300	\$ 658,330,200
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	\$ 56,138,900	\$ 56,606,000
Capital lease obligations	156,700	7,000
Accrued pension and other employee benefits	392,200	612,600
Amounts held on behalf of IEEE Foundation, Incorporated	48,367,900	42,188,300
Deferred revenue	125,505,700	120,258,800
Total current liabilities	230,561,400	219,672,700
NONCURRENT LIABILITIES		
Capital lease obligations, net of current portion	436,800	192,300
Accrued pension and other employee benefits, net of current portion	21,926,200	28,626,900
Deferred tax liabilities	-	711,500
Total liabilities	252,924,400	249,203,400
Commitments and contingencies		
NET ASSETS		
Without donor restrictions		
Undesignated	509,919,700	407,330,000
Board-designated fund	20,400,000	-
Total without donor restrictions	530,319,700	407,330,000
With donor restrictions	1,888,200	1,796,800
Total net assets	532,207,900	409,126,800
Total liabilities and net assets	\$ 785,132,300	\$ 658,330,200

2019 ASSETS

IEEE net assets increased \$123.1M, or 30.1%, to \$532.2M, as of December 31, 2019 from \$409.1M as of December 31, 2018. This is primarily due to investment gains, operational efficiencies and increase in revenue from Periodicals and Media and Conferences.



- CASH AND CASH EQUIVALENTS
- ACCOUNTS RECEIVABLE, LESS ALLOWANCE FOR DOUBTFUL
- PREPAID EXPENSES AND OTHER ASSETS
- INVESTMENTS (CURRENT AND LONG-TERM)
- LAND, BUILDINGS AND EQUIPMENT, NET OF ACCUMULATED DEPRECIATION
- GOODWILL AND INTANGIBLES, NET
- DEFERRED TAX ASSETS

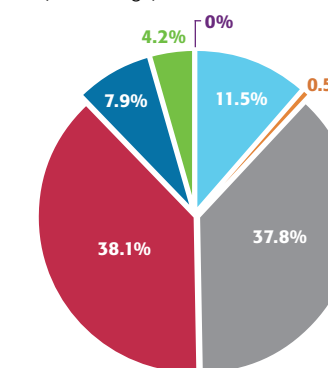
CONSOLIDATED STATEMENT OF ACTIVITIES

For the year ended December 31, 2019

	Without Donor Restrictions	With Donor Restrictions	Total
REVENUES			
Memberships	\$ 63,892,500	\$ -	\$ 63,892,500
Periodicals and media	234,358,700	-	234,358,700
Conferences	212,398,900	-	212,398,900
Standards	44,181,600	-	44,181,600
Public imperatives	2,576,000	139,700	2,715,700
Other income	109,900	-	109,900
Net assets released from restrictions	126,100	(126,100)	-
Total revenues	557,643,700	13,600	557,657,300
EXPENSES			
Program services:			
Memberships	89,690,800	-	89,690,800
Periodicals and media	191,647,700	-	191,647,700
Conferences	166,487,300	-	166,487,300
Standards	38,263,200	-	38,263,200
Public imperatives	12,320,100	-	12,320,100
Total program services	498,409,100	-	498,409,100
Supporting services:			
General and administrative	10,190,700	-	10,190,700
Total expenses	508,599,800	-	508,599,800
Changes in net assets before nonoperating activities	49,043,900	13,600	49,057,500
NONOPERATING ACTIVITIES			
Investment gain, net	72,928,300	77,800	73,006,100
Pension and related benefits activity other than net periodic benefit cost	(1,554,900)	-	(1,554,900)
Gain on sale of land and building	1,827,700	-	1,827,700
Changes in net assets before income tax	122,245,000	91,400	122,336,400
Benefit for income taxes	744,700	-	744,700
Changes in net assets	122,989,700	91,400	123,081,100
Net assets, beginning of year	407,330,000	1,796,800	409,126,800
Net assets, end of year	\$ 530,319,700	\$ 1,888,200	\$ 532,207,900

2019 REVENUES

IEEE experienced an increase in revenue of \$21.9M to \$557.6M in 2019 from \$535.7M in 2018. This is primarily attributable to an increase in the number of Conferences and continued strength in IEEE Xplore platform (IEL Package).



- MEMBERSHIP
- PUBLIC IMPERATIVES
- PERIODICALS & MEDIA
- CONFERENCES
- STANDARDS
- IEEE GLOBALSPEC
- OTHER INCOME

The accompanying notes are an integral part of these consolidated financial statements.

The accompanying notes are an integral part of this consolidated financial statement.

CONSOLIDATED STATEMENT OF ACTIVITIES

For the year ended December 31, 2018

	Without Donor Restrictions	With Donor Restrictions	Total
REVENUES			
Memberships	\$ 60,233,200	\$ -	\$ 60,233,200
Periodicals and media	225,513,500	-	225,513,500
Conferences	204,637,000	-	204,637,000
Standards	41,320,000	-	41,320,000
Public imperatives	3,605,400	160,500	3,765,900
Other income	241,500	-	241,500
Net assets released from restrictions	222,500	(222,500)	-
Total revenues	535,773,100	(62,000)	535,711,100
EXPENSES			
Program services:			
Memberships	88,994,700	-	88,994,700
Periodicals and media	193,382,500	-	193,382,500
Conferences	158,339,400	-	158,339,400
Standards	38,482,100	-	38,482,100
Public imperatives	14,463,200	-	14,463,200
Total program services	493,661,900	-	493,661,900
Supporting services:			
General and administrative	9,989,700	-	9,989,700
Total expenses	503,651,600	-	503,651,600
Changes in net assets before nonoperating activities	32,121,500	(62,000)	32,059,500
NONOPERATING ACTIVITIES			
Investment loss, net	(19,579,700)	(14,200)	(19,593,900)
Pension and related benefits activity other than net periodic benefit cost	2,875,100	-	2,875,100
Changes in net assets before income tax	15,416,900	(76,200)	15,340,700
Benefit for income taxes	2,421,800	-	2,421,800
Changes in net assets	17,838,700	(76,200)	17,762,500
Net assets, beginning of year	389,491,300	1,873,000	391,364,300
Net assets, end of year	\$ 407,330,000	\$ 1,796,800	\$ 409,126,800

The accompanying notes are an integral part of this consolidated financial statement.

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended December 31, 2019 and 2018

	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Changes in net assets	\$ 123,081,100	\$ 17,762,500
Adjustments to reconcile changes in net assets to net cash provided by operating activities:		
Depreciation and amortization	15,896,200	16,702,400
Unrealized (gains) losses on investments	(51,211,000)	51,625,900
Gains on sale of investments	(9,221,500)	(20,937,600)
Gain on sale of land and building	(1,827,700)	-
Bad debt expense	382,300	1,087,200
Changes in assets and liabilities:		
Accounts receivable	(6,164,200)	897,700
Prepaid expenses and other assets	(1,017,600)	1,443,600
Accounts payable and accrued expenses	1,883,600	444,300
Accrued pension and other employee benefits	(6,921,100)	(311,900)
Amounts held on behalf of IEEE Foundation, Incorporated	6,179,600	(3,247,100)
Deferred revenue	5,246,900	(4,603,900)
Income tax payable and deferred tax liability	(857,000)	(2,358,800)
Net cash provided by operating activities	75,449,600	58,504,300
CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds from sales of investments	352,954,300	348,078,700
Proceeds from sales of building and equipment	1,971,700	-
Purchases of investments	(417,619,100)	(395,195,600)
Purchase of land, buildings and equipment	(6,901,000)	(10,716,000)
Net cash used in investing activities	(69,594,100)	(57,832,900)
CASH FLOWS FROM FINANCING ACTIVITIES		
Change in cash overdraft	(1,693,700)	1,613,700
Payment of capital lease obligations	(145,700)	(234,100)
Net cash (used in) provided by financing activities	(1,839,400)	1,379,600
Net increase in cash and cash equivalents	4,016,100	2,051,000
Cash and cash equivalents, beginning of year	18,106,600	16,055,600
Cash and cash equivalents, end of year	\$ 22,122,700	\$ 18,106,600
SUPPLEMENTAL DATA		
Interest paid on letter of credit	\$ 62,700	\$ 147,000
Purchases of fixed assets included in accounts payable and accrued expenses	\$ 385,800	\$ 1,042,800
Aquisition of equipment through capital lease obligations	\$ 539,900	\$ -

The accompanying notes are an integral part of these consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2019 and 2018

NOTE 1. THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INCORPORATED

The objectives of The Institute of Electrical and Electronics Engineers, Incorporated (the "Institute," or "IEEE") are (a) scientific and educational, directed toward the advancement of the theory and practice of electrical engineering, electronics engineering, computer engineering, computer sciences, and the allied branches of engineering and related arts and sciences and (b) professional, directed toward the benefit of the engineering community and the general public.

In 2016, the Institute, through its for-profit subsidiary, IEEE, Inc., expanded its activities in furtherance of these objectives with the acquisition of GlobalSpec, Inc., a leading source of news, data and analytics for the global engineering and technical community including the widely known brand name Engineering360. The new for-profit subsidiary of IEEE, Inc. was renamed IEEE GlobalSpec, Inc. ("IEEE GlobalSpec") (wholly owned by IEEE, Inc.) and significantly complements IEEE's already broad offerings for engineers as well as its emerging position in research analytics, further fueling the organization's value to the industry through its business-oriented, content rich marketing platforms.

Implementation of the Institute's objectives is performed by members and volunteer communities organized as regions, sections, chapters, societies, and councils (collectively, "units"), none of which are separately incorporated, and their financial results are incorporated in the Institute's accompanying consolidated financial statements. These units were formed to serve the technical interests of members and to coordinate local activities of the sections and the broader activities of the Institute. The societies and councils promote the technical interests of their members through symposia, conferences, various publications, and the development of standards.

The consolidated financial statements include the accounts of IEEE, Inc., Global IEEE Institute for Engineers, Inc., IEEE Global LLC, IEEE International LLC, IEEE Europe GmbH, IEEE Latin America SA, IEEE Broadcast Technology Convention LLC, IEEE Worldwide Limited, IEEE Asia-Pacific Limited, IEEE GlobalSpec, Inc., and IEEE Technology Center GmbH.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The Institute's consolidated financial statements are presented in conformity with U.S. generally accepted accounting principles ("U.S. GAAP") and have been prepared on the accrual basis of accounting. All intercompany accounts and transactions have been eliminated in the accompanying consolidated financial statements.

Net Asset Classifications

The Institute's net assets, revenues, expenses, gains and losses are classified based on the existence or absence of donor-imposed restrictions. Accordingly, the net assets of the Institute and changes therein are classified and reported as follows:

Without donor restrictions - net assets that are not subject to donor-imposed stipulations. Net assets without donor restrictions may be designated for specific purposes by actions of the Board of Directors. Net assets without donor restrictions can be utilized to carry out any of the purposes of the Institute.

IEEE Board of Directors have designated \$20.4M of net assets without donor restrictions for the purpose of upgrading financial systems and processes.

With donor restrictions - represent amounts restricted by donors for specific activities of the Institute or to be used at some future date. The Institute records contributions as net assets with donor restrictions if they are received with donor stipulations that limit their use either through purpose or time restrictions. When a donor restriction expires, that is, when a time restriction ends or a purpose restriction is fulfilled, net assets with donor restrictions are reclassified to net assets without donor restrictions and reported on the consolidated statement of activities as net assets released from restrictions. However, when restrictions on donor-restricted contributions and investment returns are met in the same accounting period, such amounts are reported as part of net assets without donor restrictions.

Another portion of net assets with donor restrictions include funds wherein donors have stipulated that the principal contributed be invested and maintained in perpetuity. Income earned from these investments is available for expenditure according to restrictions imposed by donors and consideration of the appropriation for expenditure criteria by the Institute pursuant to the New York Prudent Management of Institutional Funds Act ("NYPMIFA").

Cash and Cash Equivalents

Cash and cash equivalents are defined as cash balances held in bank accounts and highly liquid short-term investments held by the Institute for operating use with original maturities of three months or less from the date of purchase.

Investments

Investments in publicly traded debt and equity securities are recorded at fair value determined on the basis of quoted market prices as of the reporting date. Investments in alternative investments (e.g., commingled funds) that are not readily marketable are reported at fair value as determined by the respective investment manager as of the reporting date. The Institute follows guidance on measuring the fair value of alternative investments, which offers investors a practical expedient for measuring the fair value of investments in certain entities that calculate net asset value ("NAV"). Under this practical expedient, entities are permitted to use NAV without adjustment for certain investments which: (a) do not have a readily determinable fair value and (b) prepare their financial statements consistent with the measurement principles of an investment company or have the attributes of an investment company. Additionally, the Institute follows guidance that removes the requirement to categorize, within the fair value hierarchy, all investments for which the fair value is measured using NAV.

Such valuations involve assumptions and methods that are reviewed by the Institute and have been concluded to be reasonable and appropriate. Because such investments are not readily marketable, their estimated fair value is subject to uncertainty and therefore may differ from the value that would have been used had a ready market for such investments existed. Such difference could be material. However, the risk to the Institute is limited to the amount of the Institute's investment in each of the respective funds with respect to its ownership interests.

Purchases and sales of securities are reflected on a trade-date basis. Gains and losses on sales of securities are determined on an average cost basis and are recorded on the consolidated statement of activities in the period in which the securities are sold. Dividends and interest are recognized as earned.

Investments - Other

Investments - other consist of certificates of deposit held to maturity with original maturities greater than three months that are not debt securities and are carried at amortized cost.

Fair Value Measurements

The Institute follows guidance that defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements. This guidance provides a consistent definition of fair value, which focuses on an exit price between market participants in an orderly transaction. The guidance also prioritizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that observable inputs be used when available to determine the fair value of an instrument as of the reporting date.

Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from independent sources. Unobservable inputs reflect assumptions that market participants would use in pricing the asset or liability based on the best information available in the circumstances. The hierarchy is broken down into three levels based on the transparency of inputs as follows:

Level 1 - Quoted prices are available in active markets for identical assets or liabilities as of the measurement date. A quoted price for an identical asset or liability in an active market provides the most reliable fair value measurement because it is directly observable to the market.

Level 2 - Pricing inputs are other than quoted prices in active markets, which are either directly or indirectly observable as of the measurement date. The nature of these securities include investments for which quoted prices are available but traded less frequently and investments that are fair valued using other securities, the parameters of which can be directly observed.

Level 3 - Securities that have little to no pricing observability as of the measurement date. These securities are measured using management's best estimate of fair value, where the inputs into the determination of fair value are not observable and require significant management judgment or estimation.

Inputs are used in applying the various valuation techniques and broadly refer to the assumptions that market participants use to make valuation decisions, including assumptions about risk. Inputs may include price information, volatility statistics, specific and broad credit data, liquidity statistics, and other factors. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. However, the determination of what constitutes "observable" requires significant judgment by an entity. The Institute considers observable data to be that market data that is readily available, regularly distributed or updated, reliable and verifiable, not proprietary, and provided by independent sources that are actively involved in the relevant market. The categorization of a financial instrument within the hierarchy is based upon the pricing transparency of the instrument and does not necessarily correspond to the Institute's perceived risk of that instrument.

Revenue

The Institute adopted Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers* ("ASC 606"), on January 1, 2019. In accordance with ASC 606, the Institute recognizes revenue when control of the promised goods or services are transferred to the Institute's customers in an amount that reflects the consideration the Institute expects to be entitled to in exchange for those goods or services. The standard outlines a five-step model whereby revenue is recognized as performance obligations within a contract are satisfied.

ASC 606 also requires new and expanded disclosures regarding revenue recognition to ensure an understanding as to the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. The Institute has identified membership revenues, periodicals revenues, media revenue, conference revenues, and standards revenues as revenue categories subject to the adoption of ASC 606.

The results of applying ASC 606 using the modified retrospective approach did not have a material impact on the Institute's financial position, changes in net assets, cash flows, business processes, internal controls or systems.

Public Imperatives

Public imperative revenues primarily consist of grants and contributions, including unconditional promises to give. Grants and unconditional promises to give are reported as revenues in the period received. Conditional contributions are recorded as revenue when the conditions on which they depend are substantially met.

Public imperatives are social good activities that are directed at the public and not an individual or small group of individuals. They are generally related to the promotion of the public's understanding and appreciation of the Institute's fields of interest and/or positioning the Institute's technical expertise in ways to benefit humanity. Typically these activities are not expected to create a financial surplus but rather are funded by the surplus of other activities.

* *Public Imperative Revenues primarily consist of IEEE-USA Assessments, History Center, and Foundation-related activities.*

* *Public Imperative Expenses consist of History Center, grants, certain IEEE-USA activities, and educational activities, initiatives, honors ceremonies, presentations and some Society activities.*

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded at the invoiced amount and do not bear interest. The Institute reviews a customer's credit history before extending credit. The Institute maintains allowances for doubtful accounts against certain billed receivables based upon the latest information available regarding whether the receivables are ultimately collectible. Assessing the collectability of customer receivables requires management's judgment. The Institute determines its allowance for doubtful accounts by specifically analyzing individual accounts receivable, historical bad debts, customer creditworthiness, current economic conditions, and accounts receivable aging trends. Valuation reserves are periodically re-evaluated and adjusted as more information about the ultimate collectability of accounts receivable becomes available. Upon determination that a receivable is uncollectible, the respective receivable balance and any associated reserve are written off. Any payments subsequently received on such receivables are recorded as income in the period received.

Land, Buildings, and Equipment

Land, buildings, and equipment are stated at cost, including interest expense capitalized during the period of construction, or period of development, until the time that it is ready for its intended use. Additions and improvements costing more than \$5,000 and with useful lives greater than three years are capitalized. Maintenance and repairs are expensed as incurred.

Assets acquired under capital lease agreements are depreciated over the term of the respective lease agreement to which they pertain. Leasehold improvements are amortized over their useful lives or lease period, whichever is shorter.

Depreciation and amortization is provided on a straight-line basis over the following estimated useful lives:

	Years
Buildings	20 - 40
Building improvements	10 - 15
Furniture, equipment and vehicles	5 - 10
Software	3 - 5
Computers	3

Goodwill

Goodwill represents the excess of the purchase price over the fair value of net tangible and intangible assets acquired in a business combination and is not amortized. The Institute evaluates goodwill for impairment at least annually and more frequently if certain indicators are encountered that may indicate that the carrying value of goodwill may not be fully recoverable. Goodwill is tested at the reporting unit level with the fair value of the reporting unit being compared to its carrying amount, including goodwill.

The Institute performs its annual impairment test as of March 31st each year. The Institute first assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit, related to such goodwill, is less than the carrying amount. If the fair value exceeds the carrying value, goodwill is not impaired and no further testing is performed. However, if the carrying amount exceeds the fair value, the Institute should recognize an impairment charge for the amount by which the carrying amount exceeds the fair value, not to exceed the total amount of goodwill allocated to that reporting unit.

The Institute completed its annual impairment test of goodwill as of March 31, 2019. The Institute used the carrying value of the reporting unit (IEEE GlobalSpec), inclusive of the assigned goodwill to compare to its fair value. The fair value of the reporting unit was determined using a combination of income approach (discounted cash flow method) and market approach (public company method) techniques. These valuation techniques use estimates and assumptions including, but not limited to, the determination of appropriate market comparables, projected future cash flows, discount rate, growth rate, and projected future economic

and market conditions (Level 3 inputs). Upon completion of the annual impairment testing, it was determined that the carrying value of the reporting unit did not exceed its fair value and therefore there was not any impairment as of March 31, 2019.

Impairment of Long-Lived Assets and Intangible Assets

Long-lived assets, including land, buildings, and equipment, and intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. If the carrying amount of the reporting unit exceeds its fair value and the carrying amount is not recoverable, an impairment charge is recognized. An impairment loss is measured as the amount by which the long-lived asset (or asset group) exceeds its fair value. Fair value is determined through various valuation techniques including discounted or undiscounted cash flow models, quoted market values and third-party independent appraisals, as considered necessary.

Intangible assets with definite lives are amortized over their estimated useful lives. The Institute amortizes intangible assets on a straight line basis over periods ranging from three to twenty years and records amortization expense as part of supporting services in its consolidated statement of activities. The weighted average useful life of intangible assets is estimated at six years.

The following tables present identified intangible assets as of December 31, 2019 and 2018:

	2019			
	Amortization Period	Gross Amount	Accumulated Amortization	Net Amount
INTANGIBLE ASSETS				
Registered users	5 years	\$ 12,600,000	\$ 9,240,000	\$ 3,360,000
Internally developed internal-use technology	4 years	11,700,000	10,725,000	975,000
Other (a)	3 - 20 years	3,900,000	1,006,700	2,893,300
Total		\$ 28,200,000	\$ 20,971,700	\$ 7,228,300

	2018			
	Amortization Period	Gross Amount	Accumulated Amortization	Net Amount
INTANGIBLE ASSETS				
Registered users	5 years	\$ 12,600,000	\$ 6,720,000	\$ 5,880,000
Internally developed internal-use technology	4 years	11,700,000	7,800,000	3,900,000
Other (a)	3 - 20 years	3,900,000	764,400	3,135,600
Total		\$ 28,200,000	\$ 15,284,400	\$ 12,915,600

(a) Represents the value associated with trade name, long-form content and customer relationships.

The Institute recorded amortization of identified intangible assets of \$5,687,200 and \$5,731,700 as of December 31, 2019 and 2018, respectively.

The following table presents annual amortization of identified intangible assets for each of the five succeeding fiscal years:

YEAR	Registered Users	Internally Developed Internal-Use Technology	Other	Total
2020	\$ 2,520,000	\$ 975,000	\$ 220,000	\$ 3,715,000
2021	840,000	-	220,000	1,060,000
2022	-	-	220,000	220,000
2023	-	-	220,000	220,000
2024	-	-	220,000	220,000

Accounts Payable and Accrued Expenses

Cash overdrafts are included in accounts payable and accrued expenses. At December 31, 2019 and 2018, cash overdrafts amounted to \$0 and \$1,693,700, respectively.

Concentration of Market and Credit Risks

Cash, cash equivalents and investments are exposed to interest rate, market, and credit risks. The Institute maintains its cash and cash equivalents in various bank deposit accounts that may exceed federally insured limits at times. To minimize risk, the Institute's cash accounts are placed with high-credit quality financial institutions, and the Institute's investment portfolio is diversified with several investment managers in a variety of asset classes. The Institute regularly evaluates its depository arrangements and investments, including performance thereof.

Operating Measure

The Institute classifies its consolidated statement of activities into operating and nonoperating activities. Operating activities include all income and expenses related to carrying out the Institute's mission. Non-operating activities include interest and dividends, realized and unrealized gains (losses) on investments, pension and other employee benefit related activity other than net periodic benefit cost, and other items considered to be usual or of a non-recurring nature.

Income Taxes and Tax Status

a. Uncertain Tax Positions

The Institute is qualified under Section 501(c)(3) of the Internal Revenue Code ("Code") as an organization exempt from federal income tax and applicable state income tax and is classified as a publicly supported charitable organization under Section 509(a)(2) of the Code. Nevertheless, the Institute is subject to tax on income unrelated to its exempt purpose, unless that income is otherwise excluded by the Code.

The Institute follows guidance that clarifies the accounting for uncertainty in tax positions taken or expected to be taken in a tax return, including issues relating to financial statement recognition and measurement. This section provides that the tax effects from an uncertain tax position can be recognized in the financial statements only if the position is "more-likely-than-not" to be sustained if the position were to be challenged by a taxing authority. The assessment of the tax position is based solely on the technical merits of the position, without regard to the likelihood that the tax position may be challenged. As of December 31, 2019 and 2018, management has determined that there are no significant uncertain tax positions that would require recognition or disclosure in the accompanying consolidated financial statements.

b. The Institute's Income Tax Provision

The Institute has historically conducted unrelated business income activities and filed a federal Form 990-T and a few state equivalent unrelated business income tax returns. As a result of its acquisition of IEEE GlobalSpec, Inc. in 2016, the Institute is generating new streams of unrelated business income and utilizing its federal Net Operating Losses (NOLs). The Institute's financial statements reflect the changes effectuated by the Tax Cuts and Jobs Act ("TCJA") that require the Institute to track its federal Net Operating Losses (NOLs) into separate buckets. Pre-TCJA NOLs generated prior to January 1, 2018 can be carried forward up to 20 years, while post-NCJA NOLs generated after December 31, 2017 can be carried forward indefinitely.

For the year ending December 31, 2019, the Institute utilized approximately \$2,016,100 of its pre-TCJA gross NOLs with a carryforward balance of \$565,700, and the Institute utilized \$78,200 of its post-TCJA gross NOLs with a carryforward balance of \$167,500. As of December 31, 2019, the Institute had gross NOLs of \$733,200 to carryforward to future periods.

Deferred income taxes are recognized for the temporary differences between the tax bases of assets and liabilities and their financial-reporting amounts at each year-end on the basis of enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. Pursuant to ASC 740-10-30-2(b) that valuation allowances are recognized if, based on the weight of available evidence, it is more likely than not that all or some portion of any deferred tax asset will not be realized. The benefit or provision for income tax represents the income tax benefit or payable for the year and the change in deferred tax assets and liabilities during the period.

As of December 31, 2019 and 2018, the Institute's lone deferred tax asset is its Net Operating Losses; the Institute recognized a deferred tax asset of \$145,500 and \$504,600, respectively. The Institute's deferred tax assets are netted with deferred tax liabilities on the accompanying 2019 and 2018 consolidated statements of financial position.

c. Income Tax Provisions of For-Profit Subsidiaries

IEEE, Inc. and IEEE GlobalSpec, subsidiaries of the Institute, are considered for-profit entities under the Code. For these subsidiaries, income tax expense, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management's best assessment of estimated current and future taxes paid. Significant judgements and estimates are required in determining the consolidated income tax expense.

	2019	2018
Current:		
Federal	\$ -	\$ -
State	600	(20,100)
	600	(20,100)
Deferred:		
Federal	(950,200)	(1,853,000)
State	(265,900)	(400,000)
	(1,216,100)	(2,253,000)
Benefit for income taxes	\$ (1,215,500)	\$ (2,273,100)

As of December 31, 2019, IEEE, Inc. and IEEE GlobalSpec, Inc. had a total gross federal NOLs of about \$10.4 million, of which \$7.6 million can be carried forward up to 20 years and \$2.8 million can be carried forward indefinitely. Deferred tax assets for IEEE, Inc. and IEEE GlobalSpec, Inc. totaled \$917,700 as of December 31, 2019. Since there was insufficient positive and objective evidence to support a position that these two entities would become profitable within the next couple of years, the Institute's management recorded a valuation allowance of approximately \$917,700 against the Institute's net deferred tax assets as of December 31, 2019.

d. Consolidated Income Tax Provision

For the year ended December 31, 2019, the Institute's consolidated benefit for income tax is \$744,700, comprised of \$1,215,500 in tax benefit from IEEE Inc. and IEEE GlobalSpec for-profit business income activities and \$470,800 in provision expense from the Institute's unrelated business income activities. For the year ended December 31, 2018, the consolidated benefit for income tax was \$2,421,800 comprised of \$2,273,100 from IEEE Inc. and IEEE GlobalSpec for-profit business income activities and \$148,700 from the Institute's unrelated business income activities.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

For the tax years ending December 31, 2019, and 2018, the consolidated effective tax rates are 13.53% and 23.67%, respectively. As of December 31, 2019 and 2018, deferred tax liabilities were reported due to temporary differences between reported amounts in the financial statements and amounts reported for tax purposes which relate primarily to net operating losses and intangible assets.

For the years ended December 31, 2019 and 2018, the benefit for income taxes consisted of the following:

Pronouncements

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, Leases (Topic 842), which requires organizations that lease assets (lessees) to recognize the assets and related liabilities for the rights and obligations created by the leases on the statements of financial position for leases with terms exceeding 12 months. ASU No. 2016-02 defines a lease as a contract or part of a contract that conveys the right to control the use of identified assets for a period of time in exchange for consideration. The lessee in a lease will be required to initially measure the right-of-use asset and the lease liability at the present value of the remaining lease payments, as well as capitalize initial direct costs as part of the right-of-use asset. ASU No. 2016-02 is effective for the Institute for fiscal year 2021. Early adoption is permitted. The Institute is in the process of evaluating the impact this standard will have on its consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract*, which aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangement that include an internal-use software license). Accordingly, ASU 2018-15 requires an entity in a hosting arrangement that is a service contract to follow the guidance in Subtopic 350-40 to determine which implementation costs to capitalize as an asset related to the service contract and which costs to expense. ASU No. 2018-15 is effective for the Institute for fiscal year 2021. Early adoption is permitted. The Institute is in the process of evaluating the impact this standard will have on its consolidated financial statements.

Reclassifications

Certain reclassifications of prior year amounts have been made to conform to the current year presentation. Such reclassifications did not change total assets, liabilities or changes in net assets as reflected in the 2018 financial statements.

Subsequent Events

The Institute evaluated its December 31, 2019 consolidated financial statements for subsequent events through May 5, 2020, the date the consolidated financial statements were available to be issued. The Institute is not aware of any other material subsequent events which would require recognition or disclosure in the accompanying consolidated financial statements, except as follows:

The COVID-19 pandemic, whose effects first became known in January 2020, is having a broad and negative impact on commerce and financial markets around the world. The United States and global markets experienced significant declines in value resulting from uncertainty caused by the pandemic. The Institute is closely monitoring its investment portfolio and its liquidity and is actively working to minimize the impact of these declines. The extent of the impact of COVID-19 on the Institute's operational and financial performance will depend on certain developments, including the duration and spread of the outbreak and its impact on the Institute's donors, employees, conference delays and vendors, all of which at present, cannot be determined. Accordingly, the extent to which COVID-19 may impact the Institute's financial position and changes in net assets and cash flows is uncertain and the accompanying financial statements include no adjustments relating to the effects of this pandemic.

NOTE 3. REVENUE RECOGNITION

Membership Dues

The Institute offers membership for terms of one year. The Institute satisfies its performance obligation and recognizes revenue evenly over the membership term as its members simultaneously receive and consume the benefits over that timeframe. Generally, membership doesn't commence until after the Institute receives payment.

Payments received for membership dues in advance of the Institute satisfying its performance obligation are recorded within deferred revenue in the accompanying consolidated statements of financial position. The changes in deferred revenue relating to membership dues were caused by normal timing differences between the satisfaction of performance obligations and customer payments.

For the year ended December 31, 2019, the Institute recognized membership dues revenue of approximately \$34,194,500 from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2019, deferred revenue relating to membership dues totaled \$34,945,100, and the related performance obligations are expected to be satisfied within one year.

Periodicals and Media

Periodical revenues primarily include subscriptions and online products and content. Such revenues are recognized upon delivery of the online product or content or over the related subscription period.

Media revenue primarily includes advertising space sold in newsletters and periodicals and is recognized in the period the newsletter or periodical is issued and distributed.

Disaggregated periodicals and media revenue, follows:

	2019	2018
Periodicals	\$ 212,534,300	\$ 201,670,300
Media	21,824,400	23,843,200
	\$ 234,358,700	\$ 225,513,500

Payments received for periodicals and media agreements in advance of the Institute satisfying its performance obligations are recorded within deferred revenue in the accompanying consolidated statements of financial position and recognized as revenue in future periods as performance obligations are satisfied. The changes in deferred revenue were caused by normal timing differences between the satisfaction of performance obligations and customer payments.

For the year ended December 31, 2019, the Institute recognized periodicals and media revenue of approximately \$78,240,100 of periodicals and media revenue from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2019, deferred revenue relating to periodicals and media totaled \$78,574,900, and the related performance obligations are primarily expected to be satisfied within one year.

For the year ended December 31, 2019, 77% and 23% of periodicals and media revenue was recognized "over time" and at "point-in-time", respectively. For the year ended December 31, 2018, 79% and 21% of periodicals and media revenue was recognized at "over time" and at "point-in-time", respectively.

Conferences

Conference revenues primarily include registration and sponsorships, and also includes the conference proceedings and published articles related to respective conferences. Revenues from conference registration and sponsorships are recognized as the conferences take place. Revenues from conference proceedings and articles are recognized in the period in which they are sold.

For the year ended December 31, 2019, the Institute recognized conference revenue of \$6,728,200 from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2019, deferred revenue relating to conference revenues totaled approximately \$11,096,300, and the related performance obligations are expected to be satisfied within one year.

Standards

Standards revenues primarily include subscriptions, publications and online products and content relating to technology standards. Such revenues are recognized upon delivery of the online products or content or over the related subscription period.

Payments received for standards agreements in advance of the Institute satisfying its performance obligation are recorded within deferred revenue in the accompanying consolidated statements of financial position and recognized as revenue in future periods as performance obligations are satisfied. The changes in deferred revenue were caused by normal timing differences between the satisfaction of performance obligations and customer payments.

Accounts Receivable

Accounts receivables relating to the above revenues consist of the following:

	2019	2018
Periodicals and standards	\$ 24,155,800	\$ 21,682,900
Media	5,711,300	4,952,400
Conferences	11,140,300	9,240,000
Other	2,339,900	2,286,200
Total accounts receivable	43,347,300	38,161,500
Less: allowance for doubtful accounts	1,648,200	2,244,300
Accounts receivable, net of allowance for doubtful accounts	\$ 41,699,100	\$ 35,917,200

NOTE 4. INVESTMENTS

As of December 31, 2019, the Institute's investments, at fair value, by level within the fair value hierarchy, consist of the following:

	2019		Total
	Level 1	Net Asset Value	
<i>Common stock:</i>			
Consumer	\$ 25,087,700	\$ -	\$ 25,087,700
Technology	53,859,600	-	53,859,600
Financial services	38,612,800	-	38,612,800
Healthcare	33,331,800	-	33,331,800
Industrials	18,053,400	-	18,053,400
Energy	11,937,500	-	11,937,500
Other	10,238,400	-	10,238,400
Total common stocks	191,121,200	-	191,121,200
<i>Mutual funds:</i>			
Growth funds	45,012,200	-	45,012,200
Fixed income funds	144,506,600	-	144,506,600
Money market funds	85,672,100	-	85,672,100
Other funds	48,384,200	-	48,384,200
Total mutual funds	323,575,100	-	323,575,100
U.S. Government securities	45,449,000	-	45,449,000
Commingled funds	-	78,533,300	78,533,300
	\$ 560,145,300	\$ 78,533,300	\$ 638,678,600

Cash held for investment		11,777,300
Add: receivables for securities sold and accrued interest		339,200
Less: liabilities for securities purchased and accrued fees		(810,700)
Total investments, at fair value	\$	649,984,400

For the year ended December 31, 2019, the Institute recognized standards revenue of approximately \$1,096,000 from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2019, deferred revenue relating to standards revenues totaled \$889,400, and the related performance obligations are primarily expected to be satisfied within one year.

For the years ended December 31, 2019 and 2018, approximately 60% and 40% of standards revenue was recognized "over time" and at "point-in-time", respectively.

As of December 31, 2018, the Institute's investments, at fair value, by level within the fair value hierarchy, consist of the following:

	2018		
	Level 1	Net Asset Value	Total
<i>Common stock:</i>			
Consumer	\$ 18,268,200	\$ -	\$ 18,268,200
Technology	35,282,800	-	35,282,800
Financial services	28,191,400	-	28,191,400
Healthcare	25,643,700	-	25,643,700
Industrials	13,858,800	-	13,858,800
Energy	8,954,700	-	8,954,700
Other	9,477,100	-	9,477,100
Total common stocks	139,676,700	-	139,676,700
<i>Mutual funds:</i>			
Growth funds	30,353,400	-	30,353,400
Fixed income funds	127,273,800	-	127,273,800
Money market funds	95,005,800	-	95,005,800
Other funds	33,113,700	-	33,113,700
Total mutual funds	285,746,700	-	285,746,700
U.S. Government securities	22,600,700	-	22,600,700
Commingled funds	-	65,712,900	65,712,900
	\$ 448,024,100	\$ 65,712,900	\$ 513,737,000
Cash held for investment			10,239,900
Add: receivables for securities sold and accrued interest			328,500
Less: liabilities for securities purchased and accrued fees			(341,700)
Total investments, at fair value		\$	523,963,700

The Institute's policy is to recognize transfers in and transfers out of levels at the end of the reporting period.

The categorization of the investments within the fair value hierarchy presented above is based solely on the pricing transparency of the respective instrument and does not necessarily correspond to the Institute's perceived risk associated with the respective investment security.

The Institute uses, as a practical expedient for fair value, a NAV per share or its equivalent for purposes of valuing certain investments which: (a) do not have a readily determinable fair value and (b) prepare their financial statements consistent with the measurement principles of an investment company or have the attributes of an investment company.

The following table lists such investments by major category as of December 31, 2019 and 2018:

2019							
Type	Strategy	NAV in Funds	# of Funds	Remaining Life	\$ Amount of Unfunded Commitments	Redemption Terms	Redemption Restrictions
Commingled funds	One fund seeks to outperform the Russell 2000 Index over a 1 to 3 year period; and one fund seeks to maximize portfolio returns while minimizing risk through an asset allocation based on measurements of the investible universe of institutional real estate	\$ 78,533,300	2	To be determined by the respective fund manager.	N/A	One fund has daily redemption upon notice; and, one fund has quarterly redemption with 60 days notice.	N/A
2018							
Type	Strategy	NAV in Funds	# of Funds	Remaining Life	\$ Amount of Unfunded Commitments	Redemption Terms	Redemption Restrictions
Commingled funds	One fund seeks to outperform the Russell 2000 Index over a 1 to 3 year period; and one fund seeks to maximize portfolio returns while minimizing risk through an asset allocation based on measurements of the investible universe of institutional real estate	\$ 65,712,900	2	To be determined by the respective fund manager.	N/A	One fund has daily redemption upon notice; and, one fund has quarterly redemption with 60 days notice.	N/A

The Institute also held investments, which included certificates of deposits and term deposits, totaling \$2,537,000 and \$3,460,400 as of December 31, 2019 and 2018, respectively that were classified as investments - other on the accompanying consolidated statements of financial position. These investments do not qualify as securities, as defined by relevant guidance, and as such, fair value disclosures are not provided.

Investment income (loss), net, for the years ended December 31, 2019 and 2018, are reflected in the accompanying consolidated statements of activities and consist of the following:

IEEE	2019	2018
Interest and dividends, net	\$ 12,573,600	\$ 11,094,700
Net realized and unrealized gains (losses) on investments	60,432,500	(30,688,300)
IEEE investment income (loss), net	\$ 73,006,100	\$ (19,593,600)

Investment expenses, which are netted with interest and dividends, amounted to \$1,366,400 and \$1,479,100 in 2019 and 2018, respectively.

For the years ended December 31, 2019 and 2018, investment returns related to amounts held on behalf of IEEE Foundation, Incorporated, that have not been reflected in the accompanying consolidated statements of activities, consist of the following:

IEEE FOUNDATION, INCORPORATED	2019	2018
Interest and dividends, net	\$ 944,200	\$ 910,800
Net realized and unrealized gains (losses) on investments	5,130,900	(2,750,800)
IEEE investment income (loss), net	\$ 6,075,100	\$ (1,840,000)

NOTE 5. LAND, BUILDINGS, AND EQUIPMENT, NET

Land, buildings, and equipment, carried at cost, net of the related accumulated depreciation and amortization, at December 31, 2019 and 2018 consist of the following:

	2019			2018		
	Cost	Accumulated Depreciation and Amortization	Net	Cost	Accumulated Depreciation and Amortization	Net
Buildings	\$ 17,822,300	\$ 14,560,300	\$ 3,262,000	\$ 17,956,600	\$ 14,596,800	\$ 3,359,800
Furniture, equipment, vehicles and computers	89,139,400	71,584,700	17,554,700	89,685,500	67,449,700	22,235,800
Software	19,727,900	13,567,200	6,160,700	18,215,000	13,584,800	4,630,200
Building improvements	22,271,700	17,049,500	5,222,200	22,473,500	16,172,800	6,300,700
	148,961,300	116,761,700	32,199,600	148,330,600	111,804,100	36,526,500
Land	399,900	-	399,900	873,000	-	873,000
Building improvements in progress	-	-	-	145,700	-	145,700
Information systems upgrade in process	6,815,800	-	6,815,800	5,439,100	-	5,439,100
Total	\$ 156,177,000	\$ 116,761,700	\$ 39,415,300	\$ 154,788,400	\$ 111,804,100	\$ 42,984,300

Depreciation and amortization expense amounted to \$10,209,000 and \$10,970,700 for the years ended December 31, 2019 and 2018, respectively, excluding amortization of intangible assets of \$5,687,200 and \$5,731,700 as of December 31, 2019 and 2018, respectively.

Furniture and equipment include assets acquired under capital leases of \$762,300 and \$617,600 as of December 31, 2019 and 2018, respectively. Accumulated amortization of assets recorded under capital leases amounted to \$172,500 and \$287,000 at December 31, 2019 and 2018, respectively.

During the fiscal year ended December 31, 2019, the Institute sold land and building located in the State of California for \$1,971,700, resulting in a gain on the sale totaling \$1,827,700 that has been reflected in the nonoperating activities section of the accompanying consolidated statement of activities.

NOTE 6. DEBT OBLIGATIONS

The Institute maintained a credit facility to borrow up to an aggregate amount of \$50,000,000. The credit facility consisted of \$35,000,000 with Wells Fargo Bank, N.A. and \$15,000,000 with HSBC Bank, N.A. USA and matured on June 1, 2019. The Institute did not renew this credit facility during the fiscal year ended December 31, 2019. The commitment fees charged amounted to \$62,700 and \$147,000 in

2019 and 2018, respectively. The credit facility was not utilized in 2019 and 2018; the Institute had no outstanding borrowings under the credit facility in either year.

The Institute is no longer required to maintain certain financial ratios under this agreement with its lenders.

NOTE 7. CAPITAL LEASE OBLIGATIONS

The approximate annual rental payments due under capital lease obligations for equipment are as follows:

Year	Amount
2020	\$ 232,700
2021	232,700
2022	91,600
2023	13,900
Total minimum lease payments	570,900
Add: Amount representing interest	22,600
Present value of minimum lease payments	\$ 593,500

NOTE 8. PENSION AND OTHER POST-RETIREMENT BENEFITS

The Institute sponsors two qualified pension plans and one nonqualified pension plan and other post-retirement benefit plans for its employees. In November 2006, the Board of Directors approved the freezing of its qualified employee benefit plans as of June 30, 2007 and the implementation of a defined contribution plan effective July 1, 2007. Accordingly, as of June 30, 2007, no further benefits will accrue under the qualified employee benefit plans after that date.

The following tables provide a reconciliation of the changes in the plans' benefit obligations and fair value of assets over the two-year period ended December 31, 2019, and a statement of the funded status as of December 31, 2019 and 2018:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
<i>Reconciliation of benefit obligation:</i>				
Obligation at January 1	\$ 80,570,200	\$ 92,200,100	\$ 6,311,100	\$ 6,695,200
Service cost	240,000	240,000	188,300	253,900
Interest cost	2,921,400	2,705,200	238,700	206,700
Actuarial loss (gain)	13,906,600	(8,102,900)	1,079,700	(663,200)
Benefit payments	(4,782,800)	(2,007,400)	(187,700)	(181,400)
Settlements	-	(4,464,800)	-	-
Obligation at December 31	\$ 92,855,400	\$ 80,570,200	\$ 7,630,100	\$ 6,311,200

Reconciliation of fair value of plan assets:

Fair value of plan assets at January 1	\$ 62,927,100	\$ 74,494,100	\$ -	\$ -
Actual return on plan assets	15,223,700	(5,111,400)	-	-
Employer contributions	11,115,400	16,500	187,700	181,400
Benefit payments	(4,782,800)	(2,007,400)	(187,700)	(181,400)
Settlements	-	(4,464,800)	-	-
Fair value of plan assets at December 31	\$ 84,483,400	\$ 62,927,000	\$ -	\$ -

Funded status at December 31	\$ (8,372,000)	\$ (17,643,200)	\$ (7,630,100)	\$ (6,311,200)
Accumulated benefit obligation	\$ 92,855,400	\$ 80,570,200	\$ 7,630,100	\$ 6,311,200

At December 31, 2019 and 2018, the funded status of the plans is reported on the consolidated statements of financial position as follows:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Current liabilities	\$ (13,500)	\$ (13,700)	\$ (274,500)	\$ (254,400)
Noncurrent liabilities	(8,358,500)	(17,629,500)	(7,355,600)	(6,056,800)
Net Amount Recognized	\$ (8,372,000)	\$ (17,643,200)	\$ (7,630,100)	\$ (6,311,200)

Cumulative amounts recognized in changes in net assets without donor restrictions and not yet recognized in net periodic benefit cost as of December 31, 2019 and 2018 consist of:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Net loss	\$ 18,152,200	\$ 17,676,200	\$ 1,483,600	\$ 404,800

The following table provides the components of net periodic benefit cost for the plans for 2019 and 2018:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Service cost	\$ 240,000	\$ 240,000	\$ 188,300	\$ 253,900
Interest cost	2,921,400	2,705,200	238,700	206,700
Expected return on plan assets	(2,905,000)	(2,922,100)	-	-
Amortization of net loss	1,111,800	1,135,900	900	28,700
Settlement loss	-	977,800	-	-
Net periodic benefit cost	\$ 1,368,200	\$ 2,136,800	\$ 427,900	\$ 489,300

Amounts recognized in changes in net assets without restrictions for the years ended December 31, 2019 and 2018 consist of:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Net loss (gain)	\$ 1,587,900	\$ (69,400)	\$ 1,079,700	\$ (663,200)
Amortization of net loss	(1,111,800)	(2,113,700)	(900)	(28,700)
Pension related benefits activity other than periodic benefit cost	\$ 476,100	\$ (2,183,100)	\$ 1,078,800	\$ (691,900)

The estimated amount of net assets without restrictions to be recognized as a component of net periodic benefit cost in the next fiscal year is as follows:

	Pension Benefits	Other Benefits
Net loss	\$ 976,600	\$ 58,100

The prior service costs are amortized on a straight-line basis over the average remaining service period of active participants. Gains and losses in excess of 10% of the greater of the benefit obligation and the fair value of plan assets are amortized over the average remaining service period of active participants.

The assumptions used in the measurement of the Institute's benefit obligation are shown in the following table:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Weighted-average assumptions as of December 31				
Discount rate	3.00%	4.06%	3.11%	4.13%
Rate of compensation increase	N/A	N/A	N/A	N/A

The assumptions used in the measurement of the net periodic benefit cost are shown in the following table:

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Weighted-average assumptions as of December 31				
Discount rate	4.06%	3.42%	4.13%	3.51%
Expected return on plan assets	4.85%	4.10%	N/A	N/A
Rate of compensation increase	N/A	N/A	N/A	N/A

The health care plan benefits are a flat dollar reimbursement to the retirees toward health care premiums. An increase in the reimbursement amount is not assumed.

Contributions

There are no required contributions due to the qualified pension plans during 2019 under the IRS's minimum funding regulations.

IEEE expects to contribute approximately \$14,000 to its nonqualified pension plan and approximately \$275,000 to its other post-retirement benefit plans during 2020.

Expected Benefit Payments

	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
2020	\$ 4,528,600	\$ 4,528,600	\$ 274,500	\$ 274,500
2021	3,981,600	3,981,600	279,600	279,600
2022	4,960,500	4,960,500	289,300	289,300
2023	5,989,200	5,989,200	296,800	296,800
2024	5,245,400	5,245,400	307,500	307,500
2025 to 2029	25,533,900	25,533,900	1,714,900	1,714,900

Plan Assets

IEEE determines its assumptions for the expected rate of return on plan assets for its retirement plans based on ranges of anticipated rates of return for each asset class. A weighted range of nominal rates is then determined based on target allocations for each asset class. IEEE considers the expected rate of return to be a longer-term assessment of return expectations and does not anticipate changing this assumption annually unless economic conditions change significantly. The expected rate of return for each plan is based upon its expected asset allocation. Market performance over a period of earlier years is evaluated covering a wide range of economic conditions to determine whether there are reliable reasons for projecting forward any past trends.

IEEE's pension and post-retirement plan asset allocation at the end of 2019 and 2018, and the target asset allocation for 2019 and 2018 by asset category based on asset fair values are as follows:

Asset Category	Target Asset Allocation	Pension Assets at December 31		Post-Retirement Assets at December 31	
		2019	2018	2019	2018
Equity securities	10%	11%	10%	N/A	N/A
Debt securities	90%	86%	89%	N/A	N/A
Cash and cash equivalents	0%	3%	1%	N/A	N/A
Total	100%	100%	100%	N/A	N/A

Third-party investment professionals manage IEEE's pension plan assets, rebalancing assets as the Institute deems appropriate. IEEE's investment strategy with respect to its pension plan assets is to maintain a diversified investment portfolio across several asset classes targeting an annual rate of return of 4% in 2019 and 2018, respectively. To develop the expected long-term rate of return on assets assumption, the Institute considered the historical returns and the future expectations for returns for each asset class, as well as the target asset allocation of the pension portfolio.

IEEE's pension and post-retirement funds' investment strategies are to invest in a prudent manner for the exclusive purpose of providing benefits to participants. The investment strategies are targeted to produce a total return that, when combined with IEEE's contributions to the funds, will maintain the funds' ability to meet all required benefit obligations. Risk is controlled through liability driven investing. The majority of the assets are matched against the pension liability.

The Institute's investment objectives for the pension plans are to minimize the volatility of the pension assets relative to pension liabilities and to offset the required contributions. The current target asset allocations are 10% equity securities and 90% debt securities. The investment guidelines further allow the managers to keep up to 5% in cash and cash equivalents.

Investment strategies and policies for the pension plans reflect a balance of risk-reducing and return-seeking considerations. The objective of minimizing the volatility of assets relative to liabilities is addressed primarily through asset-liability matching.

All plan assets are externally managed. Investment managers are not permitted to invest outside of the asset classes or strategy for which they have been appointed. The Institute uses investment guidelines to ensure investment managers invest solely within the investment strategy for which they have been retained.

The following table prioritizes the inputs used to measure and report the fair value of the Institute's pension plan assets at December 31, 2019:

	2019			
	Level 1	Level 2	Net Asset Value	Total
Common stock:				
Consumer	\$ 798,500	\$ -	\$ -	\$ 798,500
Technology	919,000	-	-	919,000
Industrials	669,400	-	-	669,400
Healthcare	714,700	-	-	714,700
Financial services	941,900	-	-	941,900
Energy	88,100	-	-	88,100
Other	364,900	-	-	364,900
Total common stocks	4,496,500	-	-	4,496,500
Equity mutual funds	4,801,100	-	-	4,801,100
Corporate bonds	-	69,532,600	-	69,532,600
Municipal bonds	-	1,686,300	-	1,686,300
Foreign bonds	-	1,182,200	-	1,182,200
Collective trust fund	-	-	2,231,200	2,231,200
	\$ 9,297,600	\$ 72,401,100	\$ 2,231,200	\$ 83,929,900
Cash held for investment				200
Add: receivables for securities sold and accrued interest				553,300
Total pension plan investments				\$ 84,483,400

The following table prioritizes the inputs used to measure and report the fair value of the Institute's pension plan assets at December 31, 2018:

	2018			
	Level 1	Level 2	Net Asset Value	Total
Common stock:				
Consumer	\$ 415,400	\$ -	\$ -	\$ 415,400
Technology	1,035,400	-	-	1,035,400
Industrials	354,200	-	-	354,200
Healthcare	395,900	-	-	395,900
Financial services	450,100	-	-	450,100
Energy	119,200	-	-	119,200
Other	254,300	-	-	254,300
Total common stocks	3,024,500	-	-	3,024,500
Equity mutual funds	3,098,600	-	-	3,098,600
Corporate bonds	-	54,017,000	-	54,017,000
Municipal bonds	-	658,900	-	658,900
Foreign bonds	-	1,110,700	-	1,110,700
Collective trust fund	-	-	307,600	307,600
	\$ 6,123,100	\$ 55,786,600	\$ 307,600	\$ 62,217,300
Cash held for investment				1,400
Add: receivables for securities sold and accrued interest				708,300
Total pension plan investments				\$ 62,927,000

The Institute's policy is to recognize transfers in and transfers out of levels at the end of the respective reporting period.

The Institute uses, as a practical expedient for fair value, a NAV per share or its equivalent for purposes of valuing certain investments which: (a) do not have a readily determinable fair value and (b) prepare their financial statements consistent with the measurement principles of an investment company or have the attributes of an investment company. The following table lists such investments by major category as of December 31, 2019 and 2018:

2019							
Type	Strategy	NAV in Funds	# of Funds	Remaining Life	\$ Amount of Unfunded Commitments	Redemption Terms	Redemption Restrictions
Collective trust fund	Seeks the highest level of current income possible consistent with the preservation of capital and maintenance of liquidity.	\$ 2,231,200	1	Subject to the determination of the respective fund manager.	N/A	Daily redemption, upon notice.	N/A
2018							
Type	Strategy	NAV in Funds	# of Funds	Remaining Life	\$ Amount of Unfunded Commitments	Redemption Terms	Redemption Restrictions
Collective trust fund	Seeks the highest level of current income possible consistent with the preservation of capital and maintenance of liquidity.	\$ 307,600	1	Subject to the determination of the respective fund manager.	N/A	Daily redemption, upon notice.	N/A

The Institute also has a defined contribution 401(k) Savings and Investment Plan (the "Plan") for employees, who are eligible to participate after the start of the next pay period following 30 days of employment. Under the Plan, employees may generally contribute between 2% to 16% of their salary; however, not in excess of IRS limitations. The Institute provides a 100% matching contribution up to 4% of each employee's salary. The Institute contributed \$4,779,600 and \$4,814,300 on behalf of eligible employees to the Plan in 2019 and 2018, respectively. Amounts payable at December 31, 2019 and 2018 totaled \$31,100 and \$17,100, respectively, and are included in the current portion of accrued pension and other benefits in the accompanying consolidated statements of financial position.

The Institute has established a Defined Contribution Retirement Plan under which it makes contributions to accounts established for each employee according to a predetermined schedule of contributions. The employee's retirement benefit is the value of the account. All contributions under the Defined Contribution Retirement Plan are made by the Institute and are not funded through salary deductions (employee contributions). Vesting occurs at the completion of each year of service at a rate of 25% per year until 100% after four years. The Institute contributed \$9,836,700 and \$10,174,400 to this plan in 2019 and 2018, respectively. Amounts payable at December 31, 2019 and 2018 totaled \$73,200 and \$327,400, respectively, and are included in the current portion of accrued pension and other benefits in the accompanying consolidated statements of financial position.

Effective September 1, 2002, the Institute implemented a 457(b) plan for those highly compensated employees who have reached the IRS maximum 401(k) contribution for the year. These employees have the option of continuing their contributions up to the maximum dollar amount under section 457(e)(15) of the Internal Revenue Code of 1986, as amended. All other criteria for eligibility follow the same guidelines as the 401(k) plan. The amounts of \$6,212,000 and \$4,940,600 pertaining to obligations due under the 457(b) plan are accrued and included in accrued pension and other employee benefits at December 31, 2019 and 2018, respectively, and the related 457(b) plan assets are included in investments on the accompanying consolidated statements of financial position.

NOTE 9. NATURAL EXPENSES

The following table summarizes the Institute's natural expense classification presented below for the years ended December 31, 2019 and 2018.

	2019						
	Program Services				Supporting Services		
	Memberships	Periodicals and Media	Conferences	Standards	Public Imperatives	General and Administrative	Total
People costs and related expense	\$ 43,103,100	\$ 88,242,500	\$ 33,724,700	\$ 17,729,100	\$ 4,787,000	\$ 3,148,500	\$ 190,734,900
Conference events and related expense	560,700	50,900	107,606,200	-	47,600	181,600	108,447,000
Commission, licensing, and royalty	666,600	42,030,500	781,400	134,500	1,700	78,700	43,693,400
Travel, meeting, and accomodation	12,556,100	8,222,800	5,228,100	6,927,800	821,000	811,200	34,567,000
Printing publishing expense	7,140,300	12,032,300	2,274,600	799,400	177,000	5,000	22,428,600
Depreciation and amortization	1,537,900	9,790,100	1,946,100	649,900	54,200	1,918,000	15,896,200
Consultants and contractors	2,618,600	5,360,200	1,601,400	4,934,400	273,800	732,400	15,520,800
Maintenance expense	1,709,800	3,688,500	2,669,300	538,300	-	1,552,300	10,158,200
Computer software and related expense	1,632,100	4,122,000	1,873,000	1,014,700	66,800	188,600	8,897,200
General office expense	3,601,600	3,583,100	511,300	197,000	184,600	200,400	8,278,000
Professional fees	1,920,000	3,887,300	982,100	203,400	-	30,700	7,023,500
Marketing and promotions	1,643,200	3,801,800	372,300	6,600	125,100	192,900	6,141,900
Grants, awards, scholarships, and others	1,129,100	264,500	596,000	76,500	3,636,300	199,500	5,901,900
Operating leases and related expense	1,341,800	1,095,200	919,400	215,100	367,500	769,200	4,708,200
Insurance expense	92,400	243,200	478,100	149,900	16,000	176,800	1,156,400
Communication related services	200,700	556,700	100,700	72,900	6,600	4,900	942,500
Bad debt expense	49,900	304,300	17,900	3,400	9,700	-	385,200
Various other expenses	8,186,900	4,371,800	4,804,700	4,610,300	1,745,200	-	23,718,900
Total	\$ 89,690,800	\$ 191,647,700	\$ 166,487,300	\$ 38,263,200	\$ 12,320,100	\$ 10,190,700	\$ 508,599,800

	2018						
	Program Services				Supporting Services		Total
	Memberships	Periodicals and Media	Conferences	Standards	Public Imperatives	General and Administrative	
People costs and related expense	\$ 42,681,700	\$ 91,970,200	\$ 33,393,000	\$ 19,482,400	\$ 4,607,300	\$ 2,765,800	\$ 194,900,400
Conference events and related expense	588,900	-	97,694,700	18,200	59,700	204,900	98,566,400
Commission, licensing, and royalty	386,200	42,701,300	757,700	139,700	6,900	138,100	44,129,900
Travel, meeting, and accomodation	11,934,200	7,812,600	5,001,100	5,975,700	1,017,100	880,500	32,621,200
Printing publishing expense	7,182,900	9,892,200	2,147,800	740,800	219,000	7,000	20,189,700
Depreciation and amortization	1,786,700	10,100,200	2,154,100	595,400	53,200	2,012,900	16,702,500
Consultants and contractors	2,328,400	5,515,900	1,621,100	4,771,700	188,400	524,200	14,949,700
Maintenance expense	2,013,900	3,920,200	3,048,100	664,400	-	700,800	10,347,400
General office expense	4,080,100	3,712,200	534,800	227,000	261,500	253,100	9,068,700
Computer software and related expense	1,527,700	4,072,900	2,128,600	917,400	57,000	151,800	8,855,400
Professional fees	2,097,300	3,990,500	1,255,500	276,600	-	10,900	7,630,800
Grants, awards, scholarships, and others	946,900	180,000	566,900	117,600	5,277,400	199,700	7,288,500
Marketing and promotions	1,811,200	4,397,500	555,300	1,400	194,200	163,500	7,123,100
Operating leases and related expense	1,418,900	1,232,500	914,600	211,600	304,400	1,766,900	5,848,900
Bad debt expense	8,700	1,355,600	-	-	-	26,200	1,390,500
Insurance expense	119,700	232,100	445,200	142,400	10,300	180,700	1,130,400
Communication related services	231,900	600,400	135,500	89,000	7,500	2,700	1,067,000
Various other expenses	7,849,400	1,696,200	5,985,400	4,110,800	2,199,300	-	21,841,100
Total	\$ 88,994,700	\$ 193,382,500	\$ 158,339,400	\$ 38,482,100	\$ 14,463,200	\$ 9,989,700	\$ 503,651,600

Management has reviewed all overhead costs and determined that it is appropriate to allocate the majority of these costs to the program services. There are a number of allocation methodologies that are used focusing on the location where the costs are incurred along with staffing levels and program service cost incurred prior to allocations. Included in these allocations are approximately \$61 million and \$57 million of Society administrative, committee, and executive expenses and approximately \$55 million and \$58 million of indirect corporate overhead charges in 2019 and 2018, respectively.

NOTE 10. ADDITIONAL INFORMATION PRESENTED BY ACTIVITY

The following presents the Institute's consolidated financial results presented in a traditional surplus or loss format for the years ended December 31, 2019 and 2018. This format differs from the accompanying consolidated statements of activities, which present the financial results by the types of products and services sold. The surplus and loss presents the same data pertaining to the nature of activities.

	2019	2018
Net Revenues	\$ 556,769,200	\$ 531,945,200
Less: Cost of revenues	245,868,200	235,354,700
Direct Contribution to surplus	\$ 310,901,000	\$ 296,590,500
Expenses:		
Selling	\$ 39,988,700	\$ 41,390,200
Marketing	32,476,300	32,044,900
Product design	6,718,400	7,087,800
Supporting services	171,228,000	173,310,700
Contribution to surplus	\$ 60,489,600	\$ 42,756,900
Public imperatives, net	(9,604,400)	(10,697,400)
Nonoperating activities:		
Investment (loss) income, net	\$ 73,006,100	\$ (19,593,900)
Pension (expense) / benefit	(1,554,900)	2,875,100
Surplus before tax	122,336,400	15,340,700
Income tax benefit	744,700	2,421,800
Net surplus after tax	\$ 123,081,100	\$ 17,762,500

A description of each line item is discussed below:

Revenues: Net earnings from the sales of products and services.

Cost of Revenues: Direct costs incurred in producing or providing products and services that are sold and generate revenue.

Selling: Expenses incurred in the effort to sell products or services, includes commissions and other related expenses.

Marketing: Expenses incurred in an effort to possibly generate additional sales of existing products or services, including brand awareness, promotions, displays, and media.

Product Design: Expenses incurred in relation to developing new products and services to be sold in the future.

Supporting Services: This is also referred to as general and administrative expenses. This caption includes operational support and shared services. Operational support includes expenses that are indirectly related to the sale of products and services which generate revenue (e.g., costs associated with conference and event management, volunteer engagement and executive or governance functions). Shared services include general overhead such as Human Resources, Finance, Information Technology, Facilities and other related expenses. The presentation of supporting services, as reported on the accompanying consolidated statements of activities, reflects an allocation of such costs amongst the lines of operation specifically benefited.

Public Imperatives: Public imperatives are outreach and public awareness efforts to inform the public and members about technology and the engineering profession.

NOTE 11. LIQUIDITY RESOURCES

The Institute's primary source of operating funds is derived from the sale of products and services for its memberships, periodicals, conferences and standards. These activities are intended to advance technology for humanity. The Institute has various sources of liquidity at its disposal, including cash and cash equivalents, and investments.

The following table reflects the Institute's financial assets as of December 31, 2019 reduced by amounts that are not available to meet general expenditures within one year of the statement of financial position date because of contractual restrictions or donor restrictions.

Financial assets as of December 31	2019
Cash and cash equivalents	\$ 22,122,700
Accounts receivable, less allowance for doubtful accounts	41,699,100
Investments, at fair value	649,793,000
Investments - other	2,537,000
Total financial assets available within one year	716,151,800
Less:	
Amounts held on behalf of IEEE Board-designation	20,400,000
Amounts held on behalf of IEEE Foundation, Incorporated	48,367,900
Amounts subject to expenditure for specified donor purposes	1,298,900
Amounts relating to endowment funds with donor restrictions	589,300
Total amounts unavailable for general expenditures within one year	70,656,100
Financial assets available to meet cash needs for general expenditures within one year	\$ 645,495,700

NOTE 12. NET ASSETS AND ENDOWMENT FUNDS

Net assets with donor restrictions are available for the following purposes at December 31, 2019 and 2018:

	2019	2018
Grant funds held for specific purposes	\$ 880,400	\$ 856,600
Funds held for awards, medals and other specific purposes	418,500	406,200
Donor-restricted endowment funds, including accumulated unspent appreciation of \$397,900 and \$342,600	589,300	534,000
	\$ 1,888,200	\$ 1,796,800

Net assets were released from donor restrictions by incurring expenses satisfying the restricted purposes for the years ended December 31, 2019 and 2018 as follows:

	2019	2018
Grant funds released for specific purposes	\$ 115,900	\$ 206,300
Funds released for awards, medals and other specific purposes	10,200	16,200
	\$ 126,100	\$ 222,500

Donor-imposed endowment net assets at December 31, 2019 and 2018 consist of assets that have been restricted by donors to be invested in perpetuity to provide a permanent source of income. The Institute's donor-restricted endowment consists of eleven (11) individual funds established principally for awards.

On September 17, 2010, the State of New York passed the NYPMIFA, its version of the Uniform Prudent Management of Institutional Funds Act. All not-for-profit organizations formed in New York must apply this law. The Institute classifies as net assets with donor restrictions, unless otherwise stipulated by the donor: (a) the original value of gifts donated to its donor-restricted endowment, (b) the original value of subsequent gifts to its donor-restricted endowment and (c) accumulations to its donor-restricted endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the funds.

In accordance with NYPMIFA, the Institute considers the following factors in making a determination to appropriate or accumulate donor-restricted endowment funds: the purpose, duration, and preservation of the endowment fund; expected total return on endowment investments; general economic conditions; the possible effects of inflation and deflation; other resources of the Institute; and, the investment policy of the Institute.

The Institute has adopted investment management and spending policies for its donor-restricted endowment assets which totaled \$589,300 and \$534,000 as of December 31, 2019 and 2018, respectively. This supports the objective of providing a sustainable and increasing level of donor-restricted endowment income distribution to support the Institute's activities while seeking to maintain the purchasing power of the endowment assets. The Institute's primary investment objective is to maximize total return within reasonable and prudent levels of risk while maintaining sufficient liquidity to meet disbursement needs and ensure preservation of capital.

To satisfy its long-term rate-of-return objectives, the Institute relies on a total return strategy, the objective of which is to achieve a return consisting of a combination of current income and capital appreciation, without regard to an emphasis on either, recognizing that changes in market conditions and interest rates will result in varying strategies in an attempt to optimize results. The endowment portfolio is diversified among various investment classes and strategies to help reduce risk.

The following table summarizes the Institute's total return on donor-restricted endowment investments and the changes in donor-restricted endowment net assets for the years ended December 31, 2019 and 2018:

	2019		
	Without Donor Restrictions	With Donor Restrictions	Total
Donor restricted endowment funds	\$ -	\$ 589,300	\$ 589,300

	2019		
	Without Donor Restrictions	With Donor Restrictions	Total
Endowment assets, beginning of year	\$ -	\$ 534,000	\$ 534,000
Dividends and interest	-	13,200	13,200
Net realized and unrealized appreciation in fair value of endowment assets	-	51,900	51,900
New gifts	-	-	-
Endowment return used for operations	-	(9,800)	(9,800)
Endowment assets, end of year	\$ -	\$ 589,300	\$ 589,300

	2018		
	Without Donor Restrictions	With Donor Restrictions	Total
Donor restricted endowment funds	\$ -	\$ 534,000	\$ 534,000

	2018		
	Without Donor Restrictions	With Donor Restrictions	Total
Endowment assets, beginning of year	\$ -	\$ 565,200	\$ 565,200
Dividends and interest	-	12,100	12,100
Net realized and unrealized appreciation in fair value of endowment assets	-	(27,500)	(27,500)
New gifts	-	-	-
Endowment return used for operations	-	(15,800)	(15,800)
Endowment assets, end of year	\$ -	\$ 534,000	\$ 534,000

NOTE 13. OPERATING LEASES

At December 31, 2019, minimum rental commitments due under noncancellable operating leases for office space and computer equipment are as follows:

Year	Amount
2020	\$ 3,430,700
2021	3,294,800
2022	2,831,900
2023	2,765,300
2024	2,670,200
Thereafter	6,135,100
	\$ 21,128,000

The leases for the office space are subject to escalation. Total rent expense for noncancellable operating leases amounted to \$4,216,600 and \$4,429,100 in 2019 and 2018, respectively.

NOTE 14. RELATED-PARTY TRANSACTIONS

IEEE Foundation, Incorporated

The Institute has transactions with IEEE Foundation, Incorporated (the "Foundation"), a related organization, which performs activities in support of the scientific and educational functions and programs of the Institute. The Institute made cash contributions of \$409,000 and \$395,000 in 2019 and 2018, respectively, to the Foundation.

The Foundation has no staff and thus, receives certain accounting and administrative services from IEEE. The Foundation reimbursed IEEE for the cost of such services, which amounted to \$809,900 and \$790,900 during 2019 and 2018, respectively. The Institute provided fundraising administrative services (contributed services) during 2019 and 2018 that were not reimbursed by the Foundation, that were valued at \$1,286,600 and \$1,273,300 during 2019 and 2018, respectively.

The Institute held on deposit \$48,367,900 and \$42,188,300 from the Foundation at December 31, 2019 and 2018 respectively, and is separately reported on the accompanying consolidated statements of financial position. The Institute invests these amounts on behalf of the Foundation. Receivables due from the Foundation include grants receivable of \$1,807,400 and \$2,057,900 at December 31, 2019 and 2018, respectively, and other receivables of \$79,500 and \$152,500 at December 31, 2019 and 2018, respectively, and are included in accounts receivable on the accompanying consolidated statements of financial position. Amounts due to the Foundation of \$121,600 and \$135,600 at December 31, 2019 and 2018, respectively, are included in accounts payable and accrued expenses on the accompanying consolidated statements of financial position.

Letters of Credit

At December 31, 2019, the Institute had irrevocable standby letters of credit with Wells Fargo Bank, N.A., in the amount of \$583,000, which serves as security deposit as required by the terms of its lease agreements with Three Park Avenue Building Company, LP and 2001 L Street, LLC, respectively.

At December 31, 2019, the Institute had issued standby letters of credit in relation to certain dealers' agreements and VAT tax payments totaling \$405,100 with HSBC Bank USA, N.A. The Institute is charged 2% of the face amount, upon issuance, of the standby letters of credit.

Litigation

The Institute, in the normal course of its operations, is a party to various legal proceedings and complaints, some of which are covered by insurance. While it is not feasible to predict the ultimate outcomes of such matters, management of the Institute is not aware of any claims or contingencies, which are not covered by insurance, that would have a material adverse effect on the Institute's consolidated financial position, changes in net assets or cash flows.

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